

November 3, 1983

DMB 016

Docket No. 50-346

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Mr. Richard P. Crouse
 Vice President - Nuclear
 Toledo Edison Company
 Edison Plaza - Stop 712
 300 Madison Avenue
 Toledo, Ohio 43652

Dear Mr. Crouse:

SUBJECT: AMENDMENT NO. 64 TO FACILITY OPERATING LICENSE NPF-3;
 REACTOR COOLANT FLOW AND THERMAL POWER LIMITS

The Commission has issued Amendment No. 64 to Facility Operating License NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1. This amendment modifies the Appendix A Technical Specifications in response to part of Item 4 of your application dated July 10, 1981 (No. 731), as supplemented March 21, 1983 (No. 923). The other portions of Item 4 were incorporated into the Technical Specifications with the issuance of Amendment 42 on December 23, 1981. Items 1, 3, 5, and 6 of your application are under review and will be acted upon separately. Item 2 of your application was withdrawn by your letter of February 12, 1982 (No. 777).

This amendment modifies the action statement of Technical Specification 3.2.5. This action statement is relaxed to permit a thermal power tradeoff in the event of a flow reduction below the specified Limiting Condition for Operation instead of requiring power reduction to 5% rated thermal power. Even with the relaxed action statement, the DNBR margin will not be reduced.

A copy of the Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's Monthly Notice.

Sincerely,

ORIGINAL SIGNED BY
 JOHN F. STOLZ, Chief
 Operating Reactors Branch #4
 Division of Licensing

Immediately before decision made for Petition or Amendment
If any one wish to GLO

Enclosures:

1. Amendment No.64 to NPF-3
2. Safety Evaluation

cc w/enclosures:
 See next page

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 GLA
 10/15/83

OELD
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Toledo Edison Company

cc w/enclosure(s):

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

THE 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. 64
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 July 10, 1981, as supplemented March 21, 1983, 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, Facility Operating License No. NPF-3 is hereby amended as indicated below and by changes to the Technical Specifications as indicated in the attachment to this license amendment:

Revise paragraph 2.C.(2) to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.64 , 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 the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 3, 1983

ATTACHMENT TO LICENSE AMENDMENT NO. 64

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page as indicated. The revised page is identified by Amendment number and contains vertical lines indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

Page

3/4 2-13

POWER DISTRIBUTION LIMITS

DNB PARAMETERS

LIMITING CONDITION FOR OPERATION

3.2.5 The following DNB related parameters shall be maintained within the limits shown on Table 3.2-1.

- a. Reactor Coolant Hot Leg Temperature
- b. Reactor Coolant Pressure
- c. Reactor Coolant Flow Rate

APPLICABILITY: MODE 1

ACTION:

If parameter a or b above exceeds its limit, restore the parameter to within its limit within 2 hours or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 4 hours.

If parameter c exceeds its limit, either:

1. Restore the parameter to within its limit within 2 hours, or
2. Limit THERMAL POWER at least 2% below RATED THERMAL POWER for each 1% parameter c is outside its limit for four pump operation within the next 4 hours, or limit THERMAL POWER at least 2% below 75% of RATED THERMAL POWER for each 1% parameter c is outside its limit for 3 pump operation within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.5.1 Each of the parameters of Table 3.2-1 shall be verified to be within their limits at least once per 12 hours.

4.2.5.2 The Reactor Coolant System total flow rate shall be determined to be within its limit by measurement at least once per 18 months.

TABLE 3.2-1

DNB MARGIN

Parameter	<u>LIMITS</u>	
	Four Reactor Coolant Pumps Operating	Three Reactor Coolant Pumps Operating
Reactor Coolant Hot Leg Temperature T_{HL} °F	≤ 610	$\leq 610^{(1)}$
Reactor Coolant Pressure, psig. ⁽²⁾	≥ 2062.7	$\geq 2058.7^{(1)}$
Reactor Coolant Flow Rate, gpm ⁽³⁾	$\geq 396,880$	$\geq 297,340$

⁽¹⁾ Applicable to the loop with 2 Reactor Coolant Pumps Operating.

⁽²⁾ Limit not applicable during either a THERMAL POWER ramp increase in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step increase of greater than 10% of RATED THERMAL POWER.

⁽³⁾ These flows include a flow rate uncertainty of 2.5%.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 64 TO FACILITY OPERATING LICENSE NO. NPF-3

TOLEDO EDISON COMPANY

AND

CLEVELAND ELECTRIC ILLUMINATING COMPANY

DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1

DOCKET NO. 50-346

1. Introduction

By letter dated February 11, 1980 (Ref. 1), Toledo Edison (the licensee) proposed a Technical Specification (TS) amendment regarding Limiting Condition for Operation (LCO) 3.2.5. The current Technical Specification 3.2.5 specifies that with any of the reactor coolant (RC) hot leg temperature, RC pressure or RC flow rate outside its limits during mode 1 operation, action is required to restore the parameter to within its limit within two hours or reduce the thermal power to less than 5% of the rated thermal power within the next four hours. The proposed Technical Specification change would retain the same action when either the RC hot leg temperature or RC pressure exceeds its limit. With regard to the RC flow rate outside its limit, the action would require either (1) restoring the RC flow to within its limit within two hours; or (2) within the next four hours, reducing the thermal power at least 2% rated thermal power for each 1% RC flow is below the specified limit for three-pump operation. This Technical Specification amendment request was not granted for lack of basis.

By letter dated July 10, 1981 (Ref. 2), the licensee provided a revised Safety Evaluation for the proposed Technical Specification amendment. This SE addresses the staff evaluation of the proposed Technical Specification change and the related safety analysis.

2. Evaluation

The purpose of the Technical Specification LCO 3.2.5 is to ensure that the departure from nucleate boiling ratio (DNBR) safety limit is not violated during normal operation and anticipated operational occurrences.

The current Technical Specification requires that the measured RC flow, after compensating for a 2.5% measurement uncertainty, be greater than or equal to 396,800 gpm with four pumps operating and 297,340 gpm with three pumps operating. The proposed amendment is to relax the action statement to require a power reduction of 2% rated thermal power for each 1% flow is below its specified four-pump limit and a

power reduction of 2% of 75% rated thermal power for each 1% the flow is below its specified three-pump limit. The licensee provided the result of Babcock & Wilcox calculations showing a DNBR margin gain from the proposed flow and power tradeoff, i.e., an increase in DNBR margin results from the power decrease per the proposed action statement when RC flow is below its limit. The licensee, in response to NRC staff questions, provided a more detailed description (Ref. 3) of the analysis for both four- and three-RC pump operations. The CHATA (Ref 4) and TEMP (Ref. 5) computer codes were used for the core flow distribution and detailed DNBR analysis respectively of the limiting fuel assembly. The analysis was performed using the maximum design overpower conditions with conservative assumptions and varying RC flow and thermal power according to the proposed modified action statement. The results show increased DNBR margin with decreasing flow and power reduction at the steady state conditions. Since the initial DNBR margin tends to be carried through to the transient minimum DNBR, the consequences of the existing transient analyses remain bounding by preserving the initial conditions of the transients. The licensee, in response to an NRC staff question, provided a list of review results (Ref. 3) on the impact of the proposed flow and power reduction on the Final Safety Analysis Report (FSAR) Chapter 15, analyses of all anticipated operational occurrences and accidents. These results show that the anticipated operational occurrences and accidents with reduced flow and power initial conditions are all bounded by the original FSAR analyses.

The NRC staff has also performed an independent audit calculation using the sensitivity factors (Ref. 6) of the change of DNBR with respect to the RC flow and power for the B&W-2 critical heat flux correlation. The result shows that a 1% RC flow reduction requires a 1.05% reduction in power in order to preserve the same DNBR. Therefore, the proposed Technical Specification change of 2% power reduction per 1% RC flow reduction is conservative. Based on our review of the licensee's proposed Technical Specification amendment on LCO 3.2.5, we have concluded that the proposed change will not result in a reduction of the DNBR margin during normal operation, and the safety analyses of the anticipated operational occurrences and accidents are still bounded by the original analyses provided in FSAR Chapter 15. Therefore, we have concluded that the proposed Technical Specification change poses no significant safety concern and is acceptable.

3. Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

4. 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: November 3, 1983

This Safety Evaluation was prepared by Y. Hsii of NRR.

References

1. Letter, R. P. Crouse (Toledo Edison) to NRC, Docket No. 50-346, License No. NPR-3, Serial No. 590, February 11, 1980.
2. Letter, R. P. Crouse (Toledo Edison) to J. F. Stolz (NRC), Docket No. 50-346, License No. NPF-3, Serial No. 731, July 10, 1981.
3. Letter, R. P. Crouse (Toledo Edison) to J. F. Stolz (NRC), Docket No. 50-346, License No. NPF-3, Serial No. 923, March 21, 1983.
4. BAW-10110, "CHATA-Core Hydraulic and Thermal Analysis," Babcock & Wilcox Company, January 1976.
5. BAW-10021, "TEMP-Thermal Enthalpy Mixing Program," Babcock & Wilcox Company, April 1970.
6. FATE-79-101, G. M. Hesson and J. M. Cuta, "Analysis of the Sensitivity of Calculated MDNBR to Eight Selected DNB Parameters," Battelle Pacific Northwest Laboratories, Richland, Washington, March 1979.