

August 24, 1988

Docket No. 50-346
Serial No. DB-88-044

Mr. Donald C. Shelton
Vice President, Nuclear
Toledo Edison Company
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Dear Mr. Shelton:

SUBJECT: AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. NPF-3:
MAIN STEAM SAFETY VALVES -- CODE REQUIREMENTS AND SETPOINTS
(TAC NO. 67394)

The Commission has issued the enclosed Amendment No. 117 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 (TS's) in response to your application dated March 4, 1988 (Serial No. 1487) and supplemented by letter dated May 4, 1988 (Serial No. 1520).

This amendment revises the Technical Specifications Table 4.7-1 and the Technical Specification Bases Section 3/4.7.1.1. Please note that these changes relate only to that portion of the proposed amendment related to the main steam safety valve setpoints and ASME Code requirements. The portion of the proposed amendment related to the main steam safety valve steam relief capacity, the high flux trip setpoint, and elimination of Technical Specification Table 4.7-1 is being reviewed separately.

Copies of the Safety Evaluation and of the notice of issuance related to this amendment are enclosed. The notice has been forwarded to the Office of the Federal Register for publication.

Sincerely,

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Albert W. De Agazio, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects - III, IV,
V & Special Projects

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Enclosures:

1. Amendment No. 117 to License No. NPF-3
2. Safety Evaluation

cc: See next page

Office: LA/PDIII-3
Surname: PKreutzer
Date: 8/11/88

PM/PDIII-3
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8/12/88

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Mr. Donald C. Shelton
Toledo Edison Company

Davis-Besse Nuclear Power Station
Unit No. 1

cc:

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ATTACHMENT TO LICENSE AMENDMENT NO. 117

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

3/4 7-1
3/4 7-3
B 3/4 7-1
-
B 3/4 7-2

Insert

3/4 7-1
3/4 7-3
B 3/4 7-1
B 3/4 7-1a
B 3/4 7-2



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. 117
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 March 4, 1988 as supplemented May 4, 1988 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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(a) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.117 , 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 October 7, 1988.

FOR THE NUCLEAR REGULATORY COMMISSION


Kenneth E. Perkins, Director
Project Directorate III-3
Division of Reactor Projects - III, IV,
V, & Special Projects

Attachment: Changes to the Technical
Specifications

Date of Issuance: August 24, 1988

3/4.7 PLANT SYSTEMS

3/4.7.1 TURBINE CYCLE

SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.1 All main steam line code safety valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

With one or more main steam line code safety valves inoperable,

- a. operation in MODES 1, 2 and 3 may proceed provided, that within 4 hours, either,
 1. the inoperable valve is restored to OPERABLE status, or,
 2.
 - a) the High Flux Trip Setpoint is reduced per Table 3.7-1, and,
 - b) there are a minimum of two OPERABLE safety valves per steam generator, at least one with a setpoint not greater than 1050 psig (+/-1%)*, and,
 - c) no OPERABLE safety valve has a setpoint greater than 1100 psig (+/-1%)*;otherwise,
- b. be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.1 No additional Surveillance Requirements other than those required by Specification 4.0.5, are applicable for the main steam line code safety valves of Table 4.7-1.

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

TABLE 3.7-1

MAXIMUM ALLOWABLE HIGH FLUX TRIP SETPOINT WITH INOPERABLE
STEAM LINE SAFETY VALVES

<u>Maximum Number of Inoperable Safety Valves on Any Steam Generator</u>	<u>Maximum Allowable High Flux Trip Setpoint* (Percent of RATED THERMAL POWER)</u>
1	0.95W
2	0.82W
3	0.69W
4	0.56W
5	0.43W
6	0.31W
7	0.18W

*Based on High Flux Trip Setpoint for four pump operation, W, as per Table 2.2-1.

Table 4.7-1MAIN STEAM LINE SAFETY VALVE LIFT SETTINGS

<u>NUMBER PER STEAM GENERATOR</u>	<u>LIFT SETTING ($\pm 1\%$)*</u>
a. 2	1050 psig
b. 7	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 ≥ 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.

3/4.7 PLANT SYSTEMS

BASES

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 safety valve set pressures and relieving capacities are in accordance with Section III of ASME Boiler and Pressure Vessel Code, 1971 Edition. The Code requires the following:

1. At least two pressure-relief valves are required to provide relieving capacity for steam systems.
2. The capacity of the smallest pressure-relief valve shall not be less than 50 percent of that of the largest pressure-relief device.
3. The set pressure of one of the pressure-relief devices shall not be greater than the maximum allowable working pressure of the system at design temperature.
4. Total rated relieving capacity of the pressure-relief devices shall prevent a rise in pressure of more than 10 percent above system design pressure at design temperature under any pressure transients anticipated to arise.

These requirements are, respectively, met as follows:

1. Nine safety valves are installed per steam generator.
2. The relief capacity of two of the nine safety valves per steam generator is 583,574 lbs/hr each, and the capacity of the remaining seven is 845,759 lbs/hr each.
3. A minimum of two OPERABLE safety valves per steam generator, with a combined total relief capacity of at least 1,167,148 lbs/hr, one with a setpoint not greater than 1050 psig (+/-1%), and one with a setpoint not greater than 1100 psig (+/-1%).
4. The total relieving capacity of all safety valves on both main steam lines is 14,175,000 lbs/hr which is 120 percent of the total secondary system flow of 11,760,000 lbs/hr at 100 percent of rated thermal power. A maximum safety valve setpoint pressure of 1100 psig (+/-1%) assures main steam system pressure remains below 110 percent, or 1155 psig.

3/4.7 PLANT SYSTEMS

BASES

3/4.7.1.1 SAFETY VALVES (Continued)

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.

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PLANT SYSTEMS

BASES

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 600 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 in 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
RELATED TO AMENDMENT NO. 117 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

1.0 INTRODUCTION

By application dated March 4, 1988 (Serial No. 1487) and supplemented by letter dated May 4, 1988 (Serial No. 1520), the Toledo Edison Company and the Cleveland Electric Illuminating Company requested that the Davis-Besse Nuclear Power Station, Unit No. 1 Operating License, Appendix A, Technical Specifications be revised. The proposed changes involve Technical Specifications (TS) Section 3/4.7.1.1, Turbine Cycle-Safety Valves; Table 3.7-1, Maximum Allowable High Flux Trip Setpoint With Inoperable Steam Line Safety Valves; Table 4.7-1, Steam Line Safety Valves Per Steam Generator; and Bases Section 3/4.7.1.1, Turbine Cycle-Safety Valves.

2.0 BACKGROUND

The proposed changes would allow the main steam safety valve (MSSV) setpoints and minimum number of valves to be more clearly stated consistent with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section III, 1971 Edition. The proposed changes would also incorporate into the Limiting Condition for Operation a redefinition of the relationship between the total operable main steam safety valve relieving capability per steam generator and the reduced Reactor Protection System High Flux Trip setpoint. This redefinition would allow the High Flux Trip setpoint reduction due to an inoperable safety valve(s) to directly reflect the actual loss of steam relieving capability, versus the conservative relationship (resulting in an increased reactor power penalty) presently employed in the Technical Specifications. The requested changes to the High Flux Trip setpoint and required MSSV capacity will be evaluated in a later safety evaluation (SE). Therefore, this SE will address only the acceptability of the proposed Technical Specification for MSSV setpoints.

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3.0 EVALUATION

The proposed changes will require that at least one MSSV be set at no greater than system design pressure of 1050 psig (+1%). This is consistent with the ASME Code requirements and is therefore acceptable. With the proposed changes the maximum analyzed system pressure due to limiting design basis events will remain below 110 percent of design pressure. This is also consistent with the ASME Code and is acceptable. The values of the proposed MSSV setpoints are:

<u>No. of MSSV's per Steam Generator</u>	<u>Lift Setting(+1%)</u>
2	1050 psig
7	1100 psig

The licensee also proposes to eliminate Table 4.7-1 of the TS. This would allow the licensee to change the setpoints of some of the MSSV's without requiring a change to the TS. The licensee states that the proposed changes will provide greater flexibility in valve set pressure and replacement while maintaining required overpressure protection for the steam generators. In order to comply with the ASME Code, the +1% tolerance must be placed on each MSSV setpoint. The staff has determined that Table 4.7-1 may not necessarily be the only means to assure proper MSSV setpoints; however, there must be adequate control of the MSSV setpoints to assure adequate overpressure protection and system response. Therefore, future changes to the MSSV pressure setpoints would be acceptable providing the requirements of 10 CFR 50.59 are met.

For the interim period until the staff reviews the proposed High Flux Trip setpoint changes, the licensee has agreed to leave the current High Flux Trip setpoint in TS Table 3.7-1 as is. It has been determined that leaving the TS for the High Flux Trips as they presently are is conservative in combination with the proposed revisions to the MSSV setpoints since the two smaller capacity valves are proposed to have the lower setpoints. Therefore, this is acceptable for the interim period. Until such time as the portion of the proposed amendment related to the MSSV steam relief capacity and the high flux trip setpoint is reviewed by the staff, TS Table 4.7-1 and the reference to it in TS Section 4.7.1.1 must be retained with the modified setpoints shown above.

Therefore, the proposed revision to the Technical Specifications concerning MSSV setpoints is approved with the above stated provisions for the interim period until the staff completes the review of the High Flux Trip setpoints and the required MSSV relieving capacity.

4.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35 an environmental assessment and finding of no significant impact has been prepared and published in the Federal Register on July 26, 1988 (53 FR 28081). Accordingly, based upon the environmental assessment, the Commission has determined that the issuance of this amendment will not have a significant effect on the quality of the human environment.

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, 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.

Principal Contributor: C. Gary Hammer

Dated: August 24, 1988

U. S. NUCLEAR REGULATORY COMMISSIONTOLEDO EDISON COMPANY, ET AL.DOCKET NO. 50-346NOTICE OF ISSUANCE OF AMENDMENT TOFACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 117 to Facility Operating License No. NPF-3, issued to The Toledo Edison Company and The Cleveland Electric Illuminating Company (the licensee), which revised the Technical Specifications for operation of the Davis-Besse Nuclear Power Station, Unit No. 1 (the facility) located in Ottawa County, Ohio. The amendment was effective as of the date of its issuance.

The amendment revised the Technical Specifications related to the main steam safety valve setpoints and ASME Code requirements.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on May 24, 1988 (53 FR 18631). No request for hearing or petition for leave to intervene was filed following this notice.

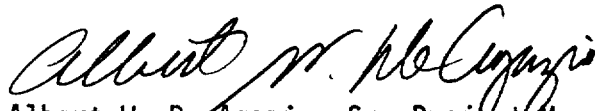
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For further details with respect to this action see (1) the application for amendment dated March 4, as supplemented May 4, 1988, (2) Amendment No. to License No. NPF-3, (3) the Commission's related Safety Evaluation dated and (4) the Environmental Assessment dated July 19, 1988 (53 FR 28081). All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the University of Toledo Library, Documents Department, 2801 Bancroft Avenue, Toledo, Ohio 43606.

A copy of items (2), (3) and (4) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Reactor Projects - III, IV, V and Special Projects.

Dated at Rockville, Maryland this 24th day of August 1988.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script, appearing to read "Albert W. De Agazio".

Albert W. De Agazio, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects - III,
IV, V and Special Projects