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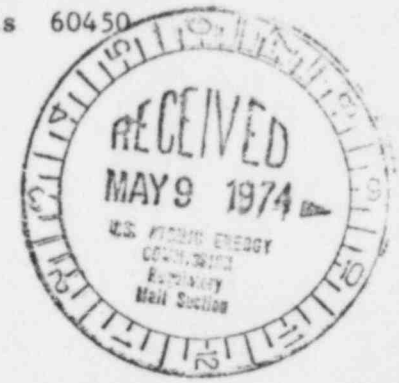
BBS Ltr #326-74

Dresden Nuclear Power Station
R. R. #1
Morris, Illinois 60450
May 6, 1974



Mr. J. F. O'Leary, Director
Directorate of Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

50-249

SUBJECT: LICENSE DPR-25, DRESDEN NUCLEAR POWER STATION, UNIT #3, REPORT OF ABNORMAL OCCURRENCE PER SECTION 6.6.B.1.a OF THE TECHNICAL SPECIFICATIONS
TORUS LOW LEVEL RESULTING FROM FALSE LEVEL INDICATION AND RESULTANT OPERATOR ACTION

References: 1) Notification of Region III of AEC Regulatory Operations
Telephone: Mr. H. Dance, 1105 hours on April 29, 1974
Telegram: Mr. J. G. Keppler, 1330 hours on April 29, 1974

2) P&ID M-356

Dear Mr. O'Leary:

This letter is to report a condition relating to the operation of the unit at about 2200 hours on April 27, 1974. At this time, it was noted that the torus level indication had increased after rejection of water had commenced. The rejection of water had been initiated subsequent to receiving a high torus level alarm and indication.

This malfunction is contrary to section 3.7.A.1, which requires a minimum water volume of 112,000 ft^3 in the torus.

PROBLEM

The unit was in the refuel mode with a water temperature of 80°F when the high level alarm annunciated. This alarm initiates at -2". Shift personnel lined up the system to reject water to Unit 2/3 Radwaste and started the transfer. After pumping approximately 4900 gallons to radwaste, it was noted that the level indication had increased to +1½". The level transmitter (2-1626) was found to be indicating incorrectly when the operator visually observed the torus level to be noticeably low. Visual observation was possible since the torus access hatches were open to the reactor building.

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The operator tapped the low point impulse line several times and the indication returned to actual level, which was -7". The shift immediately started refilling the torus to bring the status into compliance with the Technical Specifications.

An Instrument Mechanic was called in to calibrate the transmitter to assure it was reading correctly. Calibration revealed proper indication and clear taps. The torus was filled to -3.5" by 0350 hours on the 28th. At this point, the torus level was within compliance (Technical Specification range is -1½" to -5½").

The level transmitter provides torus level indication on panel 903-3. It also annunciates a Hi/Low level alarm on panel 903-3.

INVESTIGATION

Prior to calibration, the impulse lines were checked to be clear. The tapping by the operator had apparently vibrated the transmitter sufficiently to clear whatever had caused the false indication. The upper and lower taps were checked to be clear of obstructions by the Instrument Mechanic. Calibration of the indicator (transmitter) verified proper functioning at the time of calibration. The transmitter, manufactured by Barton Co., had been calibrated two days prior to the occurrence. It was found to be indicating approximately ¼" low at this earlier calibration. The impulse taps were checked clear at this time also.

Investigation of the occurrence revealed that there was no physical reason for the initial high level alarm other than a transmitter problem. Subsequent observation of an increasing level indication during rejection of water and correct indication after tapping the transmitter also indicate poor transmitter operation.

CORRECTIVE ACTION

As mentioned, the transmitter was calibrated and the impulse legs were checked clear. There is presently no scheduled surveillance on the transmitter and procedures require operations to respond to the level indication with no checks on level indication accuracy.

In the future, via a procedure revision and a modification, the operator will respond to a level alarm and/or improper level indication by visually checking level with a sight glass which he can readily valve in service at the transmitter. Operating's response will be based on both the remote and actual level indication. If there is a discrepancy between the two sets of data, an Instrument Mechanic will be immediately called in to correct the problem.

The sight glass modification will be installed on both Unit 3 and Unit 2. The valving to be used for this modification is presently installed as part of the existing level sensing system. In addition to installation of the sight glass, tags will be placed on the valves indicating they are normally closed and should be opened only to check torus level under special circumstances.

A six month surveillance program requiring calibration of the transmitter will also be instituted. The surveillance will be started as of May 15, 1974.

EVALUATIONS

Proper operation of the level transmitter had been verified two days prior to the occurrence. As indicated in the Technical Specifications Bases Section 3.7.A, "The pressure suppression chamber water volume must absorb the associated decay and structural sensible heat released during primary system blowdown from 1000 psig". The limits specified for torus level and temperature are based on the volume of reactor coolant to be condensed during a blowdown. The reactor mode switch was in refuel at the time of the occurrence with moderator temperature at 80°F and the reactor cavity was flooded. Therefore, the ability to maintain core flooded and cool under accident conditions was not affected by this occurrence.

The action initiated by shift personnel and the Instrument Mechanic were appropriate for the given conditions.

Since the same type of transmitter failure could occur during power operation, the corrective action indicated is mandatory. Lack of proper level indication would be intolerable under this condition. The installation of the sight glass and the procedure revision should eliminate any possibility of a similar occurrence.

There is no previous history of failure of this system. During startup tests on Unit 2, the level sensing system was revised to a closed type sensing transmitter to avoid evaporation of the reference leg.

This occurrence poses no reason for limiting future operation of Unit 2 or 3.

Sincerely,

B. B. Stephenson
Superintendent

BBS:JR:do