

Docket Number 50-346  
License Number NPF-3  
Serial Number 2557  
Enclosure  
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APPLICATION FOR AMENDMENT  
TO  
FACILITY OPERATING LICENSE NUMBER NPF-3  
DAVIS-BESSE NUCLEAR POWER STATION  
UNIT NUMBER 1

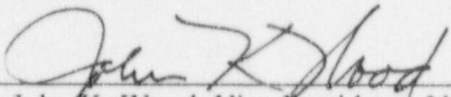
Attached are the requested changes to the Davis-Besse Nuclear Power Station, Unit Number 1 Facility Operating License Number NPF-3. Also included is the Safety Assessment and Significant Hazards Consideration.

The proposed changes (submitted under cover letter Serial Number 2557) concern:

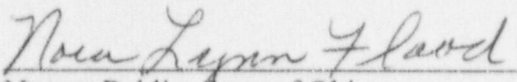
Appendix A, Technical Specifications (TS):

Index	Page I
Definition 1.24	Shield Building Integrity
3/4.6.5.1	Emergency Ventilation System
3/4.6.5.2	Shield Building Integrity
Table 4.6-1	Access Openings Required to be Closed to Ensure Shield Building Integrity
Bases 3/4.6.5.1	Emergency Ventilation System
Bases 3/4.6.5.2	Shield Building Integrity

I, John K. Wood, state that (1) I am Vice President - Nuclear of the Centerior Service Company, (2) I am duly authorized to execute and file this certification on behalf of the Toledo Edison Company and The Cleveland Electric Illuminating Company, and (3) the statements set forth herein are true and correct to the best of my knowledge, information and belief.

By:   
John K. Wood, Vice President - Nuclear

Affirmed and subscribed before me this 27th day of October, 1998.

  
Nora Lynn Flood  
Notary Public, State of Ohio

Nora Lynn Flood, My Commission expires September 4, 2002.

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The following information is provided to support issuance of the requested revision to the Davis-Besse Nuclear Power Station (DBNPS), Unit Number 1, Operating License NPF-3, Appendix A, Technical Specifications (TS). The proposed changes involve the TS Index, TS 3/4.6.5.1, "Emergency Ventilation System," TS 3/4.6.5.2, "Shield Building Integrity" and associated TS Bases, and TS Definition 1.24, "Shield Building Integrity".

- A. Time Required to Implement: These changes are to be implemented within 120 days after NRC issuance of the License Amendment.
  
- B. Reason for Changes (License Amendment Request 98-0010): The proposed changes would relocate existing Technical Specification Surveillance Requirement 4.6.5.1.d.4 Emergency Ventilation System negative pressure testing to TS 3/4.6.5.2. The proposed changes would also delete the TS Definition 1.24, "Shield Building Integrity," and make related changes associated with the deletion of this definition to the TS Index and the applicable TSs and Bases. Additionally, the proposed changes would clarify the applicability of TS 3/4.6.5.1, Emergency Ventilation System, by revising its associated Bases. These changes are based upon the guidance provided by the "Improved Standard Technical Specifications for Combustion Engineering Plants," NUREG-1432, Revision 1 and the "Improved Standard Technical Specifications for Westinghouse Plants," NUREG- 1431, Revision 1. The "Improved Standard Technical Specifications for Babcock and Wilcox Plants," NUREG-1430 Revision 1, does not contain guidance for Shield Building Integrity since the DBNPS is the only Babcock and Wilcox-type plant with the containment vessel/annulus space/ shield building design.

The proposed administrative change to TS Table 4.6-1, "Access Openings Required to be Closed to Ensure Shield Building Integrity," corrects a room numbering discrepancy.

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

Docket Number 50-346  
License Number NPF-3  
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Attachment

SAFETY ASSESSMENT AND SIGNIFICANT HAZARDS CONSIDERATION  
FOR  
LICENSE AMENDMENT REQUEST 98-0010

(19 pages follow)

**SAFETY ASSESSMENT AND SIGNIFICANT HAZARDS CONSIDERATION  
FOR  
LICENSE AMENDMENT REQUEST NUMBER  
98-0010**

**TITLE:**

Relocate Technical Specification (TS) Surveillance Requirement 4.6.5.1.d.4 for Emergency Ventilation System Negative Pressure Testing from TS 3/4.6.5.1, "Emergency Ventilation System," to TS 3/4.6.5.2, "Shield Building Integrity," Delete TS Definition 1.24, "Shield Building Integrity," and Make Related Changes Associated with the Deletion of this Definition to the TS Index and the Applicable TS and Bases

**DESCRIPTION:**

These changes are proposed to align the Davis-Besse Nuclear Power Station (DBNPS) Emergency Ventilation System (EVS) negative pressure testing TS Surveillance Requirement with the Shield Building Integrity TS. The relocation of this Surveillance Requirement (SR) to the Shield Building Integrity TS is based upon the NRC guidance provided by the "Improved Standard Technical Specifications for Combustion Engineering Plants," NUREG-1432, Revision 1 and the "Improved Standard Technical Specifications for Westinghouse Plants," NUREG-1431, Revision 1. The "Improved Standard Technical Specifications for Babcock and Wilcox Plants," NUREG-1430, Revision 1 does not address shield building integrity because the DBNPS is the only Babcock and Wilcox-type plant with the containment vessel/annulus space/shield building design.

The relocation of this SR to TS 3/4.6.5.2 would cause the Action statement of TS Limiting Condition for Operation (LCO) 3.6.5.2 to be applied should the EVS be unable to produce the required negative pressure in the annulus space located between the containment structure and the shield building due to an opening in the ventilation boundary. This would allow 24 hours to restore the capability of producing the required negative pressure in the annulus. Under the current TS LCO 3.6.5.1, entry into TS 3.0.3 is required, thereby allowing only one hour for restoration before commencing a plant shutdown. The proposed changes are discussed in detail below:

- Delete TS Definition 1.24 SHIELD BUILDING INTEGRITY, which states:

SHIELD BUILDING INTEGRITY shall exist when:

- a. The airtight doors and the blowout panels listed in Table 4.6-1 are closed except the airtight doors may be used for normal transit entry and exit.

- b. The emergency ventilation system is OPERABLE.
  - c. The sealing mechanism associated with each penetration (e.g., welds, bellows or O-rings) is OPERABLE.
- Change capitalized type of defined term "SHIELD BUILDING INTEGRITY" to lower case type in the applicable portions of TS 3/4.6.5.2 and its associated Bases, which utilize this term, since this definition is being deleted. In addition, the TS Index is being revised to reflect the deletion of the Shield Building Integrity definition.
  - Relocate Surveillance Requirement (SR) 4.6.5.1.d.4. from TS 3/4.6.5.1 to TS 3/4.6.5.2. The existing SR 4.6.5.2 would be renumbered as SR 4.6.5.2.1, and the relocated SR would be numbered SR 4.6.5.2.2. New Surveillance Requirement 4.6.5.2.2 would state:

**Shielding building integrity shall be demonstrated at least once per REFUELING INTERVAL** by verifying that each **Emergency Ventilation System train** produces a negative pressure of greater than or equal to 0.25 inches Water Gauge in the annulus within 4 seconds after the fan attains a flow rate of 8000 cfm  $\pm$  10%. This test is to be performed with the flow path established prior to starting the EVS fan, and the other dampers associated with the negative pressure boundary closed. [Revisions are shown in bold type]

This relocation is based upon the Improved Standard Technical Specifications (ISTS) for Combustion Engineering and Westinghouse plants which contain TS guidance on Shield Building Integrity.

- Modify TS LCO 3.6.5.2 and the applicable Action statement to include reference to the relocated SR for EVS negative pressure testing. The existing Action would be renumbered "a", and a new Action "b" added. Technical Specification LCO 3.6.5.2 would read:

**Shield building integrity** shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. Without **shield building integrity**, restore **shield building integrity** within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. **The provisions of Specification 3.6.5.1 are not applicable.**

Adding Action b will make it clear that the Action of TS LCO 3.6.5.1 does not apply should SRs 4.6.5.2.1 or 4.6.5.2.2 not be met. Furthermore, it is necessary that this Action be provided since the DBNPS TS are based on the original Standard Technical Specifications, which "cascade", while the ISTS are written not to cascade.

- Modify TS Bases 3/4.6.5.1 to incorporate the guidance provided by the Combustion Engineering and Westinghouse ISTS to state:

The OPERABILITY of the emergency ventilation systems ensures that containment vessel leakage occurring during LOCA conditions into the annulus will be filtered through the HEPA filters and charcoal adsorber trains prior to discharge to the atmosphere. This requirement is necessary to meet the assumptions used in the safety analyses and limit the site boundary radiation doses to within the limits of 10 CFR 100 during LOCA conditions. **The proper functioning of the EVS fans, dampers, filters, adsorbers, etc., as a system is verified by the ability of each train to produce the required system flow rate.**

- Modify TS Bases 3/4.6.5.2 to incorporate the guidance provided by the Combustion Engineering and Westinghouse ISTS to state:

**In the event shield building integrity, including the capability of the EVS to provide a negative pressure of greater than or equal to 0.25 inches Water Gauge, is not maintained, shield building integrity must be restored within 24 hours. Twenty-four hours is a reasonable completion time considering the limited leakage design of the containment and the low probability of a Design Basis Accident occurring during this time period.**

- Revise TS Table 4.6-1 to correctly identify Number 3 Mechanical Penetration Room as Room 303.

These proposed changes are being proposed in accordance with the NRC's "Final Policy Statement on Technical Specification Improvements for Nuclear Power Reactors," dated July 22, 1993, and the ISTS which provide guidance regarding the content of TS. The changes are proposed as line-item TS improvements similar in content to the "Improved Standard Technical Specifications for Combustion Engineering Plants," NUREG-1432, Revision 1, dated April 7, 1995, and the "Improved Standard Technical Specifications for Westinghouse Plants," NUREG-1431, Revision 1, dated April 7, 1995. The NRC's Final Policy Statement recognized the benefit in allowing licensees to improve portions of their TS. This approach results in greater consistency in TS requirements and allows for the most efficient use of NRC and industry staff resources in processing TS changes.

**SYSTEMS, COMPONENTS, AND ACTIVITIES AFFECTED:**

This proposed license amendment affects the Emergency Ventilation System and Shield Building Integrity Technical Specifications and associated Bases.

**FUNCTIONS OF THE AFFECTED SYSTEMS, COMPONENTS, AND ACTIVITIES:**

The overall function of the Operating License, Appendix A, TS, is to impose those conditions or limitations upon reactor operation necessary to preserve the validity of the results of DBNPS Updated Safety Analysis Report (USAR) Design Bases Accident analyses.

The function of the Emergency Ventilation System (EVS) is described in USAR Section 6.2.3, "Containment Vessel Air Purification and Cleanup Systems," USAR Section 12.2.2.1, "Shield Building and Penetration Rooms," and USAR Section 15.4.6, "Major Rupture of Pipes Containing Reactor Coolant Up To and Including Double-Ended Rupture of the Largest Pipe in the Reactor Coolant System (Loss-of-Coolant Accident)." The containment system for the DBNPS utilizes a free-standing low leakage steel structure containment vessel surrounded by a reinforced concrete shield building. There is an annular space (i.e., the annulus) separating the containment vessel and the concrete shield building. The EVS, consisting of two, redundant, full capacity fan/filter trains, is designed to maintain a negative pressure in the annulus following an accident. A negative pressure is maintained by exhausting the air at a greater rate than it is being supplied. The EVS ensures that containment vessel leakage into the annulus occurring during loss of coolant accident (LOCA) conditions will be filtered through the EVS High Efficiency Particulate Air (HEPA) filters and charcoal adsorber trains prior to discharge to the atmosphere. This minimizes the unfiltered release to the environment of any radioactive particles from containment vessel leakage. This requirement is necessary to meet the assumptions used in the safety analyses and limit the site boundary radiation doses to within the limits of 10 CFR Part 100 during LOCA conditions.

The Shield Building is described in USAR Section 3.8.2.2, "Shield Building," Section 6.2.1, "Containment Vessel Functional Design," Section 12.2.2.1, "Shield Building and Penetration Rooms," and Section 15.4.6. Shield Building Integrity ensures that the release of radioactive material from the containment vessel will be restricted to those leakage paths and associated leak rates assumed in the safety analysis. The closure of the airtight doors and blowout panels listed in Technical Specification Table 4.6-1 ensures that the Emergency Ventilation System (EVS) can provide a negative pressure between 0.25 and 1.5 inches Water Gauge within the annulus between the shield building and

containment vessel and within the interconnecting mechanical penetration rooms after a LOCA. This restriction, in conjunction with the operation of the EVS, will limit the site boundary radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

### **EFFECTS ON SAFETY:**

The deletion of "Shield Building Integrity" as a defined term is consistent with the ISTS. Since this term is only utilized in the Shield Building Integrity TS itself, there is no need to provide a separate definition, i.e., the Bases to the TS adequately describes Shield Building Integrity. Furthermore, the first two portions of the definition regarding a) the airtight doors and blowout panels of TS Table 4.6-1, and b) the EVS are addressed by TS 3/4.6.5.2 and the proposed addition of SR 4.6.5.2.2. The third portion of the definition regarding the sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is addressed by the TS 1.8, "Containment Integrity," definition and the requirements of existing TS 3/4.6.1, "Primary Containment - Containment Integrity," TS 3/4.6.1.2, "Containment Leakage," and TS 3/4.6.1.3, "Containment Air Locks." The TS Index is revised to reflect the deletion of this defined term.

Relocating the EVS negative pressure Surveillance Requirement to the Shield Building Integrity TS will allow up to twenty-four hours to restore the integrity of the Shield Building when it is lost due to an opening in the ventilation boundary (e.g., a broken door or blowout panel of TS Table 4.6-1) that affects both trains of EVS. If the integrity of the Shield Building is not restored within 24 hours, then the DBNPS would be required to commence a shutdown.

Limiting Conditions for Operation (LCO) 3.6.5.1 currently requires that two independent emergency ventilation systems (EVS) shall be operable while in Modes 1, 2, 3, and 4. With one EVS system inoperable, seven days are allowed to restore it to an operable status, otherwise the plant must be placed in Hot Standby within the next six hours and in Cold Shutdown within the following 30 hours. With two EVS trains inoperable, TS 3.0.3 must be immediately entered.

The Surveillance Requirement 4.6.5.1.d.4 requires verification, at least once each refueling interval, that each system produces a negative pressure of greater than or equal to 0.25 inches Water Gauge in the annulus within 4 seconds after the fan attains a flow rate of 8000 cfm  $\pm$  10%. This test is to be performed with the flow path established prior to starting the EVS fan, and the other dampers associated with the negative pressure boundary closed.

Limiting Conditions for Operation (LCO) 3.6.5.2 currently requires that Shield Building Integrity be maintained during Modes 1, 2, 3, and 4. In the event of a loss of Shield Building Integrity, the LCO provides 24 hours to restore Shield Building Integrity,



otherwise the plant must be placed in Hot Standby within the next six hours and in Cold Shutdown within the following 30 hours.

The proposed relocation of TS Surveillance Requirement (SR) 4.6.5.1.d.4 from TS 3/4.6.5.1 to TS 3/4.6.5.2 will appropriately align this Surveillance Requirement with the Shield Building Integrity TS and its associated Bases. As described in the Shield Building Integrity TS Bases, the integrity of the Shield Building boundary ensures that the EVS can provide a negative pressure between 0.25 and 1.5 inches Water Gauge within the annulus between the shield building and containment vessel and within the interconnecting mechanical penetration rooms after a LOCA.

This change will allow up to twenty-four hours to restore the capability to draw the required negative pressure in the annulus (e.g., restore a broken door or blowout panel of TS Table 4.6-1) that affects both trains of EVS prior to initiation of a shutdown. This is consistent with the TS Bases for the allowed outage time for the Combustion Engineering and Westinghouse ISTS. The allowed outage time of twenty-four hours, as described in the ISTS Bases, is a reasonable completion time considering the limited leakage design of the containment and the low likelihood of a Design Basis Accident occurring during this twenty-four hour time period. The lack of Shield Building Integrity is not a precursor to the initiation of a nuclear accident.

The addition of Action statement "b" to TS LCO 3.6.5.2 provides clear guidance that the Action of TS LCO 3.6.5.1 does not apply if SR 4.6.5.2.1 or 4.6.5.2.2 is not met. Furthermore, it is necessary to include this provision since the DBNPS TS are based upon the original Standard Technical Specifications, which cascade, while the ISTS are written not to cascade. Adding this provision results in the DBNPS Action statement being consistent with the ISTS.

Relocation of the SR has no effect on the manner in which the surveillance test is performed or on the surveillance interval. The proposed change to the TS Bases 3/4.6.5.2 adds a discussion similar to the Bases provided in the ISTS. This change explains the reason for a twenty-four hour allowed outage time. This change is therefore reflective of the relocation of the SR to the Shield Building Integrity TS.

Surveillance Requirement 4.6.5.1.b.3 requires verification, at least once per refueling interval, that each EVS train develop a flow rate of 8,000 cfm  $\pm$  10% during system operation when tested in accordance with ANSI N510-1980. As stated in TS Bases 3/4.6.5.1, this SR demonstrates operability of each EVS train ensuring that containment vessel leakage occurring during LOCA conditions into the annulus will be filtered prior to discharge to the atmosphere.

The information being added to TS Bases 3/4.6.5.1 clarifies that SR 4.6.5.1.b.3 demonstrates the proper functioning of the EVS fans, dampers, filters, adsorbers, etc. to

produce the required flow rate. In the event of EVS component failure, the EVS TS will be entered. This proposed change adds a discussion similar to the Bases provided in the Combustion Engineering and Westinghouse ISTS.

Therefore, there is no adverse effect on nuclear safety as a result of the changes being proposed in this amendment request.

Additionally, the administrative change proposed to TS Table 4.6-1 Section I, "Airtight Doors," to correctly reflect the room number of Mechanical Penetration Room 3 as "303" vice "308" is consistent with the description of the room in TS Table 4.6-1 Section II, "Blowout Panels," and USAR Section 3.6.2.7.1.6, "Main Feedwater System." This proposed change is an administrative change and has no adverse effect on nuclear safety.

#### **SIGNIFICANT HAZARDS CONSIDERATION:**

The Nuclear Regulatory Commission has provided standards in 10 CFR Section 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. The Davis-Besse Nuclear Power Station has reviewed the proposed changes and determined that a significant hazards consideration does not exist because operation of the Davis-Besse Nuclear Power Station, Unit Number 1, in accordance with these changes would:

- 1a. Not involve a significant increase in the probability of an accident previously evaluated because no accident initiator is affected by the proposed changes to the Technical Specifications (TS) Index; TS Definition 1.6, "Shield Building Integrity;" TS 3/4.6.5.1, "Emergency Ventilation System;" TS 3/4.6.5.2, "Shield Building Integrity;" TS Bases 3/4.6.5.1, "Emergency Ventilation System;" or TS Bases 3/4.6.5.2, "Shield Building Integrity."
- 1b. Not involve a significant increase in the consequences of an accident previously evaluated because no accident conditions and assumptions are significantly affected by the above proposed changes. The proposed change to relocate existing TS Surveillance Requirement (SR) 4.6.5.1.d.4 to TS 3/4.6.5.2, and the subsequent application of the Limiting Condition for Operation (LCO) of TS 3/4.6.5.2 should the Emergency Ventilation System (EVS) be unable to produce the required negative pressure in the annulus space due to an opening in the ventilation boundary, would allow 24 hours to restore the capability of maintaining the required negative pressure in the annulus. The current

SR 4.6.5.1.d.4 and associated TS LCO 3.6.5.1 would require entry into TS 3.0.3, thereby, allowing only one hour for restoration before commencing plant shutdown. The allowed outage time of 24 hours is reasonable considering the limited leakage design of containment and the low likelihood of a Design Basis Accident (DBA) occurring during this time period. The proposed changes are consistent with the guidance of the "Improved Standard Technical Specifications for Combustion Engineering Plants," NUREG-1432, Revision 1 and the "Improved Standard Technical Specifications for Westinghouse Plants," NUREG-1431, Revision 1. The "Improved Standard Technical Specifications for Babcock and Wilcox Plants," NUREG-1430, Revision 1 does not contain guidance for shield building integrity because the DBNPS is the only Babcock and Wilcox-type plant with the containment vessel/annulus space/shield building design. The proposed changes do not alter the drawdown capability of the EVS. Since the likelihood of a DBA occurring during this 24 hour period is low and the containment is of a low leakage design, the radiological consequences of a previously evaluated accident are not significantly increased. The proposed changes do not alter the source term, containment isolation or allowable radiological 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 proposed changes. No new accident scenarios, transient precursors, failure mechanisms, or limiting failures are introduced as a result of the proposed changes.
3. Not involve a significant reduction in a margin of safety because the proposed TS changes do not significantly reduce or significantly adversely affect the capabilities of any plant structures, systems or components. The capability of the shield building/EVS to respond when necessary and to maintain a negative pressure will not be significantly changed by these proposed TS changes. Accordingly, there is not a significant reduction in a margin of safety.

#### **CONCLUSION:**

On the basis of the above, the Davis-Besse Nuclear Power Station has determined that the License Amendment Request does not involve a significant hazards consideration. Furthermore, 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. DBNPS Operating License NPF - 3, Appendix A, Technical Specifications through Amendment 225.
2. The NRC's "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors," (58 FR 39132, dated July 22, 1993).
3. "Improved Standard Technical Specifications for Combustion Engineering Plants," NUREG-1432, Revision 1, dated April 7, 1995.
4. "Improved Standard Technical Specifications for Westinghouse Plants," NUREG-1431, Revision 1, dated April 7, 1995.
5. DBNPS, Unit 1 Updated Safety Analysis Report (USAR) Section 3.6.2.7.1.6, "Main Feedwater System," Section 3.8.2.2, "Shield Building," Section 6.2.1, "Containment Vessel Functional Design," Section 6.2.3, "Containment Vessel Air Purification and Cleanup Systems," Section 12.2.2.1, "Shield Building and Penetration Rooms" and Section 15.4.6, "Major Rupture of Pipes Containing Reactor Coolant Up To and Including Double-Ended Rupture of the Largest Pipe in the Reactor Coolant System (Loss-of-Coolant Accident)," through USAR Revision 20.
6. 10 CFR 50.36, "Technical Specifications."
7. "Improved Standard Technical Specifications for Babcock & Wilcox Plants," NUREG-1430, Revision 1, dated April 7, 1995.