

TOLEDO EDISON COMPANY
DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE
SUPPLEMENTAL INFORMATION FOR LER NP-33-80-94

DATE OF EVENT: October 8, 1980

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Gross back leakage detected through CF30, Core Flood Tank 1-2 to Reactor Vessel Check Valve, and out of specification pressure in Core Flood Tank 1-2

Conditions Prior to Occurrence: The unit was in Mode 3 with Power (MWT) = 0 and Load (Gross MWE) = 0.

Description of Occurrence: On October 8, 1980 at 1030 hours during the performance of ST 5050.03, Phase III Core Flood Check Valve Leak Test, gross back leakage was observed through Core Flood Check Valve CF30. This check valve is the final valve on the core flood/low pressure injection line into the reactor vessel. This gross back leakage during this test resulted in the core flood tank being pressurized above its technical specification limit of 625 psig through the test line. As soon as the pressure increase was detected, the operator began to isolate the test line. But because the leakage was extreme, the response was not fast enough to prevent the core flood tank pressure from increasing to 650 psig.

The slight overpressurization of the core flood tank entered the station into the action statement of Technical Specification 3.5.1 which requires the tank to be returned to between 575 and 625 psig within one hour. The requirement was met.

Designation of Apparent Cause of Occurrence: When the swing check cover was pulled off it was immediately noticed that the disc unit was disengaged from the body block. The two hex bolts and the locking bracket used to keep the disc unit intact were not there. Some slight scratches were noted on the body and the disc seating face. There was no indication of stud shearing or breaking.

This valve had been disassembled once previously for relapping purposes which required the disc unit to be removed and reassembled. It is believed that this work was done in late 1976 prior to fuel in the core and prior to turnover from construction. A check is currently being made of construction records for documentation of this work. Since there was no indication of stud shearing or breaking and taking into consideration that the normal torque load for the 5/8 inch bolt would be 85 ft. lbs. and with a 1/16 inch back bracket, the locking mechanism would not loosen and unscrew itself during operation. Therefore, it is suspected that there was an error in reassembly, such as a lack of torque on the bolts plus a failure to properly bend the ears of the locking bracket up over the bolt head. Another possibility is that the locking bracket was not installed. A check of similar valves showed the problem to be isolated in CF30. An identical valve, CF31, and two additional valves, CF29 and CF28, in this system were found in excellent condition.

LER #80-076

The slight overpressurization of the Core Flood Tank 1-2 was caused by a procedure which had not taken into account the possibility of this gross back leakage and the extra care that must be used in opening the test line to the Core Flood Tank. There was a precaution in the procedure but it did not go far enough or slow enough in the opening of the test line to catch this gross leakage and high pressure and still be able to respond to isolate the line. As soon as the alarm came in, indicating pressure at 617 psig, action was taken but the manual valve was open too far, and by the time it was isolated, the pressure on the Core Flood Tank had reached 650 psig.

Analysis of Occurrence: There was no danger to the health and safety of the public or to station personnel. This mislocated disc would not have prevented the core flood train or the low pressure injection train from functioning had it been needed. Overpressurization protection of the core flood tank was still provided by CF28 and protection of the decay heat train was still provided by check valve DH76. The core flood tank is protected from structural damage by relief valve CF7A which lifts at 700 psig. The redundant core flood and low pressure injection train was operable. Babcock and Wilcox has determined that the missing bolts and locking plate would not cause any damage to the reactor coolant system.

Corrective Action: Since it was initially thought that the disc was stuck open, the valve was mechanically agitated under Maintenance Work Order (MWO) 80-3396, but no effect was seen. Under MWO 80-3397 the valve was vibrated and the same results observed. Under MWO 80-3400 the valve was disassembled and revealed the missing bolts and locking plate. New hanger bolts and a locking plate were properly installed. The valve was reassembled and was successfully tested under ST 5050.03 on October 30, 1980. The similar valve in the other train, CF31, was inspected and was found to be completely intact. CF29 and CF28 were also checked and also found intact.

The Core Flood Check Valve Leak Test ST 5050.03 has been modified to provide additional precautions, see T-5178.

Failure Data: There have been no previous similar reportable occurrences of out of specification pressure on the Core Flood Tank, nor have there been previous reports of check valve internals loosening.