November 17, 1995

Mr. John P. Stetz
Vice President- Nuclear
Centerior Service Company
c/o Toledo Edison Company
Davis-Besse Nuclear Power Station
5501 North State Route 2
Oak Harbor, OH 43449

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SUBJECT: AMENDMENT NO. 202 TO FACILITY OPERATING LICENSE NO. NPF-3 - DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1 (TAC NO. M92533)

Dear Mr. Stetz:

The Commission has issued the enclosed Amendment No. 202 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station (DBNPS), Unit No. 1. The amendment revises the Technical Specifications (TS) in response to your application dated June 7, 1995.

This amendment revises TS 3/4.9.4, Refueling Operations - Containment Penetrations; Bases 3/4.9.4, Containment Penetrations; and Limiting Condition for Operation (LCO) 3.9.4.b to allow both doors of the containment personnel airlock to be open during core alterations or movement of irradiated fuel within the containment, provided that certain specified conditions are meet. Additional changes revise or clarify TS LCO 3.9.4.c, TS Action 3.9.4.a, and TS Surveillance Requirement 4.9.4, and modify the associated Bases.

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

Sincerely,
Original signed by:

Linda L. Gundrum, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosures: 1. Amendment No. 202 to License No. NPF-3
2. Safety Evaluation

See previous concurrence.

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 17, 1995

Mr. John P. Stetz
Vice President - Nuclear, Davis Besse
Centerior Service Company
c/o Toledo Edison Company
Davis-Besse Nuclear Power Station
5501 North State Route 2
Oak Harbor, OH 43449

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Linda L. Gundrum

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Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosures: 1. Amendment No. 202 to License No. NPF-3
2. Safety Evaluation

cc w/encls: See next page

Mr. John P. Stetz
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Davis-Besse Nuclear Power Station
Unit No. 1

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State of Ohio
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President, Board of County
Commissioners of Ottawa County
Port Clinton, Ohio 43452

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TOLEDO EDISON COMPANY

CENTERIOR SERVICE COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

DOCKET NO. 50-346

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 202
License No. NPF-3

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by the Toledo Edison Company, Centerior Service Company, and the Cleveland Electric Illuminating Company (the licensees) dated June 7, 1995, 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:

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(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 202, are hereby incorporated in the license. The Toledo Edison Company 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 not later than 90 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Linda L. Gundrum

Linda L. Gundrum, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of issuance: November 17, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 202

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

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

Remove	Insert
3/4 9-4	3/4 9-4
B 3/4 9-1	B 3/4 9-1
B 3/4 9-1a	B 3/4 9-1a

CONTAINMENT PENETRATIONS

LIMITING CONDITION FOR OPERATION

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,

b. A minimum of one door in each air lock closed, but both doors of the containment personnel air lock may be open 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, and

c. Each penetration providing direct access from the containment atmosphere to the atmosphere outside containment shall be either:

1. Closed by a manual or automatic isolation valve, blind flange, or equivalent, or

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

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

a. With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment.

b. With the containment purge and exhaust isolation system inoperable, close each of the purge and exhaust penetrations providing direct access from the containment atmosphere to the outside atmosphere.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment penetrations shall be determined to be either in its required condition or capable of being closed by an OPERABLE containment purge and exhaust valve, within 100 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment, by:

a. Verifying the penetrations are in their required condition, or

b. 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.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) a uniform boron concentration is maintained for reactivity control in the water volumes having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analysis.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the safety analyses.

3/4.9.4 CONTAINMENT PENETRATIONS

During CORE ALTERATIONS or movement of irradiated fuel within the containment, release of fission product radioactivity to the environment as a result of a fuel element rupture must be minimized. During MODES 1, 2, 3, and 4, this is accomplished by maintaining CONTAINMENT INTEGRITY as described in LCO 3.6.1.1. In other situations, the potential for containment pressurization as a result of an accident is not present, and therefore less stringent requirements are needed to isolate the containment from the atmosphere outside containment. Both containment personnel air lock doors may be open during CORE ALTERATIONS or during movement of irradiated fuel within the containment provided the conditions specified in LCO 3.9.4.b are met. The individual designated to be continuously available to close the air lock door must be stationed at the auxiliary building side of the air lock. A containment personnel air lock door is considered capable of being closed if the door is unblocked and there are no cables or hoses being run through the air lock. The LCO 3.9.10 requirement to maintain a minimum of 23 feet of water over the top of irradiated fuel assemblies seated within the reactor pressure vessel during movement of fuel assemblies within the reactor pressure vessel while in MODE 6 ensures that sufficient water depth is available to remove 99% of the assumed iodine gap activity released from the rupture of an irradiated fuel assembly. Further, sufficient time is available to close the personnel air lock following a loss of shutdown cooling before boiling occurs.

3/4.9.4 CONTAINMENT PENETRATIONS (Continued)

Regarding LCO 3.9.4.c, the phrase "atmosphere outside containment" refers to anywhere outside the containment vessel, including (but not limited to) the containment annulus and the auxiliary building.

For penetrations that are closed by a method equivalent to a manual or automatic isolation valve, or a blind flange, the isolation technique must be approved by an engineering evaluation. The isolation technique may include the use of a material that can provide a temporary seal capable of maintaining the integrity of the penetration to restrict the release of radioactive material from a fuel handling accident.

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.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during CORE ALTERATIONS.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 202 TO FACILITY OPERATING LICENSE NO. NPF-3

TOLEDO EDISON COMPANY

CENTERIOR SERVICE COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

DOCKET NO. 50-346

1.0 INTRODUCTION

By letter dated June 7, 1995, the Toledo Edison Company, Centerior Service Company, and the Cleveland Electric Illuminating Company (the licensees), submitted a request for changes to the Davis-Besse Nuclear Power Station (DBNPS) Technical Specifications (TS). The requested amendment would revise TS 3/4.9.4, Refueling Operations - Containment Penetrations, and associated Bases 3/4.9.4, Containment Penetrations. The proposed changes include revising the Limiting Condition for Operation (LCO) 3.9.4.b to allow both doors of the containment personnel air lock (PAL) to be open during core alterations or movement of irradiated fuel within the containment, provided that one containment PAL door is operable and a designated individual is available immediately outside the PAL to close at least one door, if required. Additional changes are proposed to revise or clarify TS LCO 3.9.4.c, TS Action 3.9.4.a, and TS Surveillance Requirement (SR) 4.9.4, and modify the Bases to reflect the requested changes.

2.0 EVALUATION

The first proposed change revises the LCO 3.9.4.b and Bases 3/4.9.4 to allow both doors of the containment PAL to be open during core alterations or movement of irradiated fuel within the containment, provided that at least one PAL door is capable of being closed and a designated individual is available immediately outside the PAL to close at least one door. This would reduce PAL door wear and facilitate personnel ingress and egress. DBNPS has used a temporary air lock during refueling operations (Mode 6) when core alterations or movement of irradiated fuel were performed within containment. The temporary doors were effective in precluding the potential damage to the PAL door latching mechanisms during periods of frequent openings and closings and provided the necessary barriers for mitigating the consequences of a fuel handling accident in Mode 6, when the potential for containment pressurization does not exist. However, to eliminate the restriction to egress in case

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evacuation of containment is required and to eliminate the costs associated with the installation, testing, and removal of the temporary doors, DBNPS evaluated the radiological release that would be expected based on the fuel handling accident described in the Updated Safety Analysis Report (USAR) 15.4.7.3.

The staff has completed its evaluation of the potential radiological consequences of a fuel handling accident at Davis-Besse, based upon the conditions of the proposed TS changes. In addition to reviewing the licensee's submittal, the staff performed an independent analysis to determine conformance with the requirements of 10 CFR Part 100 and General Design Criteria (GDC) 19 of Appendix A to 10 CFR Part 50. The staff's analysis utilized the accident source term given in Regulatory Guide 1.4, the assumptions contained in Regulatory Guide 1.25, and the review procedures specified in Standard Review Plan (SRP) Sections 15.7.4 and 6.4. The staff assumed an instantaneous puff release of noble gases and radioiodine from the gap and plenum of the broken fuel rods. These gas bubbles will pass through at least 23 feet of water covering the fuel prior to reaching the containment atmosphere. The guidance of NUREG/CR-5009 (The Assessment of the Use of Extended Burnup Fuel in Light Water Power Reactors) was utilized in the calculation of thyroid doses based on the licensees use of extended burnup fuel. All airborne activity reaching the containment atmosphere is assumed to exhaust to the environment within 2 hours. As stipulated in the proposed Technical Specification change, the gap activity is assumed to have decayed for a period of 72 hours.

The staff computed the offsite doses for Davis-Besse using the above assumptions and NRC computer code ACTICODE. Control room operator doses were determined using the methodology in SRP Section 6.4. The computed offsite doses and control room operator doses are within the acceptance criteria given in SRP Section 15.7.4 and GDC 19. The assumptions used in calculating those doses and the resulting calculated values are attached in Tables 1 and 2.

The staff has reviewed the licensee's analysis and has performed an independent assessment of the radiological consequences resulting from a fuel handling accident during refueling operations with the containment airlocks open. The staff concludes that the radiological consequences associated with this accident are within the acceptance criteria set forth in 10 CFR Part 100 and the control room operator dose criteria specified in GDC-19 of Appendix A to 10 CFR Part 50 and are acceptable.

Additional changes are proposed to revise or clarify TS LCO 3.9.4, TS Action 4.9.4 and Bases 3/4.9.4. One change clarifies the terminology "outside atmosphere" to "atmosphere outside of containment." This revision clarifies that the containment leakage addressed by the TS is from the containment to outside the containment whether or not the leakage is outside to the atmosphere or to another building. The staff agrees that this change provides clarification and has no adverse affect on safety.

The licensee proposes to change TS LCO 3.9.4.c.1, which requires that each penetration providing direct access from containment shall be "closed by an isolation valve, blind flange, or manual valve" to "closed by a manual or

automatic isolation valve, blind flange, or equivalent." The proposed change would clarify that it is acceptable to use equivalent means to a valve or blind flange in temporarily sealing a penetration. The licensee will control the type of equivalent changes approved for use by ensuring an engineering evaluation is performed prior to using any equivalent measures. The engineering evaluation will ensure that the closure mechanism is capable of restricting the release of radioactive releases from a fuel handling accident. The proposed revision to Bases 3/4.9.4 includes the requirement to perform an engineering evaluation. Since the fuel handling accident does not result in increased containment pressure, alternate sealing mechanisms can be effective in preventing leakage. The staff finds the proposed changes acceptable.

TS Action 3.9.4.a includes a statement that the provisions of TS 3.0.3 are not applicable. Since this statement is redundant to TS Action 3.9.4.c, the licensee proposes that the statement be removed. The staff agrees that eliminating the redundant requirement has no adverse affect on safety.

TS Surveillance Requirement 4.9.4 requires each containment penetration to be in a closed or isolated condition. Since the wording of TS LCO 3.9.4 allows the use of "or equivalent," the licensee proposes to change the verification of containment isolation capability from "closed/isolated condition" to "required condition." The staff finds this change acceptable because of the limited definition of closed/isolated may not adequately describe the "required condition."

3.0 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.

4.0 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 or changes a surveillance requirement. 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 (60 FR 39454). 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.

5.0 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: D. Carter
L. Gundrum

Date: November 17, 1995

Attachments: 1. Table 1, "Calculated Radiological Consequences"
2. Table 2, "Assumptions Used for Calculating Radiological Consequences"

TABLE 1

CALCULATED RADIOLOGICAL CONSEQUENCES
(rem)

Exclusion Area Boundary	Dose	SRP 15.7.4 Guidelines
Whole Body	0.21	6
Thyroid	50.2	75

Control Room Operator	Dose	GDC-19 Guidelines
Whole Body	0.02	5
Thyroid	0.93	Equivalent to 5 rem whole body*

* Guideline doses provided in Standard Review Plan Section 6.4 define the dose-equivalent as 30 rem to the thyroid.

ATTACHMENT 1

TABLE 2

ASSUMPTIONS USED FOR CALCULATING RADIOLOGICAL CONSEQUENCES

Parameters	Quantity
Power Level, Mwt	2,772
Number of Fuel Rods Damaged (1 assembly plus 32 rods)	208
Total Number of Rods	38,816
Shutdown time, hours	72
Power Peaking Factor*	1.65
Fission Product Release Duration*	2 hours
Release Fractions*	
Iodine	0.12
Noble Gases	0.30
Pool Decontamination Factors*	
Iodine	100
Noble Gases	1
Iodine Forms*	
Elemental	75%
Organic	25%
Core Fission Product Inventories per TID-14844	
Receptor Point Variables	
Exclusion Area Boundary**	
Atmospheric Relative Concentration, X/Q (sec/m^3)	
0-2 hours	2.2×10^{-4}
Low Population Zone**	
Atmospheric Relative Concentration, X/Q (sec/m^3)	
0-2 hours	9.6×10^{-6}
8-24 hours	6.6×10^{-6}
1-4 days	3.0×10^{-6}
4-30 days	9.5×10^{-7}
Control Room	
Atmospheric Relative Concentration, X/Q (sec/m^3)	5.85×10^{-4}
Control Room Volume, cubic feet	9.92×10^{4}
Maximum Infiltration Rate, ft^3/min	300
Geometry Factor	28.6
Iodine Protection Factor	143

Note: Dose conversion factors from ICRP-30 were utilized for all calculations

* Regulatory Guide 1.25
** Davis Besse SER

ATTACHMENT 2