

OCTOBER 2 1979

DISTRIBUTION:

Docket File
NRC PDR
L PDR
ORB#4 Rdg
NRR Rdg
DEisenhut
BGrimes
RVollmer
WGammill
LShao
JRMiller, DOR
TJCarter
WRussell
RIngram
DGarner
Attorney, OELD
OI&E (5)
BJones (4)
BScharf (10)

DBrinkman
ACRS (16)
OPA, CMiles
RDiggs
HRDenton
JRBuchanan
TERA
Gray File
4 Extra Cys
RCapra
~~WXX~~
MVirgilio

Docket No.: 50-346

Mr. Lowell E. Roe
Vice President, Facilities
Development
Toledo Edison Company
Edison Plaza
300 Madison Avenue
Toledo, Ohio 43652

Dear Mr. Roe:

The Commission has issued the enclosed Amendment No. 20 to Facility Operating License No. NPF-3 for the Davis Besse Nuclear Power Station, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your application dated January 13, 1978 and staff discussions.

This amendment modifies the Technical Specifications to incorporate surveillance requirements for throttle valves used in the low pressure injection system.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original signed by
Robert W. Reid

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures:

1. Amendment No. 20
2. Safety Evaluation
3. Notice

cc w/enclosures: See next page

STSG
MPV
MVirgilio
9/25/79

STSG
CWR 911120098
PWagner
9/25/79

CP
/

60

P

Concurrence
in Amendment +
not necessary

OFFICE	ORB#4: DOR	ORB#4: DOR	ORB#4: DOR	C-ORB#4: DOR	AD/ORB: DOR	OELD
SURNAME	RIngram	DGarner	GVissing:rf	RRent	WGammill	S. Treby
DATE	9/24/79	9/24/79	9/24/79	9/24/79	9/24/79	9/28/79



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

October 2, 1979

Docket No.: 50-346

Mr. Lowell E. Roe
Vice President, Facilities
Development
Toledo Edison Company
Edison Plaza
300 Madison Avenue
Toledo, Ohio 43652

Dear Mr. Roe:

The Commission has issued the enclosed Amendment No. 20 to Facility Operating License No. NPF-3 for the Davis Besse Nuclear Power Station, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your application dated January 13, 1978 and staff discussions.

This amendment modifies the Technical Specifications to incorporate surveillance requirements for throttle valves used in the low pressure injection system.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

A handwritten signature in cursive script, reading "Robert W. Reid", is positioned above the typed name.

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures:

1. Amendment No. 20
2. Safety Evaluation
3. Notice

cc. w/enclosures: See next page

Toledo Edison Company

cc w/enclosure(s):

Mr. Donald H. Hauser, Esq.
The Cleveland Electric
Illuminating Company
P. O. Box 5000
Cleveland, Ohio 44101

Gerald Charnoff, Esq.
Shaw, Pittman, Potts
and Trowbridge
1800 M Street, N.W.
Washington, D.C. 20036

Leslie Henry, Esq.
Fuller, Seney, Henry and Hodge
300 Madison Avenue
Toledo, Ohio 43604

Mr. Robert B. Borsum
Babcock & Wilcox
Nuclear Power Generation Division
Suite 420, 7735 Old Georgetown Road
Bethesda, Maryland 20014

Ida Rupp Public Library
310 Madison Street
Port Clinton, Ohio 43452

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

Attorney General
Department of Attorney General
30 East Broad Street
Columbus, Ohio 43215

Harold Kahn, Staff Scientist
Power Siting Commission
361 East Broad Street
Columbus, Ohio 43216

Docketing and Service Section
Office of the Secretary
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Director, Technical Assessment
Division
Office of Radiation Programs
(AW-459)
U. S. Environmental Protection Agency
Crystal Mall #2
Arlington, Virginia 20460

U. S. Environmental Protection Agency
Federal Activities Branch
Region V Office
ATTN: EIS COORDINATOR
230 South Dearborn Street
Chicago, Illinois 60604

Mr. Samuel J. Chilk, Secretary
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable Tim McCormack
Ohio Senate
Statehouse
Columbus, Ohio 43216

The Honorable Tim McCormack
170 E. 209th Street
Euclid, Ohio 44123

Mr. Lowell E. Roe
Vice President, Facilities
Development
Toledo Edison Company
Edison Plaza
300 Madison Avenue
Toledo, Ohio 43652

Bruce Churchill, Esq.
Shaw, Pittman, Potts & Trowbridge
1800 M Street, N.W.
Washington, D.C. 20036

Atomic Safety & Licensing Board Panel
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing Appeal Panel
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Toledo Edison Company

cc w/enclosure(s):

Ivan W. Smith, Esq.
Atomic Safety and Licensing Board Panel
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Cadet H. Hand, Jr.
Director, Bodega Marine Laboratory
University of California
P. O. Box 247
Bodega Bay, California 94923

Dr. Walter H. Jordan
881 W. Outer Drive
Oak Ridge, Tennessee 37830

Ms. Jean DeJuljak
381 East 272
Euclid, Ohio 44117

Mr. Rick Jagger
Industrial Commission
State of Ohio
2323 West 5th Avenue
Columbus, Ohio 43216

cc w/enclosure(s) and incoming
dtd.: 1/13/78

Ohio Department of Health
ATTN: Director of Health
450 East Town Street
Columbus, Ohio 43216



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. 20
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 January 13, 1978, 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.

7911120103

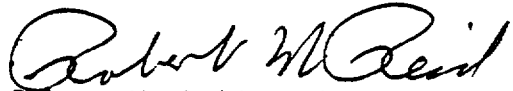
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-3 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 20, 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



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 2, 1979

ATTACHMENT TO LICENSE AMENDMENT NO. 20

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages as indicated. 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.

Pages

3/4 5-5
3/4 5-5a (added)
B 3/4 5-1
B 3/4 5-2

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

5. Verify that a representative sample of TSP from a TSP storage basket has a density of ≥ 53 lbs/cu ft.
 6. Verifying that when a representative sample of 0.35 ± 0.05 lbs of TSP from a TSP storage basket is submerged, without agitation, in 50 ± 5 gallons of $180 \pm 10^\circ\text{F}$ borated water from the BWST, the pH of the mixed solution is raised to ≥ 6 within 4 hours.
- e. At least once per 18 months, during shutdown, by
1. Verifying that each automatic valve in the flow path actuates to its correct position on a safety injection test signal.
 2. Verifying that each HPI and LPI pump starts automatically upon receipt of a SFAS test signal.
- f. By performing a vacuum leakage rate test of the watertight enclosure for valves DH-11 and DH-12 that assures the motor operators on valves DH-11 and DH-12 will not be flooded for at least 7 days following a LOCA:
1. At least once per 18 months.
 2. After each opening of the watertight enclosure.
 3. After any maintenance on or modification to the watertight enclosure which could affect its integrity.
- g. By verifying the correct position of each mechanical position stop for valves DH-14A and DH-14B.
1. Within 4 hours following completion of the opening of the valves to their mechanical position stop or following completion of maintenance on the valve when the LPI system is required to be OPERABLE
 2. At least once per 18 months.

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- h. By performing a flow balance test, during shutdown, following completion of modifications to the HPI or LPI subsystems that alter the subsystem flow characteristics and verifying the following flow rates:

HPI System - Single Pump

Injection Leg 1-1 \geq 375 gpm at 400 psig*
Injection Leg 1-2 \geq 375 gpm at 400 psig*

Injection Leg 2-1 \geq 375 gpm at 400 psig*
Injection Leg 2-2 \geq 375 gpm at 400 psig*

LPI System - Single Pump

Injection Leg 1 \geq 2650 gpm at 100 psig**
Injection Leg 2 \geq 2650 gpm at 100 psig**

* Reactor coolant pressure at the HPI nozzle in the reactor coolant pump discharge.

** Reactor coolant pressure at the core flood nozzle on the reactor vessel.

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - $T_{avg} < 280^{\circ}\text{F}$

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE high pressure injection (HPI) pump,
- b. One OPERABLE low pressure injection (LPI) pump,
- c. One OPERABLE decay heat cooler, and
- d. An OPERABLE flow path capable of taking suction from the borated water storage tank (BWST) and transferring suction to the containment emergency sump.

APPLICABILITY: MODE 4.

ACTION:

- a. With no ECCS subsystem OPERABLE because of the inoperability of either the HPI pump or the flow path from the borated water storage tank, restore at least one ECCS subsystem to OPERABLE status within one hour or be in COLD SHUTDOWN within the next 20 hours.
- b. With no ECCS subsystem OPERABLE because of the inoperability of either the decay heat cooler or LPI pump, restore at least one ECCS subsystem to OPERABLE status or maintain the Reactor Coolant System T_{avg} less than 280°F by use of alternate heat removal methods.
- c. In the event the ECCS is actuated and injects water into the reactor coolant system, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

SURVEILLANCE REQUIREMENTS

4.5.3 The ECCS subsystems shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

BASES

3/4.5.1 CORE FLOODING TANKS

The OPERABILITY of each core flooding tank ensures that a sufficient volume of borated water will be immediately forced into the reactor vessel in the event the RCS pressure falls below the pressure of the tanks. This initial surge of water into the vessel provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on volume, boron concentration and pressure ensure that the assumptions used for core flooding tank injection in the safety analysis are met.

The tank power operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In addition, as these tank isolation valves fail to meet single failure criteria, removal of power to the valves is required.

The limits for operation with a core flooding tank inoperable for any reason except an isolation valve closed minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional tank which may result in unacceptable peak cladding temperatures. If a closed isolation valve cannot be immediately opened, the full capability of one tank is not available and prompt action is required to place the reactor in a mode where this capability is not required.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two independent ECCS subsystems with RCS average temperature $> 280^{\circ}\text{F}$ ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the core flooding tanks is capable of supplying sufficient core cooling to maintain the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double ended break of the largest RCS cold leg pipe downward. In addition, each ECCS subsystem provides long term core cooling capability in the recirculation mode during the accident recovery period.

EMERGENCY CORE COOLING SYSTEMS

BASES

With the RCS temperature below 280°F, one OPERABLE ECCS subsystem is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements.

The Surveillance Requirements provided to ensure OPERABILITY of each component ensures, that, at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. The decay heat removal system leak rate surveillance requirements assure that the leakage rates assumed for the system during the recirculation phase of the low pressure injection will not be exceeded.

Surveillance requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

3/4.5.4 BORATED WATER STORAGE TANK

The OPERABILITY of the borated water storage tank (BWST) as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on BWST minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the BWST and the RCS water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics. The limits on contained water volume, and boron concentration ensure a pH value of between 7.0 and 11.0 of the solution sprayed within containment after a design basis accident. The pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion cracking on mechanical systems and components.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 20 TO FACILITY OPERATING LICENSE NO. NPF-3

THE 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 January 13, 1978, the Toledo Edison Company (TECO or the licensee) requested amendment to Facility Operating License No. NPF-3. The amendment would modify the Technical Specifications for Davis-Besse Nuclear Power Station, Unit No. 1 (DB-1), to incorporate surveillance requirements for throttle valves used in the low pressure injection system.

Discussion and Evaluation

The High and Low Pressure Safety Injection system (HPSI and LPSI) designs of many Pressurized Water Reactors (PWR) utilize a common low pressure and a common high pressure header to feed the several cold (and in some cases hot) leg injection points. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration; (2) provide a proper flow split between injection points in accordance with the assumptions used in the Emergency Core Cooling System - Loss of Coolant Accident (ECCS-LOCA) analyses; and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses. On many plants, there are motor operated valve(s) in the lines to each injection point that have stops which are set during preoperational flow testing of the plant to insure that these flow requirements are satisfied. On other plants, electrical or mechanical stops on the Safety Injection System's isolation valve(s) are used for this purpose. DB-1 utilizes mechanical stops to satisfy these ECCS flow requirements.

While preoperational HPSI/LPSI flow testing is utilized to assure that the valves used to throttle flow have been properly set, we have concluded that periodic surveillance requirements are needed to assure that these settings are maintained throughout the life of the plant. Consequently, we requested all PWR licensees to propose changes to their Technical Specifications, as appropriate, to incorporate periodic surveillance requirements for these valves. Sample surveillance requirements, developed by the NRC staff, were provided to licensees for guidance in developing proposed changes.

The sample requirements include periodic verification of throttle valve position stop settings and verification of proper ECCS flow rates whenever system modifications are made that could alter flow characteristics. The request for proposed Technical Specification changes was sent to TECO on November 9, 1977.

TECO responded to our request with respect to DB-1 by submittal dated January 13, 1978. We discussed the submittal with the licensee and they agreed to modifications which would specify the parameter of operation during the flow balance tests. This submittal, as modified, contained proposed changes to the Technical Specifications that are in agreement with our requirements. Based on our review, we have concluded that TECO's proposed increased surveillance requirements would provide sufficient additional assurance that proper valve settings for ECCS flow and flow distributions will be maintained throughout plant life; and thus, the proposed changes are acceptable.

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 the amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: October 2, 1979

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-346

THE TOLEDO EDISON COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 20 to Facility Operating License No. NPF-3, issued to The Toledo Edison Company and The Cleveland Electric Illuminating Company (the licensees), which revised Technical Specifications for operation of the Davis-Besse Nuclear Power Station, Unit No. 1 (the facility) located in Ottawa County, Ohio. The amendment is effective as of its date of issuance.

The amendment modifies the Technical Specifications to incorporate surveillance requirements for throttle valves used in the low pressure injection system.

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. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

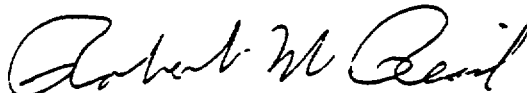
The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated January 13, 1978, (2) Amendment No. 20 to License No. NPF-3, and (3) the Commission's related Safety Evaluation. 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 Ida Rupp Public Library, 310 Madison Street, Port Clinton, Ohio.

A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 2nd day of October 1979.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script, appearing to read "Robert W. Reid".

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors