TOLEDO EDISON

LOWELL E. ROE
Vice President
Facilities Development
(419) 259-5242

Docket No. 50-346

Operation License No. NPF-3

Serial No. 463

October 23, 1978

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz, Chief
Light Water Reactors Branch No. 1
Division of Project Management
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Stolz:

Under separate cover, we are transmitting three (3) original and forty (40) conformed copies of an application for Amendment to Operation License No. NPF-3 for the Davis-Besse Nuclear Power Station Unit No. 1

The application requests that the Davis-Besse Nuclear Power Station Unit No. 1 Technical Specifications be revised to reflect the changes to the appropriate figures and tables due to the incorporation of the actual Reactor Coolant Pump coastdown characteristics.

Since this amendment request involves a single safety issue and does not involve a significant hazards conditions, we have determined it is to be a Class III Amendment and are enclosing a $4,000.00 check as required by 10 CFR Part 170.

Yours very truly,

Lowell E. Roe

al b/6

B001
3/40 *
$ 4,000.00
W/CHECK

ADD
AD FOR SYS + PZRS W/EXCL
STELLO W/EXCL
REG ENG BR W/EXCL
PLANT SYS BR W/EXCL
EEB W/EXCL
IPPOLITO W/EXCL

7810270171 P

APPLICATION FOR AMENDMENT

TO

LICENSE NO. NPF-3

FOR

DAVIS-BESSE NUCLEAR POWER STATION

UNIT NO. 1

Enclosed are forth-three (43) copies of the requested changes to the Davis-Besse Nuclear Power Station Unit No. 1 Technical Specifications, Appendix A to License No. NPF-3, together with the Safety Evaluation for the requested change.

By _____
Vice President, Facilities Development

Sworn to and subscribed before me this twenty-third day of October, 1978.

_____
Notary Public

FRED W. GERMAIN
Notary Public — State of Ohio
My Commission Expires Oct. 30, 1982

al b/7

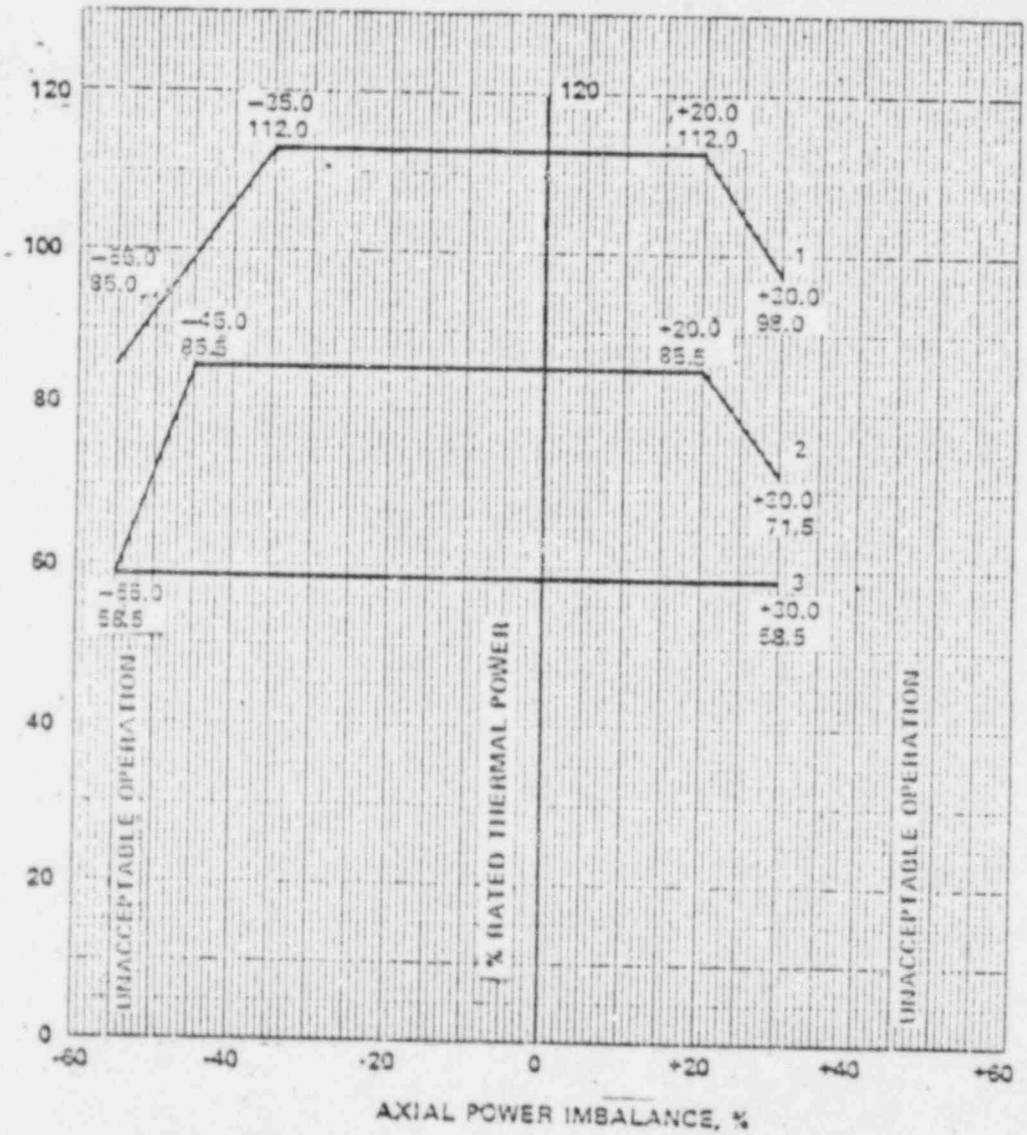
REQUESTED CHANGE TO
THE DAVIS-BESSE NUCLEAR POWER STATION
UNIT NO. 1
TECHNICAL SPECIFICATIONS
(Appendix A to License No. NPF-3)

The following attached pages have been modified to show the requested changes:

Page 2-3
Page 2-5
Page 2-7
Page 2-8
Page B2-5
Page 3/4 2-14
Page 3/4 4-1

al d/8

Attachments



CURVE	REACTOR COOLANT FLOW (GPM)
1	387,200
2	290,100
3	191,000

Figure 2.1-2 Reactor Core Safety Limit

TABLE 2.2-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. High Flux	$\leq$ 105.5% of RATED THERMAL POWER with four pumps operating	$\leq$ 105.6% of RATED THERMAL POWER with four pumps operating#
	$\leq$ ~~80.7%~~ 78.3% of RATED THERMAL POWER with three pumps operating	$\leq$ ~~80.8%~~ 78.4% of RATED THERMAL POWER with three pumps operating#
	$\leq$ ~~63.0%~~ 50.6% of RATED THERMAL POWER with one pump operating in each loop	$\leq$ ~~63.1%~~ 50.7% of RATED THERMAL POWER with one pump operating in each loop#
3. RC High Temperature	$\leq$ 619°F	$\leq$ 619.08°F#
4. Flux - Δ Flux-Flow(1)	Trip Setpoint not to exceed the limit line of Figure 2.2-1.	Allowable Values not to exceed the limit line of Figure 2.2-2.#
5. RC Low Pressure(1)	$\geq$ 1985 psig	$\geq$ 1984.0 psig* $\geq$ 1976.5 psig**
6. RC High Pressure	$\leq$ 2355 psig	$\leq$ 2356.0 psig* $\leq$ 2363.5 psig**
7. RC Pressure-Temperature(1)	$\geq$ (16.25 T_{out} °F - 7873) psig	$\geq$ (16.25 T_{out} °F - 7873.64) psig#

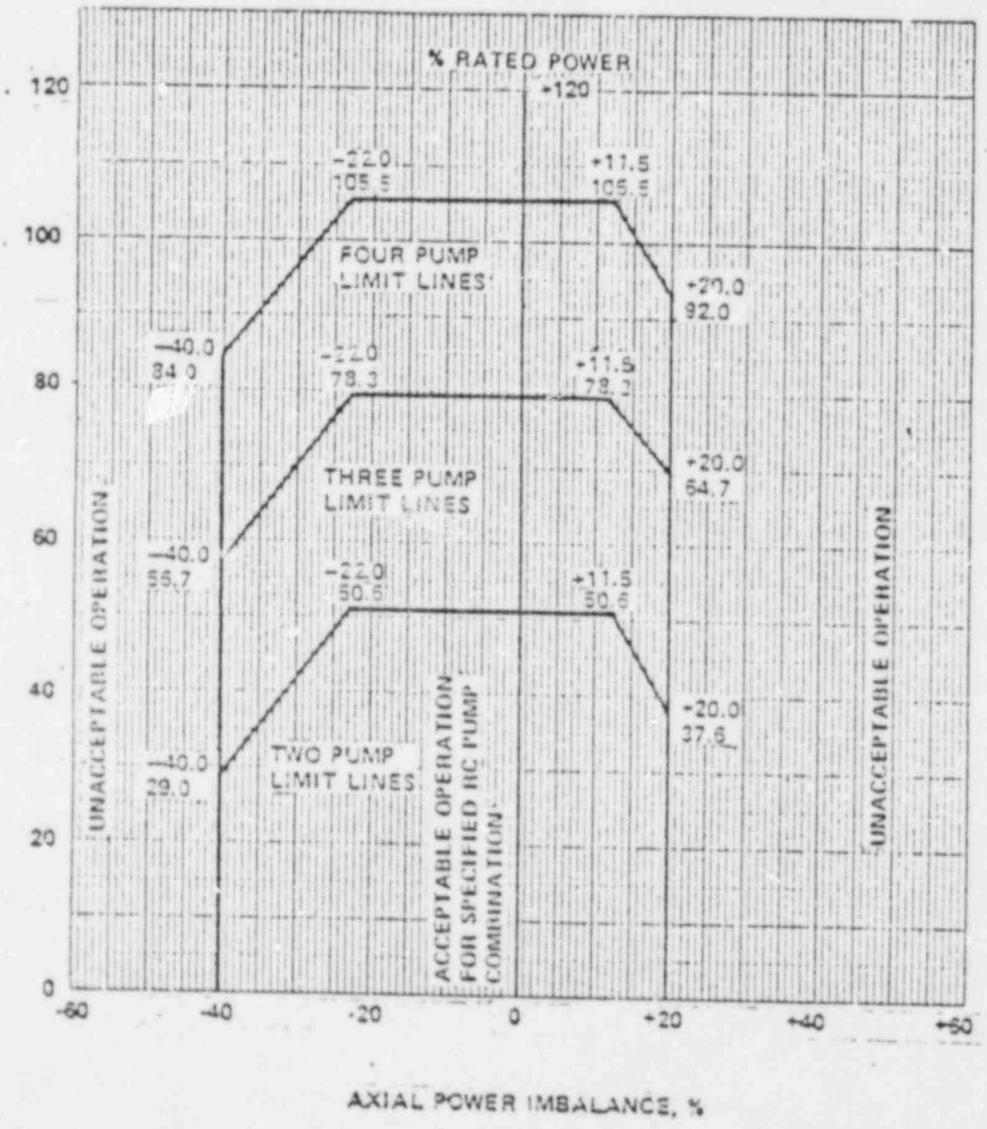


Figure 2.2-1 Trip Setpoint for Flux–ΔFlux–Flow

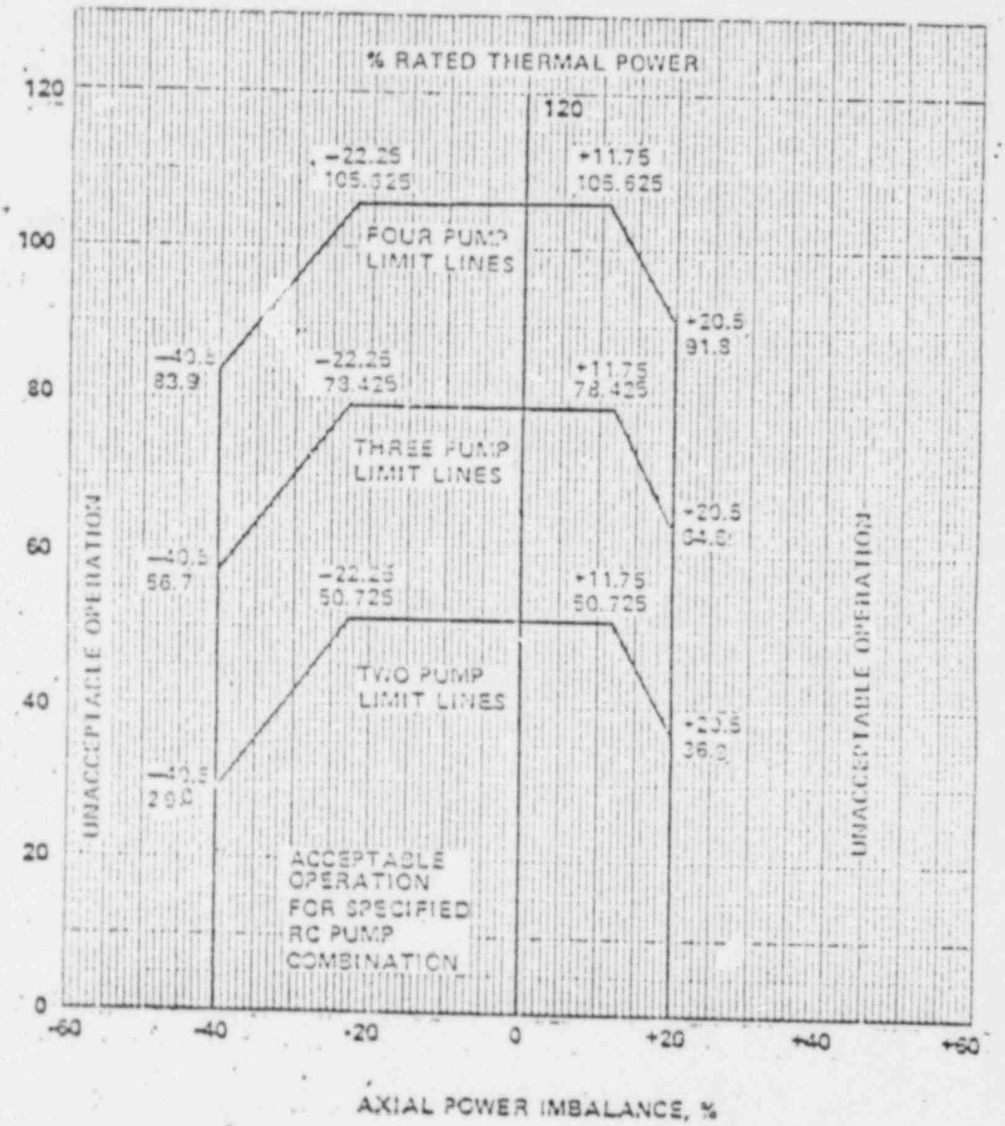


Figure 2.2-2 Allowable Value for Flux–ΔFlux–Flow

RC High Temperature

The RC High Temperature trip ≤ 619°F prevents the reactor outlet temperature from exceeding the design limits and acts as a backup trip for all power excursion transients.

Flux - Δ Flux-Flow

The power level trip setpoint produced by the reactor coolant system flow is based on a flux-to-flow ratio which has been established to accommodate flow decreasing transients from high power where protection is not provided by the High Flux/Number of Reactor Coolant Pumps On Trips.

The power level trip setpoint produced by the power-to-flow ratio provides both high power level and low flow protection in the event the reactor power level increases or the reactor coolant flow rate decreases. The power level setpoint produced by the power-to-flow ratio provides overpower DNB protection for all modes of pump operation. For every flow rate there is a maximum permissible power level, and for every power level there is a minimum permissible low flow rate. Typical power level and low flow rate combinations for the pump situations of Table 2.2-1 are as follows:

1. Trip would occur when four reactor coolant pumps are operating if power is 105.5% and reactor flow rate is 100%, or flow rate is 94.6% and power level is 100%.

2. Trip would occur when three reactor coolant pumps are operating if power is 78.3% and reactor flow rate is 74.7%, or flow rate is 70.9% and power is 75%.

3. Trip would occur when one reactor coolant pump is operating in each loop (total of two pumps operating) if the power is 50.6% and reactor flow rate is 49.0% or flow rate is 46.3% and the power level is 49.0%.

For safety calculations the maximum calibration and instrumentation errors for the power level were used.

TABLE 3.2-1

DNB MARGIN

Parameter	LIMITS		
	Four Reactor Coolant Pumps Operating	Three Reactor Coolant Pumps Operating	One Reactor Coolant Pump Operating in Each Loop
Reactor Coolant Hot Leg Temperature T_H °F	≤ 610	≤ 610 (1)	≤ 610
Reactor Coolant Pressure, psig. (2)	≥ 2062.7	≥ 2058.7 (1)	≥ 2091.4
Reactor Coolant Flow Rate, gpm (3)	≥ 396,880	≥ 297,340	≥ 195,760

(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%.

3/4.4 REACTOR COOLANT SYSTEM

REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.4.1 Both reactor coolant loops and both reactor coolant pumps in each loop shall be in operation.

APPLICABILITY: As noted below, but excluding MODE 6.*

ACTION:

MODES 1 and 2:

a. With one reactor coolant pump not in operation, STARTUP and POWER OPERATION may be initiated and may proceed provided THERMAL POWER is restricted to less than 78.3% of RATED THERMAL POWER and within 4 hours the setpoints for the following trips have been reduced to the values specified in Specification 2.2.1 for operation with three reactor coolant pumps operating: K

   1. High Flux
   2. Flux-ΔFlux-Flow

b. With one reactor coolant pump in each loop not in operation, STARTUP and POWER OPERATION may be initiated and may proceed provided THERMAL POWER is restricted to less than 50.6% of RATED THERMAL POWER and within 4 hours the setpoints for the following trips have been reduced to the values specified in Specification 2.2.1 for operation with one reactor coolant pump operating in each loop: K

   1. High Flux
   2. Flux-ΔFlux-Flow

*See Special Test Exception 3.10.3.

SAFETY EVALUATION

The as-measured one pump coastdown curve determined for the Davis-Besse Nuclear Power Station Unit No. 1 Reactor Coolant Pumps is more restrictive than the design coastdown curve which was used in the original safety analyses. For Fuel Cycle 1 prior to the removal of orfice rod assemblies (ORA) it was not necessary to change the nuclear parameter limits because the effect of the actual coastdown curve was more than offset by the excess reactor coolant flow. For Cycle 1 after the removal of ORA, 5% of the 8% excess flow is being used to compensate for the lower flow through the core. A new analysis has been therefore been performed using a more restrictive pump coastdown curve. This new analysis results in the changes to the Reactor Core Safety Limit Curve (Figure 2.1-1 of the Technical Specifications), the Reactor Protection System Instrumentation Trip Setpoints (Table 2.2-1 and Figures 2.2-1 and 2.2-2) and associated bases. Also, the maximum Reactor Coolant Hot Leg Temperature was reduced for DNB Margin (Table 3.2-1). These new Technical Specifications, determined by performing the appropriate Safety Analysis using the more restrictive pump coastdown curve, are more conservative than the previous specifications and do not present any unreviewed safety questions.