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Docket Number 50-346

License Number NPF-3

Serial Number 1966

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United States Nuclear Regulatory Commission  
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Subject: Request for Relief to Allow Temporary Non-Code Repairs of  
Service Water Piping in Accordance with Nuclear Regulatory  
Commission (NRC) Generic Letter (GL) 90-05

Gentlemen:

By letter dated July 3, 1991 (Serial Number 1955), Toledo Edison requested Nuclear Regulatory Commission (NRC) approval of temporary non-Code repairs for two through-wall leaks discovered on June 21, 1991 in service water system (SW) piping at the Davis-Besse Nuclear Power Station (DBNPS) Unit 1. The purpose of this letter is to clarify and expand information provided by Toledo Edison's July 3, 1991 letter as requested by the NRC staff in a telephone call on July 23, 1991.

The two leaks were discovered in moderate energy, American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section III, Class 3, SW piping. One leak was located in 4", Schedule 40 SW piping in the Decay Heat (DH) Cooler room. The other leak was discovered in 3", Schedule 40 SW piping in the Number 1 Emergency Core Cooling System (ECCS) Pump room.

As stated in Toledo Edison's July 3, 1991 letter, bounding flaw sizes of 15% of the pipe circumference were evaluated for the combination of sustained (deadweight and pressure), thermal, and safe shutdown earthquake stresses at the actual flaw locations. The bounding flaw sizes ("2a") corresponding to 15% of the pipe circumference, are 2.12" for the 4" pipe and 1.65" for the 3" pipe. Toledo Edison's July 3, 1991 letter described the actual flaw dimensions in comparison to the evaluated bounding flaw sizes.

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Consistent with the guidance provided by the NRC Safety Evaluation (Log Number 3303, dated August 20, 1990, TAC Number M77037) of Toledo Edison's previous request (Serial Number 1825 dated July 10, 1990) for approval of a non-Code repair under NRC Generic Letter (GL) 90-05 (Log Number 3258 dated June 15, 1990), the nominal pipe thickness (tnom) is substituted for the Code minimum pipe thickness (tmin) in the "through-wall flaw" approach discussed in GL 90-05. For 3", Schedule 40 pipe tnom is 0.216". For 4", Schedule 40 pipe tnom is 0.237".

Toledo Edison's letter dated July 3, 1991 stated that Toledo Edison had evaluated the effects of system interactions (such as flooding, spraying water on equipment and loss of system flow) assuming the absence of the clamp and considering the flaw location and area sump capacity, and found them to be negligible. The following expands the description of the factors considered by Toledo Edison in reaching this conclusion.

The components in the Decay Heat Cooler room and Number 1 ECCS Pump room are spray protected and no adverse effects will be created by water spray from the leaks in the service water piping. The leakage through the pipe flaw without the pipe clamps installed does not spray on any electrical component. Therefore, the decay heat pump, high pressure injection pump, and the containment spray pump are not affected by the spray of the service water leaks. In addition, the pipe clamps have a rubber liner to seal the defect area and minimize any leakage.

The potential for flooding of the Decay Heat Cooler room and Number 1 ECCS Pump room as a result of the service water leaks has been reviewed. Each room has two 75 gallon per minute (gpm) capacity sump pumps. The sump pumps have level switches and associated alarms, and are powered from an essential bus. Should the pipe clamp come loose and the leak rate become severe enough to potentially flood the room, the level alarms associated with the sump pumps will alert the control room. At the current leak rates of approximately 4 gpm without the pipe clamps installed, flooding is not a problem. Should the defects open to the maximum allowable size (i.e., 15% of the pipe circumference), the leak rates will still be within the capacity of the sump pumps. Weekly inspections of the pipe clamps and assessment of leakage provide assurance that the pipe clamps are intact and flooding of the rooms is not occurring.

The ECCS room coolers in Number 1 ECCS Pump room are not affected by the leaks in the service water piping. Airborne spray would be collected by the room coolers. The room coolers in this room are supplied with cooling water under normal conditions by the unaffected Number 1 Service Water loop. The flow rates through the coolers are not affected by the leaks in the Number 2 Service Water loop. The Numbers 1 and 2 ECCS Room Coolers are supplied from the Number 2 Service Water loop. Consequently, the flow rates through these coolers could be affected by the pipe leaks. However, with the non-Code repairs in place, flow through these ECCS room coolers are unaffected by the leak. At the current leak rate with the non-Code repairs removed, the maximum flow reduction through any one of these coolers is approximately 4 gpm and is acceptable considering the ambient and service water temperatures. Weekly inspection of the non-Code repairs provides assurance that the Number 2 Service Water loop ECCS room coolers will not have reduced flow.

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If you have any questions regarding the information provided by this letter, please call Mr. R. W. Schrauder, Manager - Nuclear Licensing at (419) 249-2366.

Very truly yours,



PWS/ach

Attachment

cc: P. M. Byron, NRC Region III, DB-1 Senior Resident Inspector  
A. B. Davis, Regional Administrator, NRC Region III  
J. B. Hopkins, NRC/NRR DB-1 Senior Project Manager  
Utility Radiological Safety Board