

December 17, 1990

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-IV-90-44

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region IV staff on this date.

FACILITY: Fort Calhoun Station  
Omaha Public Power District  
DN: 50-285

Licensee Emergency Classification:  
 Notification of Unusual Event  
 Alert  
 Site Area Emergency  
 General Emergency  
 Not Applicable

SUBJECT: RCS Leakage (.3 gpm) through CEDM 9

On December 14, 1990, at 7:30 p.m. (CST), the licensee commenced a reduction in power from 100 percent in order to locate the source of unidentified reactor coolant system (RCS) leakage. The plant entered Hot Standby (Mode 2) on December 15 at 4:26 a.m.

The Fort Calhoun Station has experienced unidentified RCS leakage in the range of 0.3 to 0.4 gpm since October 1990. This was below the Technical Specification limit of 1.0 gpm allowable. Initial attempts at locating the source of the leak were unsuccessful.

The licensee formed, in November, a small internal group to attempt to locate the source of the RCS leakage.

Based upon the results of its investigation and alarms received on fire detectors near the cooling fans for the control element drive mechanisms (CEDMs), the licensee determined that a primary leak existed in the area of the reactor vessel head. Thus, licensee management decided on December 14 to reduce power and perform an inspection of the reactor vessel head area. On December 15 a containment entry was made and boric acid crystals were discovered around CEDM 9 in the area of three concentric welds.

On the same day a second containment entry was performed to remove enough of the boric acid crystals to pinpoint the source of the leak. This indicated that a weld was not leaking, but a small crack in the CEDM 9 housing probably existed. CEDM 9 is one of four spare CEDM nozzles that were designed for additional reactivity control if plutonium recycled fuel were used. Two of the spare nozzles (CEDMs 9 and 13) are blind flanged above the vessel head. CEDMs 9 and 13 contain a natural circulation spoiler which prevents recirculation of hot reactor coolant from reaching the top of the housing, thus reducing the chance of thermal stress. The licensee suspects that either the spoiler may have eroded the housing or that a manufacturing defect may exist. Current plans are to use a boroscope to inspect the inside of the CEDM 9 housing. This will occur probably on December 19 after the system is cooled and depressurized.

The licensee has contacted the architect-engineer (Combustion Engineering) and will determine a course of action once the boroscope inspection has been completed.

As of 7 a.m. on December 17, the plant is in Cold Shutdown (Mode 4) with RCS temperature at 193°F and pressure at 207 psia.

RIV:D:DRP  
SJCcollins;df  
12/17/90

RA *[Signature]*  
RDMartin  
12/17/90

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PDR I&E  
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Region IV received notification of this occurrence by telephone from the resident inspector at the Fort Calhoun Station. Region IV has informed the Office of the Executive Director of Operations, NRR, and the regional Public Affairs Officer. The licensee plans to issue a press release.

This information has been confirmed with a licensee representative.

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