



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
(formerly National Bureau of Standards)
Gaithersburg, Maryland 20899

(301) 975-6210
FTS 879-6210
FAX (301) 921-9847

April 25, 1990

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

Subject: Shim No. 1 Drive, Docket No. 50-184

Gentlemen:

On April 17, 1990, during a routine shutdown from 2 KW, Shim No. 1 failed to drop from 12 degrees upon manual scram. The scram was reset and the shim was driven to the lower limit. Routine reactor shutdown is achieved by driving the shims to 12 degrees, which is about the edge of the shock absorber, followed by a manual scram. On that day, several startups and shutdowns were made for operator training at power levels up to 2 KW. Five times earlier, Shim No. 1 scrambled normally from 12 degrees. Two weeks before, surveillance tests were normal.

The drive mechanism was removed and the shim arm was moved manually with no binding observed. The clutch plate appeared difficult to turn by hand upon removal and the mechanism did not seem to turn freely when placed on the bench. The mechanism was disassembled, inspected and cleaned. The ball nut assembly had some specks of "dirt" but no sign of excessive wear. The lower taper bearing seemed a little rough and the input shaft bearing appeared a little loose but not much different than normal. The two bearings were replaced and the mechanism was carefully cleaned and reassembled. The mechanism was run several times on the test stand and functioned normally.

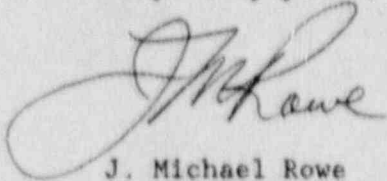
9004300153 900425
PDR ADOCK 05000184
S PDC

IF22
1/0

Page 2 -

It was then reinstalled in place, and in and out traces and five degree drop tests were performed with excellent results. The reactor was restarted within a few hours with all indications normal. It appears that a combination of small items caused the shim not to drop the final short distance in the shock absorber. The drive mechanism will be carefully checked during the next scheduled surveillance tests.

Very truly yours,

A handwritten signature in cursive script, appearing to read "J. Michael Rowe".

J. Michael Rowe
Chief, Reactor Radiation Division

cc: Director, Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Project Inspector
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406