

April 25, 1989

Docket No. 50-346
Serial No. DB-88-008

Mr. Donald C. Shelton
Vice President, Nuclear
Toledo Edison Company
Edison Plaza - Stop 712
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Toledo, Ohio 43652

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Dear Mr. Shelton:

SUBJECT: AMENDMENT NO. 131 TO FACILITY OPERATING LICENSE NO. NPF-3
(TAC NO. 65374)

The Commission has issued Amendment No. 131 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1. The amendment revises the Technical Specifications in response to your application dated May 4, 1987 as modified by your submittal dated April 29, 1988.

This amendment removes the operability and surveillance requirements for the Auxiliary Feedpump Turbine Inlet Steam Pressure Interlocks from the Technical Specification requirements for the Auxiliary Feedwater Pumps but retains the requirements for the interlocks in the Technical Specifications for protection against the effects of a rupture of the steamlines to the Auxiliary Feedwater Pump Turbines.

A copy of the Safety Evaluation and of the notice of issuance are also enclosed. The notice of issuance has been forwarded to the Office of the Federal Register for publication.

Sincerely,

/s/

Thomas V. Wambach, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects - III, IV,
V & Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 131 to License No. NPF-3
2. Safety Evaluation
3. Notice of Issuance

cc w/enclosures:
See next page

Office: LA/PDIII-3
Surname: PKreutzer
Date: 4/15/89
4/16/89

PM/PDIII-3
TWambach/mr
4/16/89

PD/PDIII-3
JHannon
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E. Buchman
4/11/89

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JVM
for S.H. 4/25/89

W/changes to SE

DFOL

C/P/

Mr. Donald C. Shelton
Toledo Edison Company

Davis-Besse Nuclear Power Station
Unit No. 1

cc:

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180 East Broad Street
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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. 131
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 May 4, 1987 as modified April 29, 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. 131, 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 June 9, 1989.

FOR THE NUCLEAR REGULATORY COMMISSION

for 
John N. Hannon, Director
Project Directorate III-3
Division of Reactor Projects - III, IV,
V, & Special Projects
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: April 25, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 131

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 7-4
3/4 7-5
3/4 7-5a
B 3/4 7-1a

Insert

3/4 7-4
3/4 7-5
3/4 7-5a
B 3/4 7-1a

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.
- b. With any Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks inoperable, restore the inoperable interlocks to OPERABLE status within 7 days or be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.2.1 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. The provisions of Specification 4.0.4 are not applicable for entry into Mode 3.
 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.
 4. Verifying that valves CW 196, CW 197, FW 32, FW 91 and FW 106 are closed.
- 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.
 2. Verifying that each pump starts automatically upon receipt of an auxiliary feedwater actuation test signal. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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.

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.

- 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 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.

PLANT SYSTEMS

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.

4.7.1.2.2 The Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks shall be demonstrated OPERABLE when the steam line pressure is greater than 275 psig, by performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months. The CHANNEL FUNCTIONAL TEST shall be performed within 24 hours after exceeding 275 psig during each plant startup, if the test has not been performed within the last 31 days.

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.

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. The OPERABILITY of the Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks is required only for high energy line break concerns and does not affect Auxiliary Feedwater System OPERABILITY.

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.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 131 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

The licensee for Davis-Besse Nuclear Power Station, Unit 1 (Toledo Edison Company) submitted an application for an amendment to the operating license dated May 4, 1987 as supplemented by submittal dated April 29, 1988. The application requested that the Technical Specifications be revised to relocate the specifications relating to the Auxiliary Feed Pump Turbine (AFPT) inlet steam pressure interlocks by deleting a part of Surveillance Requirement 4.7.1.2.d which specifies that the AFPT inlet steam pressure interlocks are to be demonstrated operable as part of the Auxiliary Feedwater System, by performance of a channel functional test at least once per 31 days, and a channel calibration at least once per 18 months. In addition, the licensee proposed to add the requirement for operable pressure interlocks as a separate specification action statement and a separate surveillance specification requirement. The appropriate statement was added to the Basis section of the Technical Specifications.

2.0 DISCUSSION

The present Davis-Besse Auxiliary Feedwater (AFW) system is shown in Figure 1, attached. Prior to the June 9, 1985 loss-of-feedwater event, valves MS-106, MS-106A, MS-107 and MS-107A, on the steam admittance lines to the AFW pump turbines, were retained in closed position. Thus, the portion of the steam admittance lines downstream of these valves remained at ambient pressure. Pressure switches PSL 106A through 106D were interlocked with motor operated steam admission valves MS 106 and MS106A while PSB 107A through 107D were

interlocked with steam admission valves MS 107 and MS 107A. These switches are designed to initiate closure of these four steam admission valves (or to maintain closure if already closed) in the event they detect low pressure. As initially designed, the steam admission valves were closed, and opened in response to a steam and feedwater rupture control system (SFRCS) signal. The pressure switches, originally in the tripped position because of sensing ambient pressure moved into the untripped position as a result of the pressure of the steam being admitted. Thereafter, a break in a steam admittance line which results in a lower pressure would cause the pressure switches to move into the tripped position, initiating closure of the steam admittance valves in the broken line.

It should be noted that the two air-operated valves, MS 5889 A and B shown on Figure 1 downstream of the pressure switch interlocks, were not part of that original design; they were introduced as part of the new design after the June 9, 1985 LOFW event and supplemented two manually operated valves which were kept in the open position. The new design also required that steam admittance valves MS 106A and 107A be kept open with MS 5889 A and B in the closed position. This has the effect of maintaining steam pressure in the lines up to valves MS 5889 A and B. Thus, while the pressure switches previously had to switch position from tripped to untripped in order to permit AFW system operation, now they remain in the untripped position and only operate (trip) in the event of a low pressure signal to shut off steam flow to the broken line.

Therefore, the AFPT inlet steam pressure interlocks are no longer required for the AFW system to be operable.

3.0 EVALUATION

A. Change to Technical Specification (TS) 3.7.1.2.

The change made to TS 3.7.1.2 separates the action statement resulting from a failed interlock from that resulting from a failure of a portion of the AFW system. We find this acceptable since interlock actuation is not required for AFW system operation.

In addition, the change requires that an inoperable interlock be returned to operable status within 7 days or be in hot shutdown within 12 hours thereafter. We find this in accordance with Standard Technical Specifications and, thus, acceptable.

B. Change of TS 4.7.1.2 to 4.7.1.2.1

This change separates the demonstration of operability requirements for the AFW system (now in TS 4.7.1.2.1) from that for the interlocks (added TS Section 4.7.1.2.2). We find this change acceptable since the interlocks are now separate from the AFW system.

C. Deletion of Mention of Interlocks in Previous TS 4.7.1.2.d

This change is acceptable since the licensee has demonstrated separability of AFW system operation from the interlocks. Further, the licensee has maintained the operability requirements for the interlocks in a new TS 4.7.1.2.2.

D. Addition of TS 4.7.1.2.2

This change identifies the specific operability requirements for the AFW pump turbine inlet steam pressure interlocks separately from the AFW pump suction pressure interlocks. The TS indicates the requirement for performance of a channel functional test at least once per 31 days and a channel calibration test at least once every 18 months which are the same as previously specified. We find this change consistent with the Standard Technical Specifications and, therefore, acceptable.

E. Addition of Sentence to B 3/4 7.1.2

As stated above, the licensee has demonstrated that the steam pressure interlocks are required only for a steam line break and are not required for AFW system operability. Therefore, the addition of the sentence to this effect in the bases is acceptable.

Based on the above, the staff finds that the changes to the Technical Specifications proposed by the licensee regarding the AFPT inlet steam pressure interlocks are in accordance with the Standard Technical Specifications and system design requirements and are, therefore, acceptable.

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 April 21, 1989 (54 FR 16176). 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

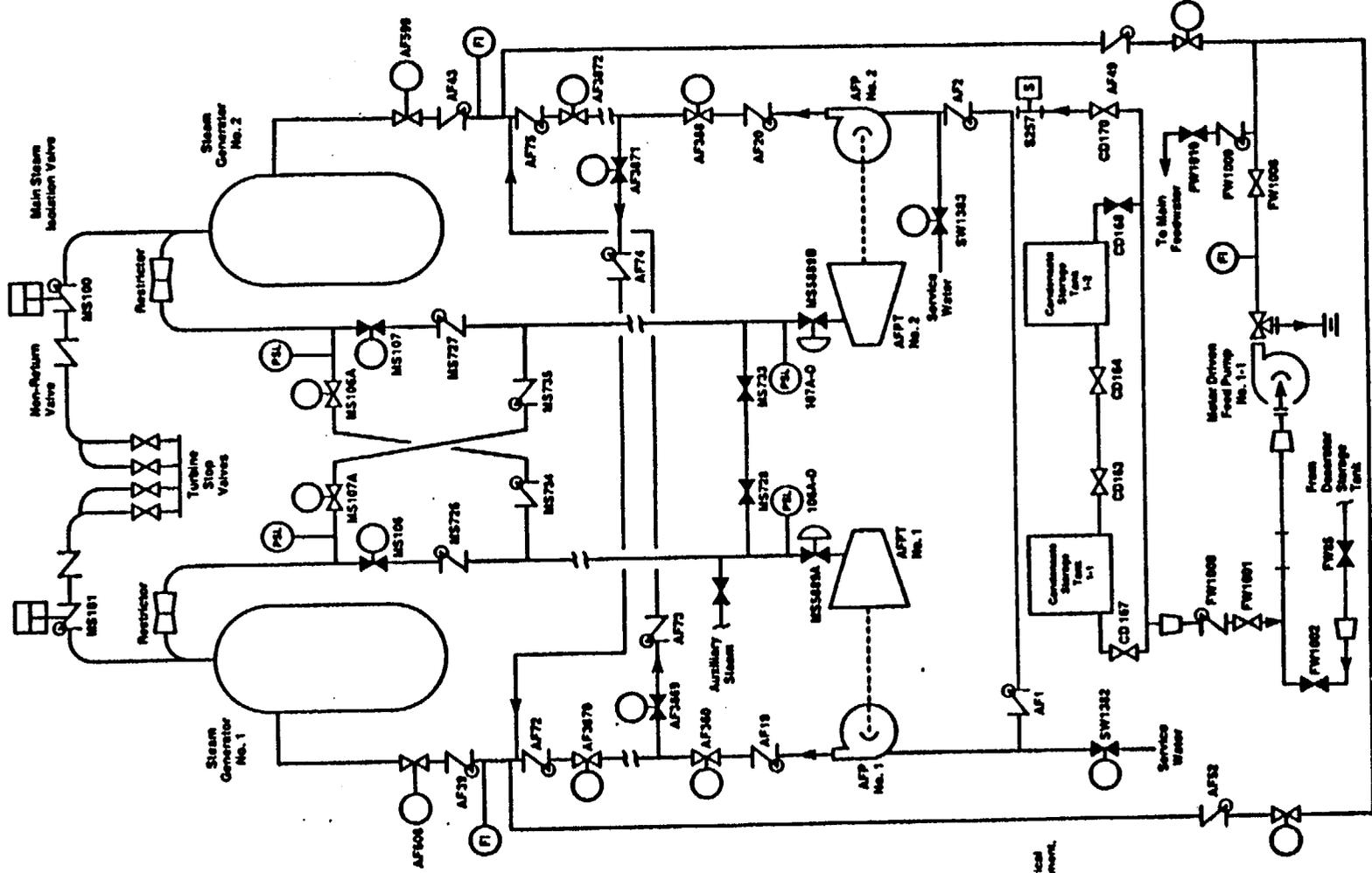
The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, 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: N. Wagner

Dated: April 25, 1989

Attachment: Figure 1

Davis-Besse Auxiliary and Motor Driven Feedwater Systems



*Subject to acceptable analytical verification, design development, and NRC approval.

UNITED STATES NUCLEAR REGULATORY COMMISSION
TOLEDO EDISON COMPANY AND
THE CLEVELAND ELECTRICAL ILLUMINATING COMPANY, ET AL.
DOCKET NO. 50-346
NOTICE OF ISSUANCE OF AMENDMENTS TO
FACILITY OPERATING LICENSES

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment No. 131 to Facility Operating License No. NPF-3, issued to 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 1, located in Ottawa County, Ohio. The amendment was effective as of the date of issuance.

The amendment modified the Technical Specifications to remove the operability and surveillance requirements for the Auxiliary Feedpump Turbine Inlet Steam Pressure Interlocks from the Technical Specification requirements for the Auxiliary Feedwater Pumps but retained the requirements for the interlocks in the Technical Specifications for protection against the effects of a rupture of the steam lines to the Auxiliary Feedwater Pump Turbines.

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.

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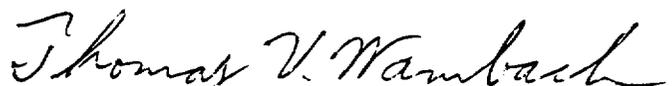
Notice of Consideration of Issuance of Amendment and Opportunity for Prior Hearing in connection with this action was published in the FEDERAL REGISTER on January 6, 1988 (53 FR 295). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of this amendment will not have a significant effect on the quality of the human environment.

For further details with respect to the action see (1) the application for amendment dated May 4, 1987, and supplemented April 29, 1988, (2) Amendment No.131 to License No. NPF-3, (3) the Commission's related Safety Evaluation dated April 25, 1989 and (4) the Environmental Assessment dated April 14, 1989. All of these items are available for public inspection at the Commission's Public Document Room, Gelman Building, 2120 L Street NW, 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 25th day of April 1989.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas V. Wambach, Acting Director
Project Directorate III-3
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation