

October 17, 2007

Mr. Mark B. Bezilla
Site Vice President
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
Mail Stop A-DB-3080
5501 North State Route 2
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1 - ISSUANCE OF
AMENDMENT RE: ADMINISTRATIVE CONTROL OF PENETRATIONS
DURING REFUELING (TAC NO. MD4421)

Dear Mr. Bezilla:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 277 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1. The amendment revises the technical specifications (TS) in response to your application dated February 12, 2007.

This amendment revises TS 3/4.9.4, "Containment Penetrations," to allow containment penetrations that provide direct access from the containment atmosphere to the outside atmosphere to be open during refueling activities if appropriate administrative controls are established.

TS page 3/4 9-5 is not changed by this amendment. The page has been reformatted for proper pagination.

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/

Thomas J. Wengert, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosures:

1. Amendment No. 277 to NPF-3
2. Safety Evaluation

cc w/encls: See next page

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Unit No. 1

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FIRSTENERGY NUCLEAR OPERATING COMPANY

AND

FIRSTENERGY NUCLEAR GENERATION CORP.

DOCKET NO. 50-346

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 277
License No. NPF-3

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by FirstEnergy Nuclear Operating Company et al. (the licensee), dated February 12, 2007, 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.277, are hereby incorporated in the license. FENOC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Russell Gibbs, Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications and Facility Operating License

Date of Issuance: October 17, 2007

ATTACHMENT TO LICENSE AMENDMENT NO. 277

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

Replace the following pages of the Facility Operating License and 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

License NPF-3
Page 4

TSs
3/4 9-4
3/4 9-5

Insert

License NPF-3
Page 4

TSs
3/4 9-4
3/4 9-5

2.C. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

FENOC is authorized to operate the facility at steady state reactor core power levels not in excess of 2772 megawatts (thermal). Prior to attaining the power level, Toledo Edison Company shall comply with the conditions identified in Paragraph (3) (o) below and complete the preoperational tests, startup tests and other items identified in Attachment 2 to this license in the sequence specified. Attachment 2 is an integral part of this license.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 277, are hereby incorporated in the license. FENOC shall operate the facility in accordance with the Technical Specifications.

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the issuance of the license or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the license supported by a favorable evaluation by the Commission:

- (a) FENOC shall not operate the reactor in operational Modes 1 and 2 with less than three reactor coolant pumps in operation.
- (b) Deleted per Amendment 6
- (c) Deleted per Amendment 5

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 277 TO FACILITY OPERATING LICENSE NO. NPF-3
FIRSTENERGY NUCLEAR OPERATING COMPANY
FIRSTENERGY NUCLEAR GENERATION CORP.
DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1
DOCKET NO. 50-346

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC, the Commission) dated February 12, 2007, FirstEnergy Nuclear Operating Company, et al. (the licensee) requested changes to the technical specifications (TSs) for the Davis-Besse Nuclear Power Station, Unit No. 1 (DBNPS). The proposed amendment would revise TS 3/4.9.4, "Containment Penetrations," by adding a note which allows containment penetrations that provide direct access from the containment atmosphere to the outside atmosphere to be open during refueling activities, provided that appropriate administrative controls are established. The proposed changes are consistent with the NRC-approved TS Task Force (TSTF) Traveler TSTF-312-A, Revision 1.

2.0 REGULATORY EVALUATION

The NRC staff evaluated the impact of the proposed changes as they relate to the radiological consequences of affected design basis accidents (DBAs). For this license amendment request (LAR), the only affected DBA is the fuel handling accident (FHA) inside containment. The licensee has not submitted a revised FHA analysis. This LAR relies on the current design basis FHA as described in Section 15.4.7, of the DBNPS updated safety analysis report (USAR). For the current design basis FHA analysis, the licensee incorporates the source term as defined in Technical Information Document (TID) 14844, Atomic Energy Commission, U.S., 1962, "Calculation of Distance Factors for Power and Test Reactors Sites." Therefore, the NRC staff's review is based on the regulatory guidance provided in NUREG-0800, "Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 15.7.4, "Radiological Consequences of Fuel Handling Accidents."

Since the licensee evaluated the FHA using the TID 14844 source term, the maximum dose criteria to the whole body and the thyroid that an individual at the exclusion area boundary can receive for the first 2 hours following an accident, and at the low population zone outer boundary for the duration of the radiological release, are as specified in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 100.11. These criteria are 25 roentgen equivalent man (rem) total whole body dose and 300 rem thyroid dose from iodine exposure. The accident dose criteria in 10 CFR 100.11 is supplemented by accident-specific dose acceptance criteria in SRP 15.7.4 which states that, "The plant site and dose mitigating engineered safety feature systems are acceptable with respect to the radiological consequences of a postulated fuel handling accident if the calculated whole-body and thyroid doses at the exclusion area and low

population zone boundaries are well within the exposure guideline values of 10 CFR Part 100.11. "Well within" means 25 percent or less of the 10 CFR Part 100.11 exposure guideline values, i.e., 75 rem for the thyroid and 6 rem for the whole-body doses."

For control room dose consequence analyses that use the TID 14844 source term, the regulatory requirement for which the NRC staff bases its acceptance is General Design Criterion (GDC) 19 of Appendix A to 10 CFR Part 50, "Control Room". GDC 19 requires that adequate radiation protection be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. NUREG-0800, SRP Section 6.4, "Control Room Habitability System," Revision 2, July 1981, provides guidelines defining the dose equivalency of 5 rem whole body as 30 rem for both the thyroid and skin dose.

3.0 TECHNICAL EVALUATION

3.1 Description of TS revision

The licensee has proposed a TS revision applicable to containment penetrations capable of closure by a manual or automatic isolation valve, blind flange, or equivalent. The proposed revision would allow the applicable containment building penetrations that provide direct access from the containment atmosphere to the outside atmosphere to be open during refueling activities, if appropriate, administrative controls are established. Currently, TS 3.9.4(c) requires that during core alterations or movement of irradiated fuel within the containment: "Each penetration providing direct access from the containment atmosphere to the atmosphere outside containment shall be : (1) closed by a manual or automatic isolation valve, blind flange, or equivalent, or (2) be capable of being closed from the control room by an OPERABLE containment purge and exhaust valve upon receipt of a high radiation signal from the containment purge and exhaust system noble gas monitor."

The proposed change would allow containment penetration flow paths controlled by TS 3.9.4(c) to be open during operations involving core alterations or fuel movement inside containment if appropriate administrative controls are established and maintained. The proposed change would revise TS Limiting Condition for Operation 3.9.4, "Containment Penetrations," and is consistent with NRC approved Technical Specification Task Force (TSTF) Traveler TSTF-312-A, Revision 1, "Administratively Control Containment Penetrations," which was approved on August 16, 1999, and the corresponding note to the Babcock and Wilcox Owners Group Standard Technical Specification (STS) 3.9.3, "Containment Penetrations." TSTF-312-A was approved based on the condition that licensees using TSTF-312-A: (1) demonstrate acceptable radiological consequences from a FHA inside containment, and (2) commit to implementation of administrative procedures that ensure that open containment penetrations can and will be promptly closed in the event of an FHA inside containment.

The proposed amendment would add a note applicable to TS 3.9.4, "Containment Penetrations," to allow penetrations included under TS 3.9.4(c) to be opened during core alterations or movement of irradiated fuel, under administrative controls. This class of penetrations includes those penetrations which provide direct access from the containment atmosphere to the atmosphere outside containment. Specifically, the proposed change would add the following note, applicable to TS 3.9.4(c): "NOTE: Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls."

As part of the implementation of the proposed amendment, the licensee will revise applicable procedures to permit opening the affected penetrations during fuel movement as long as administrative controls are in place, to ensure prompt closure of the affected penetration in the event of a FHA. These controls will entail assignment of a designated individual who will be readily available to isolate the flow path in the event of a FHA. This individual may be a part of the team assigned to perform local leak rate testing of the associated penetration. The licensee states that the purpose of this change is to allow local leak rate testing of containment penetrations to be performed during refueling outages, while fuel movement is in progress. The licensee expects that this change will result in a reduction in future outage durations.

3.2. Technical basis for the TS revision

DBNPS USAR section 15.4.7, "Fuel Handling Accident," provides the results of the FHA analysis, performed in accordance with the assumptions and guidelines of Safety Guide 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," dated March 23, 1972. The licensee's evaluation did not credit containment isolation, and is based on the release of the activity from one fuel assembly with a burnup of 60,000 megawatt-days per metric ton uranium (MWD/MTU). The release is assumed to occur over a two hour period. The results meet the acceptance criteria provided in SRP Section 15.7.4, and are well within the dose guidelines of 10 CFR 100.11.

DBNPS License Amendment No. 202 (Agencywide Documents and Management System Accession No. ML021210175) permitted both doors of the containment personnel air lock to be open during core alterations or movement of irradiated fuel in containment. Analyses performed in support of Amendment No. 202 are summarized in USAR section 15.4.7.3. These analyses calculated the control room dose for a FHA inside containment, assuming fuel activity consistent with a fuel assembly with 60,000 MWD/MTU burnup, 72 hours of fuel assembly decay, and no credit for removal of iodine activity by the control room emergency ventilation system.

As a part of the review of DBNPS License Amendment No. 202, the NRC staff completed an independent analysis of the potential radiological consequences of a FHA with the containment personnel air lock open, and determined that the results were within the acceptance criteria given in SRP Section 15.7.4 and GDC 19. The licensee asserts, and the NRC staff agrees, that the dose consequences of this change are bounded by the dose consequences of TS 3.9.4.b, which allows both personnel air lock doors to be open during core alterations or movement of irradiated fuel within the containment.

The proposed change will not impact the dose consequence of the licensing basis FHA, which is the only applicable DBA, because the proposed change will not result in changes to any of the values assumed in the radiological dose consequence analysis. The NRC staff has reasonable assurance that the requirements of 10 CFR 100.11, GDC 19, and the accident-specific dose criteria in SRP 15.7.4 will continue to be met for DBNPS. Therefore the NRC staff finds that the proposed change is acceptable from a radiological dose perspective.

In addition, the licensee proposed to reformat TS page 3/4 9-5 for proper pagination. This change is to correct the format/pagination of the TS document. This change is administrative in nature and is, therefore, 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 NRC 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 (72 FR 17949; April 10, 2007). 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 NRC 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 Contributor: John Parillo, NRR

Date: October 17, 2007