



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
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September 30, 1997

MEMORANDUM TO: Charles E. Rossi, Director
Safety Programs Division, AEOD

FROM: *JWR*
Jack W. Roe, Acting Director
Division of Reactor Program Management, NRR

SUBJECT: SYNOPSES FOR ABNORMAL OCCURRENCE DECISIONS INVOLVING 2
SEPARATE EVENTS AT OCONEE

A question was raised to NRR about whether either of two events at Oconee should be considered as a potential abnormal occurrence, thereby potentially reportable to Congress as an abnormal occurrence. NRR reviewed information related to the two events, developed a bases for a decision and made a decision regarding each suggested event. A synopsis was prepared for each event and is provided in a subsequent paragraph.

Our decisions utilized the final abnormal occurrence criteria approved by the Commission for publication in the Federal Register and contained in Management Directive 8.1, "Abnormal Occurrence Reporting Procedure." In addition, a copy of this memorandum is being placed in the Public Document Room, based upon instruction contained in SRM-193, November 7, 1996.

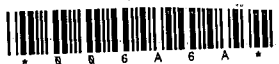
SYNOPSES

1. On April 22, 1997, a leak of reactor coolant greater than 1 gpm from an unidentified source led to a shut down of the Oconee Unit 2 reactor. The leak source was subsequently identified as being from a circumferential weld crack in the 2.5 inch diameter high-pressure-injection (HPI) line. The crack could not be isolated from the reactor coolant system and was found to extend 360 degrees around the inside wall. Approximately 70 degrees of the crack was through-wall. The crack was classified by the staff as a significant event because the licensee's inspection program was inadequate and allowed the crack to develop undetected. Since the reactor system was designed to withstand the failure of a larger diameter pipe and the potential consequences of a crack failure are within that previous analyzed, the crack is considered undesirable and unexpected, but not of a sufficient size to warrant being called an abnormal occurrence. The licensee had previously committed to an augmented inspection program for the HPI lines but failed to fully implement the augmented program. Had the augmented program been carried out as originally planned, it is likely that the pipe crack would have been discovered earlier, and corrected before a leak developed.

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2. On May 3, 1997, during a cooldown of Oconee Unit 3, two of the three HPI pumps were damaged as a result of an inaccurate letdown storage tank (LDST) level-sensing system. One HPI pump was being used for normal makeup to the reactor coolant system during the cooldown. The inaccuracy was caused by a loss of water in the reference leg that was shared by both channels of level instrumentation. As a result, the displayed level was significantly higher (54 inches of a total span of 100 inches) than the actual level and the pumps were operated while taking suction on an empty tank. This condition caused the operating pump to cavitate and the standby pump to start automatically on low flow. As a result, two HPI pumps were taking suction on an empty tank, severely damaging both.

During an actual safety injection actuation, the suction isolation valve to the LDST remains open and the suction isolation valve to the borated water storage tank (BWST) opens. All three HPI pumps receive a start signal and take suction on both the LDST and the BWST. With the two tanks cross-tied, the potential existed for the loss of all HPI pumps as a result of gas binding. Loss of all three HPI pumps during a small break loss-of-coolant accident would potentially result in a core melt unless operators are able to successfully depressurize the reactor coolant system so that low-pressure safety injection can be used to provide cooling. An evaluation by the licensee determined that the HPI system (pumps) may have been unable to perform the safety function for an extended period, from January 22 to May 3, 1997. (The inventory in the level system reference leg had last been checked on January 22, 1997, but it could not be determined when the reference leg inventory actually decreased.) The potential loss of pumps was classified by the staff as a significant event because of the risk implications of the event and the licensee's programmatic weaknesses. The risk associated with inoperable HPI system for an extended period of time is sufficiently large to justify this condition being proposed as an abnormal occurrence.

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