APPLICATION FOR AMENDMENT

TO

FACILITY OPERATING LICENSE NUMBER NPF-3

DAVIS-BESSE NUCLEAR POWER STATION

UNIT NUMBER 1

Attached are requested changes 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.

The proposed changes submitted under cover letter Serial Number 2051 concern:

Appendix A, Technical Specification (TS) 3/4.9.9, Refueling Operations - Containment Purge and Exhaust Isolation System and its Bases; TS 3/4.3.2, Safety System Instrumentation - Safety Features Actuation System Instrumentation; and TS 3/4.9.4, Refueling Operations - Containment Penetrations and its Bases

By: _____
D. C. Shelton
Vice President - Nuclear

Sworn and Subscribed before me this 28th day of July, 1992.

_____
Notary Public, State of Ohio

EVELYN L. DRESS
NOTARY PUBLIC, STATE OF OHIO
My Commission Expires July 28, 1994

The following information is provided to support issuance of the requested changes to the Davis-Besse Nuclear Power Station, Unit Number 1, Operating License Number NPF-3, Appendix A, Technical Specification 3/4.9.9, Refueling Operations - Containment Purge and Exhaust Isolation System and its Bases, TS 3/4.3.2, Safety System Instrumentation - Safety Features Actuation System Instrumentation and TS 3/4.9.4, Refueling Operations - Containment Penetrations and its Bases:

A. Time Required to Implement: This change is to be implemented within 90 days after the NRC issuance of the License Amendment.

B. Reason for change (License Amendment Request 90-0051):

This License Amendment Request proposes deletion of TS 3/4.9.9 and its Bases since the provisions of Surveillance Requirement (SR) 4.3.2, Safety System Instrumentation - Safety Features Actuation System Instrumentation, SR 4.6.3, Containment Isolation Valves, and TS 3/4.9.4, Refueling Operations - Containment Penetrations, adequately address the operability requirements of the containment purge and exhaust isolation system. It also proposes an update to the TS Index to reflect this deletion.

This License Amendment Request additionally proposes revision of TS 3/4.3.2, Safety System Instrumentation - Safety Features Actuation System (SFAS) Instrumentation, and TS 3/4.9.4 and its Bases. The overall effect of this proposed change will: 1) provide the flexibility to allow work to be performed in Mode 6 on the SFAS (either bypassed or deenergized), 2) preclude the need for physically relocating the SFAS area radiation monitors from the annulus to the containment during Mode 6 when not using them for monitoring for potential radiation releases as is presently done, and 3) when not using the SFAS area radiation monitors, still provide a means for automatically containing any release in progress and isolating containment (procedurally required manual closure from the control room of the containment purge and exhaust isolation valves).

C. Safety Assessment and Significant Hazards Consideration: See attached.

Safety Assessment and Significant Hazards Consideration
for License Amendment Request Number 90-0051

TITLE:

Deletion of Technical Specification (TS) 3/4.9.9, Refueling Operations - Containment Purge and Exhaust Isolation System and its Bases, and Revision of TS 3/4.3.2, Safety System Instrumentation - Safety Features Actuation System (SFAS) Instrumentation and TS 3/4.9.4, Refueling Operations - Containment Penetrations and its Bases.

DESCRIPTION:

This License Amendment Request (LAR) proposes the following changes:

1. TS 3/4.9.9 is proposed for deletion because it is redundant to the provisions of Surveillance Requirement (SR) 4.3.2, SR 4.6.3 (Containment Isolation Valves), and TS 3/4.9.4, which address the operability requirements for the containment purge and exhaust isolation system during core alterations or movement of irradiated fuel within the containment. The associated TS Bases 3/4.9.9 are also proposed for deletion. The TS Index is proposed for revision to administratively reflect these deletions.

2. A change is proposed so that the SFAS is not required to be operable in Mode 6 (Refueling). The Mode 6 requirements in TS 3/4.3.2, Table 3.3-3, SFAS Instrumentation, Table Notation '****' (for Items 1a, 2a, and 3a), is proposed for revision to allow the use of either the SFAS area radiation monitors or the containment purge and exhaust system noble gas monitor (RE5052C) during core alterations or movement of irradiated fuel in containment. Specifically, TS Table 3.3-3, SFAS Instrumentation, Table Notation '****', would be revised to read:

   > This instrumentation, or the containment purge and exhaust system noble gas monitor (with the containment purge and exhaust system in operation), must be OPERABLE during CORE ALTERATIONS or movement of irradiated fuel within containment to meet the requirements of Technical Specification 3.9.4. When using the containment purge and exhaust system noble gas monitor, SFAS is not required to be OPERABLE in MODE 6.

   Table 4.3-2, SFAS Instrumentation Surveillance Requirements, Table Notation '#', is also proposed for revision to read:

   > These surveillance requirements in conjunction with those of Section 4.9.4 apply during CORE ALTERATIONS or movement of irradiated fuel within the containment only if using the SFAS area radiation monitors listed in Table 3.3-3, Items 1a, 2a, and 3a, in lieu of the containment purge and exhaust system noble gas monitor.

TS 3.9.4.c.2 would be revised to delete "automatic" and would read:

> Be capable of being closed by an OPERABLE containment purge and exhaust isolation valve.

This will allow the use of the containment purge and exhaust system noble gas monitor (RE5052C) to provide the high radiation signal to the control room, such as during core alterations or movement of irradiated fuel inside containment, and to automatically contain any release in progress by stopping the containment purge system supply and exhaust fans and closing their inlet and outlet dampers. Under this change, when using monitor RE5052C, automatic SFAS initiation of containment isolation in Mode 6 would no longer be required.

The Action statement for TS 3.9.9 is proposed to be added to the existing Action statement in TS 3.9.4 to require closure of the purge and exhaust penetrations if the containment purge and exhaust system is inoperable. The transferred action is designated Action b and the exceptions to TS 3.0.3 are placed in a new Action c consistent with the format of other TS actions.

TS 4.9.4 would be revised to delete "automatic" and TS 4.9.4.c would be revised to read:

> Verifying that with the containment purge and exhaust system in operation, and the containment purge and exhaust system noble gas monitor capable of providing a high radiation signal to the control room, that after initiation of the high radiation signal, the containment purge and exhaust isolation valves can be closed from the control room, or
>
> If using the SFAS area radiation monitors, verifying that on a Containment Purge and Exhaust Isolation test signal, each purge and exhaust isolation valve automatically actuates to its isolation position.

Additionally, TS Bases 3/4.9.4 is proposed for revision by adding the following:

> With the containment purge and exhaust system in operation, a high radiation signal received from the containment purge and exhaust system noble gas monitor will effectively automatically contain the release by shutting down the containment purge system supply and exhaust fans and closing their inlet and outlet dampers. On a valid signal, the control room operator will then manually close the containment purge and exhaust isolation valves. Therefore, the uncontrolled release of radioactive material from the containment to the environment will be restricted.

Likewise, use of the SFAS area radiation monitors provide an automatic containment isolation signal on high radiation, restricting the uncontrolled release of radioactive material from the containment to the environment.

The overall effect of this proposed change will: 1) provide the flexibility to allow work to be performed in Mode 6 on the SFAS (either bypassed or deenergized), 2) preclude the need for physically relocating the SFAS area radiation monitors from the annulus to the containment during Mode 6 when not using them for monitoring for potential radiation releases as is presently done, and 3) when not using the SFAS area radiation monitors, still provide a means for automatically containing any release in progress (RE5052C high radiation signal) and isolating containment (procedurally required manual closure from the control room of the containment purge and exhaust isolation valves).

SYSTEMS, COMPONENTS, AND ACTIVITIES AFFECTED:

Containment Purge and Exhaust Isolation System
Containment Purge System Noble Gas Radiation Monitoring Instrumentation
Safety Features Actuation System Instrumentation
Containment Purge System

SAFETY FUNCTIONS OF THE AFFECTED SYSTEMS, COMPONENTS AND ACTIVITIES:

The containment purge system is a forced flow system with supply and exhaust penetrations, and is designed to provide clean fresh air to the containment vessel or to the shield building and penetration rooms at a rate of one air volume change per hour (see attached simplified drawing). Normally, the purge system is in operation providing ventilation to the mechanical penetration rooms. When access to the containment is necessary in Modes 5 or 6 and purging is desired to facilitate access, the containment purge supply fan and the containment purge exhaust fans are started and the containment isolation valves (CV5005, CV5006, CV5007 and CV5008) are opened; the isolation valves (CV5004, CV5009, CV5016 and CV5021) on the supply and discharge lines to the shield building and penetration rooms remain closed. When purging the shield building and penetrations rooms, the containment purge supply fan and the containment purge exhaust fans are started and the isolation valves (CV5004, CV5016, CV5009, and CV5021) are opened in the supply and discharge lines to the penetration rooms; the containment vessel isolation valves (CV5005, CV5006, CV5007, and CV5008) remain closed. Supply air is taken through an outside air intake, roughing filter, heating coil and purge supply fan and discharged into the containment or shield building and penetration rooms to provide adequate distribution. The purge air is exhausted by the purge exhaust fan through a roughing filter, a high efficiency particulate air (HEPA) filter and a charcoal filter to the station vent.

The containment purge and exhaust system is connected to the Emergency Ventilation System (EVS) by the means of ductwork bypass dampers. In the event of high airborne radioactivity in containment, the EVS filters can be used for the removal of radioactivity prior to release to the environment. Three radiation detectors, RE5052A, RE5052B, and RE5052C, (located in the containment purge exhaust fan suction) monitor the containment vessel atmosphere for particulate activity, I-131, and Xe-133, respectively. When levels reach predetermined values, the following events occur automatically: a control room alarm sounds; the purge system supply and exhaust fans shut down; the outside air intake damper (CV5003A), the purge supply fan discharge damper (CV5003B), the damper on the upstream side of the containment purge air exhaust filter (CV5062) and the purge exhaust fan discharge damper (CV5013) all close; and the damper in the bypass duct to the EVS (CV5061) opens. This configuration restricts direct communication of the containment atmosphere to the outside environment. If desired, the control room operator can now open the dampers on the upstream side of the EVS filters (CV5024, CV5025) and start the EVS fans. The EVS would then filter air from the containment through roughing filters, HEPA filters, and charcoal filters, and exhaust it through the station vent. The control room operator can also manually shut the containment purge and exhaust isolation valves (CV5005, CV5006, CV5007, and CV5008).

Four SFAS area radiation monitors (RE2004, RE2005, RE2006, and RE2007) are located in the containment annulus during normal operations. These monitors are presently relocated to the inside of the containment vessel during refueling operations to maximize their sensitivity for detection of a postulated fuel handling accident. The monitors are designed to withstand the containment environment in all Modes, are capable of operation during and after a loss of coolant accident (LOCA), and provide a containment isolation signal on high containment radiation (SFAS Level 1). This signal will shutdown the purge supply and exhaust fans, close the purge and exhaust valves (CV5004, CV5005, CV5006, CV5007, CV5008, CV5009, CV5016, and CV5021) and open the bypass damper to the EVS (CV5061) and start the EVS fans. These area radiation monitors are the only portion of the SFAS currently required by the TS to be operable in Mode 6.

The function of TS 3/4.9.9 is to ensure the effectiveness of the containment purge and exhaust isolation system to isolate the containment when in Mode 6, during which the reactor head may be unbolted, removed and fuel transferred to and from the reactor vessel. Isolation of the containment purge and exhaust penetrations restricts the release of radioactive material from the containment to the environment should high levels of radiation occur in the containment.

EFFECTS ON SAFETY:

Deletion of TS 3/4.9.9

The following comparison of TS 3/4.9.9 to SR 4.3.2, SR 4.6.3, and TS 3/4.9.4 shows that the requirements for TS 3/4.9.9 are addressed by SR 4.3.2, SR 4.6.3 and TS 3/4.9.4, as proposed for revision:

1. SR 4.9.9 requires testing of the containment purge and exhaust isolation system manually by initiating closure of the containment purge system valves and automatically by initiating a SFAS high radiation signal (SFAS Level 1). SR 4.9.9 is performed within 100 hours prior to the start of and at least once per seven days during core alterations. SR 4.9.4 requires testing of the containment purge and exhaust valves per the applicable portions of SR 4.6.3.1.2, which addresses isolation of the containment purge and exhaust isolation system on an automatic and manual isolation test signal. This SR is also performed within 100 hours prior to the start of and at least once per seven days during core alterations. The DBNPS surveillance test procedure used to meet the requirements of SR 4.9.4 is the same test procedure used to meet the requirements of SR 4.9.9. The containment high radiation instrument strings, the containment isolation output logic, and the SFAS manual actuation requirements listed in TS Table 4.3-2, Safety Features Actuation System Instrumentation Surveillance Requirements, invoke SR 4.9.4 as applicable during core alterations or movement of irradiated fuel within the containment. The performance of the above discussed SRs satisfies the requirements of SR 4.9.9.

2. The applicability statements are different between TS 3/4.9.9 (Mode 6) and TS 3/4.9.4 (during core alterations or movement of irradiated fuel within containment). However, SR 4.9.9 is inconsistent with its own applicability in TS 3.9.9's Limiting Condition for Operation in that it is not stated as performed prior to entry into Mode 6, but as prior to core alterations. The applicability contained within SR 4.9.9 is consistent with the applicability contained within SR 4.9.4.

   It should be noted that the Babcock and Wilcox Standard Technical Specifications (B&W STS) (NUREG-0103, Revision 4) has an applicability for TS 3/4.9.9 the same as TS 3/4.9.4, which is also the same as DBNPS TS 3/4.9.4. This applicability is based on times when there exists a potential for a fuel handling accident, i.e., during core alterations or the movement of irradiated fuel within containment. The B&W STS also has an exception to TS 3.0.4 allowing entry into Mode 6 while using the Action statement. The DBNPS TS 3/4.9.9 does not have this exception.

3. The Action statement for TS 3.9.9 is proposed to be added to the existing Action statement in TS 3.9.4 to require closure of the purge and exhaust penetrations if the containment purge and exhaust system is inoperable. The transferred action is designated Action b and the exceptions to TS 3.0.3 are placed in a new Action c consistent with the format of other TS actions.

   In that SR 4.3.2, SR 4.6.3, and TS 3/4.9.4, as revised, adequately address the requirements of TS 3/4.9.9, deletion of TS 3/4.9.9 has no adverse effect on safety.

Deletion of SFAS Mode 6 Requirements

The applicable design basis accident during Mode 6 is the fuel handling accident. The DBNPS Updated Safety Analysis Report (USAR) Section 15.4.7.3, Revision 14 dated July 1991, which discusses the radiological consequences of the design basis fuel handling accident inside containment, states that neither containment isolation nor filtration were assumed in the analysis.

Upon detection of abnormal radiation levels by radiation monitor RE5052C, the containment purge exhaust and supply fans are shut down, the supply fan inlet damper (CV5003A) and outlet damper (CV5003B) are closed, the filter inlet damper (CV5062) and the exhaust fan discharge damper (CV5013) close, and the bypass damper to the EVS (CV5061) opens. This effectively automatically contains any release that may have been in progress. (CV5024 and CV5025 (EVS filter inlet dampers) are not repositioned by this signal and would be opened by the operator in the control room prior to starting the EVS fans.) The control room operator will be required by procedure to manually shut the containment purge and exhaust system containment isolation valves upon receipt of a valid high radiation signal from monitor RE5052C. This further prevents potential communication between the containment atmosphere and the outside environment, similar to an SFAS Level 1 signal generated by the SFAS area radiation monitors (RE2004, RE2005, RE2006 and RE2007).

As a part of the second change, TS Bases 3/4.9.4, Containment Penetrations, would be revised to state that with the containment purge and exhaust system in operation, a high radiation signal received from the containment purge and exhaust system noble gas monitor will effectively automatically contain the release by shutting down the containment purge and exhaust fans and closing their inlet and outlet dampers. The control room will then manually close the containment purge and exhaust isolation valves. Therefore, the uncontrolled release of radioactive material from the containment to the environment will be restricted. There is no change being proposed to the ability of the SFAS to automatically isolate containment on a high radiation signal, if the SFAS is being relied upon under TS 3/4.9.4 during core alterations or movement of irradiated fuel within the containment.

Any fuel handling accident in containment would be promptly reported to the control room. Additionally, other radiation monitors in containment could be in operation during Mode 6 and provide confirming indication to the control room of a high radiation condition in containment.

As stated earlier, USAR Section 15.4.7.3, which discusses the radiological consequences of the design basis fuel handling accident inside containment, states that neither containment isolation nor filtration were assumed in the analysis. The use of the radiation monitors is only to prevent the uncontrolled release of radioactive material to the environment. Based on the above, these proposed changes to TS 3/4.9.4 and its Bases have no adverse effect on safety.

SIGNIFICANT HAZARDS CONSIDERATION:

The NRC 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 previously evaluated; or (3) Not involve a significant reduction in a margin of safety. Toledo Edison has revieved the proposed changes and determined that a significant hazards consideration does not exist because operation of the DBNPS in accordance with the proposed changes would:

1a. Not involve a significant increase in the probability of an accident previously evaluated because the initiators regarding the fuel handling accident (USAR Section 15.4.7.3) are not affected by the deletion of TS 3/4.9.9 or the use of the containment purge and exhaust system noble gas monitor (RE5052C) to automatically contain any release in progress.

1b. Not involve a significant increase in the consequences of an accident previously evaluated because the assumptions discussed in the fuel handling accident (USAR Section 15.4.7.3) are not affected by the deletion of TS 3/4.9.9 or allowing the use of the containment purge and exhaust system noble gas monitor (RE5052C) to automatically contain a release in progress. Furthermore, manual operator action can be taken to isolate containment in lieu of the SFAS area radiation monitors' automatic containment isolation function. No credit is taken in the assumptions for the fuel handling accident discussed in USAR Section 15.4.7.3 for containment isolation. Thus, the deletion of TS 3/4.9.9 and the use of the containment purge and exhaust system noble gas monitor (RE5052C) and manual operator action does not involve a significant increase in the consequences of an accident previously evaluated. There is no significant change in the ability of the DBNPS to contain a release of radioactivity.

2a. Not create the possibility of a new kind of accident from any accident previously evaluated because the operability requirements of the containment purge and exhaust isolation system contained in the TS 3/4.9.9 are adequately addressed by SR 4.3.2, SR 4.6.3, and TS 3/4.9.4. Thus, deletion of TS 3/4.9.9 does not create the possibility of any new kind of accident from any accident previously evaluated.

Allowing the use of the containment purge and exhaust system noble gas monitor (RE5052C) to automatically contain a release in progress in lieu of the SFAS area radiation monitors' automatic containment isolation function does not introduce any new accident initiators. Furthermore, manual operator action can be taken to isolate containment. Thus, it does not create the possibility of a new kind of accident from any accident previously evaluated.

2b. Not create the possibility of a different kind of accident from any accident previously evaluated because the operability requirements of the containment purge and exhaust isolation system contained in the TS 3/4.9.9 are adequately addressed by SR 4.3.2, SR 4.6.3, and TS 3/4.9.4. Thus, deletion of TS 3/4.9.9 does not affect the operability of the containment purge and exhaust isolation system and, therefore, does not create the possibility of a different kind of accident from any accident previously evaluated.

Allowing the use of the containment purge and exhaust system noble gas monitor (RE5052C) to automatically contain a release in progress in lieu of the SFAS area radiation monitors' automatic containment isolation function does not introduce any different accident initiators. Furthermore, manual operator action can be taken to isolate containment. Thus, it does not create the possibility of a different kind of accident from any accident previously evaluated.

3. Not involve a significant reduction in a margin of safety because neither the purpose nor the function of the containment purge and exhaust isolation system is being changed by the deletion of TS 3/4.9.9. The operability requirements of TS 3/4.9.9 are adequately addressed in SR 4.3.2, SR 4.6.3, and TS 3/4.9.4.

Allowing the use of the containment purge and exhaust system noble gas monitor (RE5052C) to automatically contain a release in progress in lieu of the SFAS area radiation monitors automatic isolation function is acceptable based on the accident analysis assuming no isolation or filtration for the fuel handling accident in containment. Furthermore, manual operator action can be taken to isolate containment. Thus, it does not involve a significant reduction 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 proposed changes 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.