December 22, 1986

DCR 016

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| Docket No. 50-346 | DISTRIBUTION | GEdison |
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SUBJECT: AMENDMENT NO. 96 TO FACILITY OPERATING LICENSE NO. NPF-3; AFW SYSTEM SURVEILLANCE REQUIREMENTS

The Commission has issued the enclosed Amendment No. 96 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1. This amendment consists of changes to the Appendix A Technical Specifications (TSs) in response to Item 2 of your application dated August 27, 1984 (No. 1074), as supplemented August 29, 1985 (No. 1180).

This amendment modifies TS Sections 3.7.1.2 and 4.7.1.2 and the associated Bases to clarify the applicability of the Limiting Condition for Operation and to add new surveillance requirements for the auxiliary feedwater system.

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

Sincerely,

/S/

Albert W. De Agazio, Project Manager
PWR Project Directorate #6
Division of PWR Licensing-B

Enclosures:
1. Amendment No. 96 to NPF-3
2. Safety Evaluation

cc w/enclosures:
See next page

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|---|---|---|---|---|---|---|
| PBD-6 | PBD-6 | PBD-6 | FOB | PBD#6 | PBD#6 | OGC |
| RIngram | LKelly | ADeAgazio;eh | WRegan | CMcCracken | JStolz | |
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

TOLEDO EDISON 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. 96
License No. NPF-3

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

   A. The application for amendment by the Toledo Edison Company and The Cleveland Electric Illuminating Company (the licensees) dated August 27, 1984, as supplemented August 29, 1985, 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:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 96 , 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 within 14 days.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz

John F. Stolz, Director
PWR Project Directorate #6
Division of PWR Licensing-B

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 22, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 96

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. The corresponding overleaf pages are also provided to maintain document completeness.

| Remove | Insert |
|---|---|
| 3/4 7-4 | 3/4 7-4 |
| 3/4 7-5 | 3/4 7-5 |
| - | 3/4 7-5a |
| B 3/4 7-2 | B 3/4 7-2 |

## TABLE 4.7-1

## STEAM LINE SAFETY VALVES PER STEAM GENERATOR

| NUMBER PER STEAM GENERATOR | LIFT SETTING (± 1%)* |
|---|---|
| a. 2 | 1050 psig |
| b. 2 | 1070 psig |
| c. 3 | 1090 psig |
| d. 2 | 1100 psig |

* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 Two independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3*.

ACTION:

a. With one Auxiliary Feedwater System inoperable, restore the inoperable system to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each Auxiliary Feedwater System shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Verifying that each steam turbine driven pump develops a differential pressure of $\geq$ 1070 psid on recirculation flow when the secondary steam supply pressure is greater than 800 psia, as measured on PI SP 12B for pump 1-1 and PI SP 12A for pump 1-2.

2. Verifying that each valve (power operated or automatic) in the flow path is in its correct position.

3. Verifying that all manual valves in the auxiliary feedwater pump suction and discharge lines that affect the system's capacity to deliver water to the steam generator are locked in their proper position.

b. At least once per 18 months by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on an auxiliary feedwater actuation test signal prior to entering MODE 3.

*2. Verifying that each pump starts automatically upon receipt of an auxiliary feedwater actuation test signal prior to entering MODE 2.

3. Verifying that there is a flow path between each auxiliary feedwater pump and each steam generator by pumping water from the Condensate Storage Tank to the steam generator.

* Provision of section 3.0.4 is not applicable for entry into MODE 3.

SURVEILLANCE REQUIREMENTS (Continued)

The flow path to the steam generator shall be verified prior to entering MODE 3 by either steam generator level change or Auxiliary Feedwater Safety Grade Flow Indication. Verification of the Auxiliary Feedwater System's flow capacity is not required.

c. The Auxiliary Feed Pump Turbine Steam Generator Level Control System shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months.

d. The Auxiliary Feed Pump Suction Pressure Interlocks, and Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months.

e. After any modification or repair to the Auxiliary Feedwater System that could affect the system's capability to deliver water to the steam generator, the affected flow path shall be demonstrated available as follows:

   1. If the modification or repair is downstream of the test flow line, the auxiliary feed pump shall pump water from the Condensate Storage Tank to the steam generator; and the flow path availability will be verified by steam generator level change or Auxiliary Feedwater Safety Grade Flow Indication.

   2. If the modification or repair is upstream of the test flow line, the auxiliary feed pump shall pump water through the Auxiliary Feedwater System to the test flow line; and the flow path availability will be verified by flow indication in the test flow line. (see note below)

   This Surveillance Testing shall be performed prior to entering MODE 3 if the modification is made in MODES 4, 5 or 6. Verification of the Auxiliary Feedwater System's flow capacity is not required.

Note: When conducting tests of the Auxiliary Feedwater System in MODES 1, 2, and 3 which require local manual realignment of valves that make the system inoperable, a dedicated individual shall be stationed at the valves (in communication with the control room) able to restore the valves to normal system OPERABLE status.

SURVEILLANCE REQUIREMENTS (Continued)

f. Following each extended cold shutdown (> 30 days in MODE 5), by:

1. Verifying that there is a flow path between each auxiliary feedwater pump and each steam generator by pumping Condensate Storage Tank water to the steam generator. The flow path to the steam generator shall be verified by either steam generator level change or Auxiliary Feedwater Safety Grade Flow Indication.

   Verification of the Auxiliary Feedwater System's flow capacity is not required.

## CONDENSATE STORAGE TANK

### LIMITING CONDITION FOR OPERATION

3.7.1.3 The condensate storage facilities (condensate storage tank and deaerator storage tank) shall be OPERABLE with a minimum contained volume of 250,000 gallons of water.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

With the condensate storage facilities inoperable, within 4 hours either:

a. Restore the condensate storage facilities to OPERABLE status or be in HOT SHUTDOWN within the next 12 hours, or

b. Demonstrate the OPERABILITY of the service water system as a backup supply to the auxiliary feedwater system and restore the condensate storage facilities to OPERABLE status within 7 days or be in HOT SHUTDOWN within the next 12 hours.

### SURVEILLANCE REQUIREMENTS.

4.7.1.3.1 The condensate storage facilities shall be demonstrated OPERABLE at least once per 12 hours by verifying the contained water volume to be within its limits when the facilities are the supply source for the auxiliary feedwater pumps.

4.7.1.3.2 The service water system shall be demonstrated OPERABLE at least once per 12 hours by verifying that at least one service water loop is operating and that the service water loop-auxiliary feedwater system isolation valves are either open or OPERABLE whenever the service water system is the supply source for the auxiliary feedwater pumps.

## 3/4.7.1 TURBINE CYCLE

### 3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves ensures that the secondary system pressure will be limited to within 110% its design pressure of 1050 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Vessel Code, 1971 Edition. The total relieving capacity for all valves on all of the steam lines is 14,175,000 lbs/hr which is 120 percent of the total secondary steam flow of 11,760,000 lbs/hr at 100% RATED THERMAL POWER. A minimum of 2 OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-1.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the High Flux channels. The reactor trip setpoint reductions are derived on the following bases:

$$SP = \frac{(X) - (Y)(V)}{Z} \times W$$

where:

SP = reduced Trip Setpoint in percent of RATED THERMAL POWER (Not to Exceed W)

V = maximum number of inoperable safety valves per steam generator

W = High Flux Trip Setpoint for four pump operation as specified in Table 2.2-1

X = Total relieving capacity of all safety valves per steam generator in lbs/hour, 7,087,500 lbs/hour

Y = Maximum relieving capacity of any one safety valve in lbs/hour, 845,759 lbs/hour

Z = Required relieving capacity per steam generator in lbs/hr, 6,585,600 lbs/hr.

## 3/4.7.1.2 AUXILIARY FEEDWATER SYSTEMS

The OPERABILITY of the Auxiliary Feedwater Systems ensures that the Reactor Coolant System can be cooled down to less than 280°F from normal operating conditions in the event of a total loss of offsite power.

Each steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 800 gpm at a pressure of 1050 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 280°F where the Decay Heat Removal System may be placed into operation.

Following any modifications or repairs to the Auxiliary Feedwater System piping from the Condensate Storage Tank through auxiliary feed pumps to the steam generators that could affect the system's capability to deliver water to the steam generators, following extended cold shutdown, a flow path verification test shall be performed. This test may be conducted in MODES 4, 5 or 6 using auxiliary steam to drive the auxiliary feed pumps turbine to demonstrate that the flow path exists from the Condensate Storage Tank to the steam generators via auxiliary feed pumps.

## 3/4.7.1.3 CONDENSATE STORAGE FACILITIES

The OPERABILITY of the Condensate Storage Tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 13 hours with steam discharge to atmosphere and to cooldown the Reactor Coolant System to less than 280°F in the event of a total loss of offsite power or of the main feedwater system. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

## 3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the safety analyses.

## 3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 96 TO FACILITY OPERATING LICENSE NO. NPF-3

TOLEDO EDISON COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

DOCKET NO. 50-346

## INTRODUCTION

By letter dated August 27, 1984 (No. 1074) Item 2, the Toledo Edison Company proposed changes to Appendix A Technical Specification (TS) Section 4.7.1.2. The proposed changes related to the requirements identified in our Safety Evaluation Report (SER) dated February 21, 1984, which addressed the TMI Action Plan NUREG-0737, Item II.E.1.1. That SER stated that Toledo Edison Company must propose Technical Specifications to satisfy Recommendations GS-2, GS-6, and additional Short-term Recommendation 4. The required changes relate to the following surveillance requirements:

- Verification that all local manual valves in the Auxiliary Feedwater (AFW) system that affect system function are locked in the proper positions,
- Verification of the normal AFW flow path from primary water source to the steam generators prior to plant startup following an extended cold shutdown or following any modification or repair that could affect normal AFW flow,
- The stationing of an individual at local manual valves which must be repositioned when conducting surveillance tests on the AFW system.

On May 9, 1985, the NRC issued its evaluation of Toledo Edison Company's August 27, 1984 proposed TS changes. The May 9, 1985, SER concluded that the proposed changes were deficient in certain areas and, therefore, were not acceptable. Specifically, with respect to the requirement to verify the normal flow path following extended cold shutdown, repair, or modification, the use of flow indication was not acceptable to the NRC staff, and the proposed surveillance requirement did not specify that the verification was from the primary water source to the steam generators. Additionally, the requirement to verify flow path after modification or repair did not allow for the fact that repair could be performed in Modes 1 or 2 and, therefore, a stipulation in the proposed change that the verification would be required prior to entering Mode 3 is not applicable. Thus, the NRC staff concluded that the requirement of GS-6 was not met. Other changes proposed did, however, conform to the requirements of GS-2 and Short-term Recommendation 4, but pending revision of the application to satisfy all the criteria, none were incorporated into the license.

DISCUSSION AND EVALUATION

On August 29, 1985 (No. 1180), the licensee submitted a revised application for amendment to remedy the deficiencies identified in the staff's May 9, 1985 SER and to clarify certain existing surveillance requirements. The licensee's application proposed changes to TS Sections 3.7.1.2 and 4.7.1.2.

The proposed TS changes modify paragraph 4.7.1.2.a.2 and add paragraph 4.7.1.2.a.3. These paragraphs now would require verification each 31 days (on a staggered basis) that for each AFW system all power operated and automatic valves in the flow path are in the correct position and that all manual valves in the AFW suction and discharge path that affect the system's capacity to deliver water to the steam generator are locked in their proper position. These proposed verifications comply with the guidelines of GS-2 and are, therefore, acceptable.

The proposed TS changes clarify the requirements of paragraphs 4.7.1.2.b.1 and 4.7.1.2.b.2. Paragraph 4.7.1.2.b.1 requires periodic verification that each automatic valve in the flow path actuates to the correct position on an AFW actuation test signal. The requirement has been clarified to indicate that the verification is to be done prior to entering Mode 3. Since the Applicability of the Limiting Condition for Operation for the AFW system is Modes 1, 2 or 3, this clarification is acceptable. Paragraph 4.7.1.2.b.2 requires verification that each pump starts automatically upon receipt of an AFW actuation test signal. The licensee proposes to add the clarification that this test will be conducted prior to entering Mode 2. The licensee states that this verification requires the plant to be in Mode 3 to produce a steam generator steam supply which is adequate to conduct the test, i.e., main steam pressure $\geq$ 800 psia. The licensee notes that steam from the auxiliary boiler cannot be automatically initiated by the steam and feedwater rupture control system. The staff finds this clarification acceptable.

Associated with the change proposed for paragraph 4.7.1.2.b.2, the licensee proposes a note to indicate that the provision of TS Section 3.0.4 is not applicable for entry into Mode 3 from Mode 4. This note is necessary to allow the verification required by paragraph 4.7.1.2.b.2. The inclusion of the notation is acceptable to the staff.

The proposed TS changes would add paragraphs 4.7.1.2.b.3, 4.7.1.2.e, and 4.7.1.2.f. Paragraph 4.7.1.2.b.3 concerns verifying the flow path from the condensate storage tank to the steam generator by observing either a level change in the steam generator or by observing flow on the safety-grade flow indicator. This change complies with the criteria of GS-6 and is, therefore, acceptable.

Paragraph 4.7.1.2.e concerns verifying the flow path after any modification or repair that could affect the system capability to deliver water to the steam generator. If the repair or modification is made downsteam of the test flow line, the AFW system would be tested to verify flow from the condensate storage tank to the steam generator. Verification would be either by a change in steam generator water level or safety-grade flow indication. If the repair or modification is upstream of the test flow line, the system would be tested to verify flow through the test flow line using flow indication in the test line. The staff had indicated in its

May 9, 1985 SER that the use of AFW flow indication to verify delivery of water to the steam generator was not acceptable. However, with the additional specification that safety-grade instrumentation would be used if verification is through the use of flow indication instead of water level change, the staff finds that paragraph 4.7.1.2.e is acceptable.

Paragraph 4.7.1.2.f concerns verifying the flow path after each cold shutdown more than 30 days in Mode 5. This requirement is identical to the requirement of paragraph 4.7.1.2.b.3. The staff finds that this verification of a flow path from the condensate storage tank to the steam generator using either steam generator level change or safety-grade flow indication meets the guidelines of GS-6 and is, therefore, acceptable.

The licensee has proposed a note to TS 4.7.1.2 which specifies when conducting tests of the AFW system in Modes 1, 2 and 3 which require realignment of local manual valves that make the system inoperable, a dedicated individual will be stationed at the valves and in communication with the control room in order to be able to restore the system to operable status, if necessary. This proposed change to the TS complies with Additional Short-term Recommendation 4 and is, therefore, acceptable.

## ENVIRONMENTAL CONSIDERATION

This amendment involves changes in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. We have determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

## CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: December 22, 1986

Principal Contributors:

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