



Commonwealth Edison Company

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

April 27, 1970



Dr. Peter A. Morris, Director
Division of Reactor Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Dr. Morris:

The purpose of this letter is to inform you of an unusual operating experience on Dresden Unit One. This experience was the failure of three safety system sensors to operate normally during a routine test.

The three sensors, LSL-1, 2, and 3, that failed are part of a four sensor system used as a backup for the primary drum low level scram. The system also acts as one of the sphere isolation initiations if the water level reaches its set point. The sensors are float-type magnetrol devices.

On April 17, during a unit outage with the reactor in shutdown, a routine test of these switches by the Operating Department showed the three switches inoperative. A flushing of the sensor float chambers was initiated and, after completion, the switches were rechecked and all operated properly.

The proper operation of these switches after flushing indicated that a crud buildup sufficient to impair the switch operation had taken place. Over the years these switches have been flushed to insure their operability and reduce radiation levels. During operation a small flow of reactor water is present through the float chamber and over a ten-year period it is possible that clearances have been reduced so that an upset and introduction of reactor crud could cause a reduction in operability of these switches. These are the only safety system switches subjected to a steady flow of reactor water. The test crew reported that any vibration would have caused switch operation; however, artificial vibration is not part of the test procedure.

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Dr. Peter A. Morris

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A possible explanation for the sensor failure is as follows: On April 15, a full power scram took place which raised the reactor water turbidity and, over the next two days, could have caused enough crud to settle out in these switches to impair operation. This explanation, of course, is conjecture, and the condition of these switches during the three months of steady operation since the last time the sensors were flushed and checked for proper operation will never be known.

To insure continued operability of these switches, the station will do the following:

1. Test these switches on a once-a-month basis until the 1971 Refueling Outage.
2. Flush the switches at each outage, but not more than once a month until the 1971 Refueling Outage.
3. Flush the switches after each scram from power.

During the 1971 Refueling Outage, the station will replace these drum low level switches with differential type switches similar to those used on Units 2 and 3. This type of switch will eliminate the radiation and crud deposition problem since there is no flow through it during operation and it is backfilled during refueling outages.

Very truly yours,



H. K. Hoyt
Superintendent