

February 14, 2002

Mr. Howard W. Bergendahl  
Vice President-Nuclear, Davis-Besse  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1 - ISSUANCE OF  
AMENDMENT (TAC NO. MB1979)

Dear Mr. Bergendahl:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 251 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit 1. The amendment revises the Technical Specifications in response to your application dated May 15, 2001, and supplemented by letter dated February 8, 2002.

This amendment revises Technical Specification (TS) 3/4.9.4, "Refueling Operations - Containment Penetrations," TS 3/4.9.12, "Refueling Operations - Storage Pool Ventilation," and associated Bases. The changes will allow the containment equipment hatch cover to be removed during core alterations and movement of irradiated fuel inside containment provided the Emergency Ventilation System is operable with the ability to filter any radioactive release.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

*/RA/*

Stephen P. Sands, Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosures: 1. Amendment No. 251 to  
License No. NPF-3  
2. Safety Evaluation

cc w/encls: See next page

February 14, 2002

Mr. Howard W. Bergendahl  
Vice President-Nuclear, Davis-Besse  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1 - ISSUANCE OF  
AMENDMENT (TAC NO. MB1979)

Dear Mr. Bergendahl:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 251 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit 1. The amendment revises the Technical Specifications in response to your application dated May 15, 2001, and supplemented by letter dated February 8, 2002.

This amendment revises Technical Specification (TS) 3/4.9.4, "Refueling Operations - Containment Penetrations," TS 3/4.9.12, "Refueling Operations - Storage Pool Ventilation," and associated Bases. The changes will allow the containment equipment hatch cover to be removed during core alterations and movement of irradiated fuel inside containment provided the Emergency Ventilation System is operable with the ability to filter any radioactive release.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

*/RA/*

Stephen P. Sands, Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosures: 1. Amendment No. 251 to  
License No. NPF-3  
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC R. Hager  
PD3-2 r/f F. Reinhart  
A. Mendiola ACRS  
S. Sands OGC  
T. Harris G. Grant, RIII  
W. Beckner G. Hill (2)

Package Accession Number: ML020580453

ADAMS Accession Number: ML020420166

TS Accession Number: ML020460292

OFFICE	PM:LPD3	LA:LPD3	SC:SPLB	SC:SPSB	OGC	SC:LPD3
NAME	SSands	THarris**	RHager*	FReinhart**	JMoore**	AMendiola
DATE	02/13/02	02/11/02	02/4/02	02/11/02	02/13/02	02/14/02

OFFICIAL RECORD COPY

\*See RHager to AMendiola memo of 2/4/02

\*\*See previous concurrence

Mr. Howard Bergendahl  
FirstEnergy Nuclear Operating Company

Davis-Besse Nuclear Power Station, Unit 1

cc:

Mary E. O'Reilly  
FirstEnergy  
76 South Main Street  
Akron, OH 44308

Manager - Regulatory Affairs  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
5501 North State - Route 2  
Oak Harbor, OH 43449-9760

Director  
Ohio Department of Commerce  
Division of Industrial Compliance  
Bureau of Operations & Maintenance  
6606 Tussing Road  
P.O. Box 4009  
Reynoldsburg, OH 43068-9009

Regional Administrator  
U.S. Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, IL 60523-4351

Michael A. Schoppman  
Framatome ANP  
1911 N. Ft. Myer Drive  
Rosslyn, VA 22209

Resident Inspector  
U.S. Nuclear Regulatory Commission  
5503 North State Route 2  
Oak Harbor, OH 43449-9760

Plant Manager, Randel J. Fast  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
5501 North State - Route 2  
Oak Harbor, OH 43449-9760

Dennis Clum  
Radiological Assistance Section Supervisor  
Bureau of Radiation Protection  
Ohio Department of Health  
P.O. Box 118  
Columbus, OH 43266-0118

Carol O'Claire, Chief, Radiological Branch  
Ohio Emergency Management Agency  
2855 West Dublin Granville Road  
Columbus, OH 43235-2206

Ohio Environmental Protection Agency  
DERR--Compliance Unit  
ATTN: Zack A. Clayton  
P.O. Box 1049  
Columbus, OH 43266-0149

Public Utilities Commission of Ohio  
Transportation Department  
180 East Broad Street  
Columbus, OH 43215-3793

Attorney General  
Department of Attorney  
30 East Broad Street  
Columbus, OH 43216

President, Board of County  
Commissioners of Ottawa County  
Port Clinton, OH 43252

FIRSTENERGY NUCLEAR OPERATING COMPANY

DOCKET NO. 50-346

DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 251

License No. NPF-3

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the FirstEnergy Nuclear Operating Company (the licensee) dated May 15, 2001, and supplemented by letter dated February 8, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-3 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 251, are hereby incorporated in the license. FirstEnergy Nuclear Operating Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance and shall be implemented within 90 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Anthony J. Mendiola, Chief, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: February 14, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 251

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

Insert

3/4 9-4

3/4 9-4

3/4 9-12

3/4 9-12

B 3/4 9-1a

B 3/4 9-1a

B 3/4 9-3

B 3/4 9-3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 251 TO FACILITY OPERATING LICENSE NO. NPF-3  
FIRSTENERGY NUCLEAR OPERATING COMPANY  
DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1  
DOCKET NO. 50-346

1.0 INTRODUCTION

By application dated May 15, 2001, and supplemented by letter dated February 8, 2002, FirstEnergy Nuclear Operating Company (the licensee) requested an amendment to Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station. This proposed amendment would revise Technical Specification (TS) 3/4.9.4, "Refueling Operations - Containment Penetrations," TS 3/4.9.12, "Refueling Operations - Storage Pool Ventilation," and associated Bases. The changes would allow the containment equipment hatch cover to be removed during core alterations and movement of irradiated fuel inside containment provided the Emergency Ventilation System is operable with the ability to filter any radioactive release.

The supplemental information contained clarifying information and did not change the initial no significant hazards consideration determination and did not expand the scope of the original *Federal Register* notice.

2.0 BACKGROUND

During refueling outages, TS 3.9.4 requires the containment equipment hatch cover to be closed and held in place with a minimum of four bolts during core alterations or during movement of irradiated fuel inside containment. Typically, 120-150 hours are required to perform fuel movement during a refueling outage. With the containment equipment hatch cover closed during this time, other outage maintenance and modification activities within the containment are impacted due to the loss of this larger access opening for moving equipment in and out of containment. The proposed TS changes will allow the containment equipment hatch cover to be open during core alterations and the movement of irradiated fuel inside containment.

The containment equipment hatch opens into the fuel handling area, which contains the spent fuel pool, cask pit, and transfer pit. With the containment equipment hatch closed, the hatch cover is part of the fuel handling area ventilation system (FHAVS) negative pressure boundary. With the containment equipment hatch open, the FHAVS negative pressure boundary extends to include the inside of the containment pressure vessel. On a high radiation signal the FHAVS exhaust will be redirected to the suction of the emergency ventilation system (EVS). The EVS can draw air from the fuel handling area and filter it through a high-efficiency particulate air

(HEPA) filter and charcoal adsorbers prior to exhausting the air to the outside. According to the licensee, the EVS is adequately sized and designed to filter the radioactivity released during a fuel handling accident inside containment.

### 3.0 EVALUATION

The licensee's proposal to conduct refueling operations (i.e., core alterations or movement of irradiated fuel inside containment) with the containment equipment hatch open is needed to support more efficient (i.e., shorter) refueling outages. The staff finds the proposed changes to be in general agreement with the closure requirements specified in the Reviewers Note in Technical Specification Task Force Traveler 51, "Revised Containment Requirements During Handling Irradiated Fuel and Core Alterations." The staff's review focused on the fuel-handling accident (FHA) inside containment, the FHA in the fuel handling area (i.e., outside containment), and whether the proposed changes to the TS adequately support the proposed changes in refueling operations.

#### 3.1 Dose Considerations

The licensee has previously analyzed two different FHAs in the Davis-Besse updated safety analysis report (USAR). The current Davis-Besse FHA inside containment analysis as described in the USAR does not take credit for containment closure or filtration of the release and was performed in accordance with the guidance in Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors." The licensee's calculated thyroid and whole body dose results were well within the limits of 10 CFR Part 100. A control room habitability analysis, using the same assumptions, was performed to support Amendment 202 which allows both doors of the personnel airlock to be open during fuel movement. The licensee's calculated thyroid and whole body dose results were within the limits of GDC-19, "Control Room."

The current Davis-Besse USAR analysis of a FHA in the fuel handling area takes credit for filtration of the release via the EVS and assumes 95 percent efficient iodine filtration. The licensee's calculated thyroid and whole body dose results for this FHA were also well within the limits of 10 CFR Part 100. The current model only assumes that the EVS draws suction from the fuel handling area. Under the proposed changes, the licensee asserts that the EVS is capable of drawing down the combined space of the fuel handling area and containment to the necessary negative pressure so that filtration of the release can be assumed.

Control room habitability was not an issue for this review because the control room ventilation system operation and expected radiological release (i.e., dose) would not be altered by the proposed changes.

Based on the above discussion, the staff has reasonable assurance that the radiological consequences of postulated design-basis FHAs remain within the dose guidelines given in 10 CFR Part 50, Appendix A, GDC-19 for the control room and well within the offsite dose guidelines given in 10 CFR Part 100.

### 3.2 Technical Specification Changes

The proposed changes to the TSs were reviewed to ensure that adequate isolation provisions could be attained in the event of a FHA with the containment equipment hatch open and the personnel air lock doors open.

The licensee evaluated the use of plant personnel to close the containment equipment hatch in the event of a FHA. However, the licensee's calculations indicated that reinstalling the containment equipment hatch under design-basis FHA conditions, could result in plant personnel receiving in excess of 20 rem total effective dose equivalent. Considering that the EVS is available to mitigate the consequences of a FHA inside containment, the licensee has concluded that reinstalling the equipment hatch during FHA conditions is not warranted. The licensee will revise its procedures to evacuate the fuel handling area following a FHA inside containment if the equipment hatch cover has been removed. The staff finds the licensee's position to be reasonable and acceptable.

### 3.3 TS 3/4.9.4, "Refueling Operations - Containment Penetrations":

The licensee proposes to modify the limiting condition for operation (LCO) to permit opening the equipment hatch during refueling operations. The LCO currently states:

"3.9.4. The containment penetrations shall be in the following status:

- a. The equipment door closed and held in place by a minimum of four bolts."

The proposed LCO states:

"3.9.4. The containment penetrations shall be in the following status:

- a. The equipment hatch cover closed and held in place by a minimum of four bolts, except the equipment hatch may be open provided the requirements of Specification 3.9.12 are satisfied."

Sections b. and c. of the LCO, the Applicability statement, the Action, and the Surveillance Requirements remain unchanged. The TS Bases will be modified to accommodate the proposed LCO.

As discussed above, the containment equipment hatch opens into the fuel handling area and any release can be filtered through the EVS prior to release into the environment. Penetrations in the fuel handling area are controlled by procedure to ensure compliance with TS 3.9.12, "Storage Area Ventilation." TS 3.9.12 ensures that the EVS is capable of maintaining a negative pressure in the fuel handling area of  $\geq 1/8$ " water gauge. Proposed TS 3.9.4 and proposed TS 3.9.12, which is discussed below, provide for immediate closure of the personnel air lock leading into containment and the redirection of any release through a filtered ventilation system in the event of a FHA in containment.

### 3.4 TS 3/4.9.12, "Refueling Operations - Storage Pool Ventilation"

The licensee proposes to modify TS 3.9.12 to allow one train of EVS to be considered OPERABLE if the EVS train cannot meet the drawdown requirements of Surveillance Requirement (SR) 4.9.12.1 solely because the containment equipment hatch and both containment air lock doors are open, provided TS 3.9.4.b is met. TS 3.9.4.b requires that a minimum of one door in each containment air lock be closed, but both doors of the containment personnel air lock can be open if a designated individual is available immediately outside the personnel air lock to close the door.

TS SR 4.9.12.1 requires, in part, that the EVS servicing the storage pool area be demonstrated operable by verifying that the EVS maintain the storage pool area at a negative pressure of  $\geq 1/8$ " water gauge relative to the outside atmosphere during system operation. As described in the licensee's letter dated February 8, 2002, this SR is required to be performed with the equipment hatch cover removed prior to taking any of the following actions with the equipment hatch cover removed: core alterations or moving irradiated fuel within the containment; moving fuel in the spent fuel pool, cask pit, or transfer pit; or performing crane operations over the spent fuel pool, cask pit, or transfer pit containing irradiated fuel. Performance of SR 4.9.12.1 with the equipment hatch cover removed will require the EVS to take suction from the combined containment and fuel pool storage area volumes. This will demonstrate that a negative pressure can be obtained, thus ensuring that any release from a FHA will be processed through the appropriate filters. The licensee's letter further states that the appropriate surveillance test procedure is being updated to include the requirement to perform SR 4.9.12.1 with the equipment hatch cover removed if the actions itemized above will be performed with the equipment hatch cover removed. The staff concludes that performance of SR 4.9.12.1 with the equipment hatch cover removed is both appropriate and necessary if refueling activities are planned to be performed with the equipment hatch cover removed.

#### 3.4.1 Changes to LCO

The licensee proposed to modify the LCO to permit continued plant operation with the containment equipment hatch and both personnel air lock doors open. The current LCO 3.9.12 states:

"3.9.12 Two independent emergency ventilation systems servicing the storage pool area shall be OPERABLE."

The proposed LCO 3.9.12 states:

"3.9.12 Two independent emergency ventilation systems servicing the storage pool area shall be OPERABLE. When an emergency ventilation system servicing the storage pool is incapable of meeting the acceptance criteria of Surveillance Requirement 4.9.12.1 solely because the containment equipment hatch is open and both doors of the containment personnel air lock are open, it may be considered OPERABLE provided that at least one personnel air lock door is capable of being closed and a designated individual is available immediately outside the personnel air lock to close the door."

The proposed change allows for the containment equipment hatch and both containment airlock doors to be open as allowed by the proposed TS 3.9.4 while maintaining the ability to redirect any release through a filtered ventilation system in the event of a FHA. Since the proposed TS 3.9.12 and the current TS 3.9.4 requires a designated individual to be available immediately outside the personnel air lock to close a door and at least one door is capable of being closed in the event of a FHA, the period of time the EVS will not be able to perform its function will be minimal. The proposed change is acceptable as it has a minimal impact on the current TS and ensures timely restoration of the ventilation boundary in the event of a FHA.

### 3.4.2 Changes to Applicability Statement

The current Applicability Statement to TS 3.9.12 states:

“APPLICABILITY: Whenever irradiated fuel is in the spent fuel pool or cask pit.”

The proposed Applicability Statement to TS 3.9.12 states:

“APPLICABILITY: Whenever irradiated fuel is in the spent fuel pool or cask pit, or during CORE ALTERATIONS or movement of irradiated fuel within the containment with the containment equipment hatch open.”

The staff finds the proposed change to the Applicability statement acceptable because it reflects the need for the EVS to be operable during refueling activities with the equipment hatch open.

### 3.4.3 Changes to the Action Statements

3.4.3.1 The licensee proposes to add the following Action Statement to TS 3.9.12:

“b. With one emergency ventilation system servicing the storage pool inoperable, CORE ALTERATIONS and fuel movement within containment may proceed provided either the OPERABLE emergency ventilation system servicing the storage pool area is in operation and discharging through at least one train of HEPA filters and charcoal adsorbers or the containment equipment hatch is closed and held in place by a minimum of four bolts.”

The proposed Action statement is consistent with the requirements for the current Action Statement a. which deals with activities in the fuel handling area with one EVS train inoperable. The requirement to have the remaining EVS train operating ensures that no undetected failures have occurred affecting the OPERABILITY of that train and any active failures will be detected. Also, if the equipment hatch is closed, the EVS is no longer required to mitigate a FHA in containment. The proposed Action statement is acceptable.

3.4.3.2 The licensee proposes to change the current TS Action Statement 3.9.12.b.

The current Action Statement states:

“b. With no emergency ventilation system servicing the storage pool area

OPERABLE, suspend all operations involving movement of fuel within the spent fuel pool or cask pit, or crane operation with loads over the spent fuel pool or cask pit, until at least one system is restored to OPERABLE status.”

The proposed Action Statement states:

- “c. With no emergency ventilation system servicing the storage pool area OPERABLE, suspend CORE ALTERATIONS and all operations involving movement of fuel within the containment, spent fuel pool or cask pit, or crane operation with loads over the spent fuel pool or cask pit, until at least one system is restored to OPERABLE status. CORE ALTERATIONS and fuel movement within containment may proceed provided the containment equipment hatch cover is closed and held in place by a minimum of four bolts.”

The proposed change reflects the new application of the EVS during refueling activities with the equipment hatch open. The addition of the statement “CORE ALTERATIONS and fuel movement within containment may proceed provided the containment equipment hatch cover is closed and held in place by a minimum of four bolts” is acceptable because closing the equipment hatch cover door ensures that means are available to mitigate the consequences of a FHA inside containment.

In summary, the staff concludes that the licensee has adequately addressed the dose consequences of a FHA with the equipment hatch cover removed and that the proposed TS changes ensure that adequate isolation provisions will be available. The staff also finds that the licensee’s proposed TS changes and procedural changes will adequately support refueling operations with the containment equipment hatch cover removed during Core Alterations or movement of irradiated fuel inside containment. Therefore, based on the above evaluation, the staff finds the licensee’s proposed changes acceptable.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Ohio State official was notified of the proposed issuance of the amendment. The State official had no comments.

#### 5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (66 FR 34284). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 6.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: David Cullison, Plant Systems Branch, NRR  
Michelle Hart, Probabilistic Safety Assessment Branch, NRR

Date: February 14, 2002