APPLICATION FOR AMENDMENT

TO

FACILITY OPERATING LICENSE NUMBER NPF-3

DAVIS-BESSE NUCLEAR POWER STATION

UNIT NUMBER 1

Attached is the requested change to the Davis-Besse Nuclear Power Station, Unit Number 1, Facility Operating License Number NPF-3. Also included is the Safety Assessment and Significant Hazards Consideration and the Environmental Assessment.

The proposed change (submitted under cover letter Serial Number 2367) concerns:

Appendix A, Technical Specification 3/4.5.2 - Emergency Core Cooling Systems, ECCS Subsystems - $T_{avg} \geq 280$ °F.

For: John P. Stetz, Vice-President - Nuclear

By: _____
Theodore J. Myers, Director - Nuclear Assurance

Sworn to and subscribed before me this 6th day of March, 1996.

Evelyn L. Dress
Notary Public, State of Ohio

EVELYN L. DRESS
Notary Public, State of Ohio
My Commission Expires 7/28/99

The following information is provided to support issuance of the requested change to the Davis-Besse Nuclear Power Station (DBNPS), Unit Number 1, Facility Operating License Number NPF-3, Appendix A, Technical Specifications. The change involves Technical Specification 3/4.5.2 - Emergency Core Cooling Systems, ECCS Subsystems - $T_{avg} \geq 280$ °F.

A. Time Required to Implement: This change is to be implemented upon NRC issuance of the License Amendment.

B. Reason for Change (License Amendment Request Number 96-0003):

The proposed change would defer the performance of Surveillance Requirement 4.5.2.b for the ECCS flowpath containing HPI pump 1-2 until the Tenth Refueling Outage.

The current TS Action Statement 3.5.2.a requires that, due to inoperability of ECCS subsystem Train 2, the plant be placed in Hot Shutdown (Mode 4) within 12 hours of the expiration of the 72-hour allowed outage time on March 7, 1996, at 1354 hours.

ECCS subsystem Train 2 is considered inoperable due to the discovery that Surveillance Requirement 4.5.2.b cannot be met for a section of High Pressure Injection Pump 1-2 discharge piping downstream of normally closed motor operated discharge valve HP2A.

C. Safety Assessment and Significant Hazards Consideration: See Attachment 1.

D. Environmental Assessment: See Attachment 2

Docket Number 50-346
License Number NPF-3
Serial Number 2367
Attachment 1

SAFETY ASSESSMENT AND SIGNIFICANT HAZARDS CONSIDERATION FOR LICENSE AMENDMENT REQUEST NO. 96-0003

(11 pages follow)

SAFETY ASSESSMENT AND SIGNIFICANT HAZARDS CONSIDERATION FOR LICENSE AMENDMENT REQUEST NO. 96-0003

TITLE:

Revision of Technical Specification (TS) 3/4.5.2 - Emergency Core Cooling Systems, ECCS Subsystems - $T_{avg} \geq 280$ °F.

DESCRIPTION:

The purpose of the proposed change is to modify the Davis-Besse Nuclear Power Station (DBNPS), Unit 1 Operating License NPF-3, Appendix A Technical Specifications (TS). The proposed change would allow a deferment of Surveillance Requirement (SR) 4.5.2.b for a portion of the High Pressure Injection (HPI) system train 2 discharge piping until the Tenth Refueling Outage (10RFO), which is scheduled to begin on April 8, 1996.

Surveillance Requirement 4.5.2.b requires that each ECCS subsystem be demonstrated operable:

> At least once per 18 months, or prior to operation after ECCS piping has been drained by verifying that the ECCS piping is full of water by venting the ECCS pump casings and discharge piping high points.

Toledo Edison is requesting that a license amendment be issued which allows not performing SR 4.5.2.b for a portion of the ECCS HPI Pump 1-2 discharge piping until startup from the 10RFO. This change is requested because the HPI Pump 1-2 discharge piping downstream of Motor Operated Valve (MOV) HP2A does not presently have a vent with which to literally perform SR 4.5.2.b.

With this SR not met the plant must enter Limiting Condition for Operation (LCO) for Action 3.5.2.a, which requires the restoration of the ECCS subsystem (i.e., venting of the piping) within 72 hours or entry into Mode 4 (Hot Shutdown) within the next 12 hours.

Toledo Edison requests that an emergency License Amendment Request (LAR) be processed by the NRC which will annotate SR 4.5.2.b as deferred until 10RFO for the HPI Pump 1-2 discharge piping. This SR 4.5.2.b annotation would state:

> The requirements of this surveillance may be deferred until the Tenth Refueling Outage for the ECCS flowpath which does not have manual high point venting capability.

Toledo Edison plans to install venting capability on the HPI Pump 1-2 discharge piping high point during the 10RFO.

The proposed change is shown on the attached marked-up TS page.

SYSTEMS, COMPONENTS, AND ACTIVITIES AFFECTED:

The systems and components affected are the HPI Pump 1-2 discharge piping downstream of normally closed MOV HP2A. Also affected is SR 4.5.2.b which verifies that the ECCS piping is filled with water.

FUNCTIONS OF THE AFFECTED SYSTEMS, COMPONENTS, AND ACTIVITIES:

The Emergency Core Cooling System (ECCS) is described in the DBNPS Updated Safety Analysis Report, Revision 19 (USAR) Section 6.3, "Emergency Core Cooling System." The ECCS is designed to mitigate the consequences of all breaks of the Reactor Coolant System (RCS) pressure boundary which result in loss of reactor coolant at a rate in excess of the capability of the Reactor Coolant Makeup System up to and including a break equivalent in area to the double-end rupture of the largest pipe of the RCS. The ECCS is made up of the High Pressure Injection System, the Low Pressure Injection System, and the Core Flooding System, each system consisting of two independent trains.

With Reactor Coolant System (RCS) average temperature ≥ 280°F, two independent ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a Loss of Coolant Accident (LOCA) assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the core flooding tanks is capable of supplying sufficient core cooling to maintain the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double-ended break of the largest RCS cold leg pipe on downward. In addition, each ECCS subsystem provides long term core cooling capability in the recirculation mode during the accident recovery period.

The ECCS safety analysis discussed in USAR Section 6.3.3, "Performance Evaluation," was conducted assuming the operation of two Core Flood Tanks, one Low Pressure Injection System, and one High Pressure Injection System.

As part of the ECCS, two complete HPI trains are provided. Each train contains all the equipment necessary to perform the system's function. A ready source of highly borated water is contained in the Borated Water Storage Tank (BWST). The BWST provides water for both HPI trains. Both HPI train suction headers are kept filled and ready for service at all times.

The HPI system injects borated water into the core at high RCS pressure when a LOCA has occurred. Specifically, it is designed to prevent uncovering of the core in the case of a small RCS piping leak of less than 0.5 ft^2 break size. The Safety Features Actuation System (SFAS) senses the LOCA and causes the appropriate valves to stroke and starts the HPI pumps. The HPI pumps move the borated water from the BWST to the RCS.

When a pipe break is large enough to exceed the Makeup System capacity and small enough to maintain pressure above the Low Pressure Injection (LPI) initiation setpoint, the HPI pumps can be aligned to take suction from the Decay Heat (DH) pumps. While the HPI is providing makeup, the water lost from the RCS is being collected in the Containment Emergency Sump. When the BWST is depleted, the DH pumps provide suction to the HPI pumps from the Emergency Sump. Long-term cooling for intermediate size breaks is thus provided by a "piggyback" type operation.

The HPI design is based on several aspects. First, for major ruptures, the HPI system provides initial cooling which prevents fuel temperatures from reaching 2200°F. Secondly, for less severe intermediate size breaks, the HPI system, aligned for piggyback operation, provides long-term cooling when the RCS pressure is greater than the design initiation pressure of the DH/LPI system. Also, the HPI system provides borated water injection for large ruptures in the Main Steam Piping which cause excessive contraction (cooldown) of the RCS.

The discharge piping of each HPI pump splits into two lines for a total of four injection lines. Each injection line has its own normally closed MOV. Each line injects into a separate RCS cold leg.

Surveillance Requirements are provided to ensure the operability of each component and ensure that, as a minimum, the assumptions used in the safety analyses are met and that subsystem operability is maintained. The purpose of SR 4.5.2.b is to verify on an 18-month basis that the ECCS piping is full of water to ensure the system will perform properly, thereby injecting its full capacity into the RCS upon demand.

EFFECTS ON SAFETY:

Three of the four HPI injection lines, downstream of normally closed motor operated discharge valves HP2B, HP2C, and HP2D, have dedicated vent lines at the high points. In the original plant design, a vent line in the high point downstream of valve HP2A was considered unnecessary due to the fact that a continuous flow was provided in this line by the normal RCS makeup flowpath tie-in during normal plant operation. This continuous flow served to ensure that the injection line remained full of water. However, during the Sixth Refueling Outage in 1990, a plant modification was implemented that changed the normal RCS makeup flowpath tie-in from downstream of valve HP2A to downstream of valve HP2B. The impact of this modification on the ECCS venting SR was apparently not recognized.

During the Ninth Refueling Outage (October, 1994) the HPI stop check valves were verified to pass at least 400 gpm forward flow in accordance with plant procedures. This flow rate was well in excess of the amount necessary to purge the 2-1/2" HPI injection lines, ensuring that the lines were filled at the time of the test. As a result, completely filled HPI lines, including the high points can be reasonably expected to exist, thus meeting the purpose of TS SR 4.5.2.b.

To validate this expectation, an Ultrasonic Test (UT) of the high point of the HPI discharge piping downstream of MOV HP2A was performed on March 6, 1996. The UT results indicated that the line was completely filled and that the vertical capped pipe stub remaining from the previously installed 2-1/2" Makeup System line may have a small amount of gas. This is reasonable to expect since the capped pipe stub is vertical to the high point of the HPI line. This UT demonstrated that the purpose of SR 4.5.2.b had been accomplished. Accordingly, the deferral of the 18-month "venting" of HPI discharge piping downstream of MOV HP2A until the 10RFO has no safety significance as it has been demonstrated the line is filled.

Based on similar analyses performed for the discharge piping downstream of MOVs HP2B, HP2C, and HP2D, Toledo Edison has performed an engineering review of the discharge piping downstream of MOV HP2A, and based upon engineering judgment has determined that there will be no unacceptable force on the line in the event of HPI system actuation, even if the line is assumed to be completely void of water.

Since the HPI discharge piping downstream of MOV HP2A has been verified by UT as full, the line is capable of performing its intended function and there is no effect on the DBNPS probabilistic risk analysis.

Accordingly, based on the above, it is concluded that there is no adverse effect on safety by deferring the literal SR 4.5.2.b manual, "venting" of the HPI discharge piping downstream of MOV HP2A until 10RFO.

SIGNIFICANT HAZARDS CONSIDERATION:

The Nuclear Regulatory Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazard exists due to a proposed amendment to an Operating License for a facility. A proposed amendment involves no significant hazards consideration if operation of the facility in accordance with the proposed changes would: (1) Not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) Not create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) Not involve a significant reduction in a margin of safety. Toledo Edison has reviewed the proposed change and determined that a significant hazards consideration does not exist because operation of the Davis-Besse Nuclear Power Station, Unit No. 1 in accordance with these changes would:

1a. Not involve a significant increase in the probability of an accident previously evaluated because no accident initiators, conditions, or assumptions are significantly affected by the proposed deferral of the ECCS venting Surveillance Requirement until the Tenth Refueling Outage. The purpose of the Surveillance Requirement has been met by verifying that the ECCS subsystem Train 2 discharge piping downstream of MOV HP2A is full of water. The proposed change does not result in the operation of equipment important to safety outside their acceptable operating range.

1b. Not involve a significant increase in the consequences of an accident previously evaluated because the proposed change does not change the source term, containment isolation, or allowable releases.

2. Not create the possibility of a new or different kind of accident from any accident previously evaluated because no new accident initiators or assumptions are introduced by the propose change. The proposed change does not result in installed equipment being operated in a manner outside its design operating range. No new or different equipment failure modes or mechanisms are introduced by the proposed change.

3. Not involve a significant reduction in a margin of safety because the proposed change does not have a significant effect on the initial conditions contributing to accident severity or consequences, consequently there are no significant reductions in a margin of safety.

CONCLUSION:

On the basis of the above, Toledo Edison has determined that the License Amendment Request does not involve a significant hazards consideration. As this License Amendment Request concerns a proposed change to the Technical Specifications that must be reviewed by the Nuclear Regulatory Commission, this License Amendment Request does not constitute an unreviewed safety question.

ATTACHMENT:

Attached are the proposed marked up changes to the Operating License.

REFERENCES:

1. Davis-Besse Nuclear Power Station Operating License NPF-3, Appendix A Technical Specifications through Amendment 199.

2. Davis-Besse Nuclear Power Station Updated Safety Analysis Report through Revision 19 USAR Section 6.3, Emergency Core Cooling System.