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TO: E G Case	FROM: Duke Power Company Charlotte, NC W O Parker Jr	DOCKET NUMBER: 50-269/270/287 FILE NUMBER: DATE OF DOCUMENT: 9-14-77 DATE RECEIVED: 9-19-77
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Ltr notarized 9-14-77.........trans the following:

3p

PLANT NAME: Oconee 1-3

9-19-77 ., ehf

ENCLOSURE

License #DPR-38/47/55 Amend: Tehc Specs proposed change concerning revisions to pump monitor trip setpoint & deletion of surveillance requirements for measuring reactor coolant system flow...........

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FOR ACTION/INFORMATION

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DUKE POWER COMPANY
POWER BUILDING
422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

September 14, 1977

TELEPHONE: AREA 704
373-4083

Mr. Edson G. Case, Acting Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

RE: Oconee Units 1, 2 and 3
Docket Nos. 50-269, -270 and -287

Dear Mr. Case:

By letter of March 30, 1977, we submitted proposed Technical Specifications changes and supporting reload report applicable to Oconee 1 Cycle 4. As you are aware, the DNBR limited Technical Specification limits Of Oconee 1 Cycle 4 were established by incorporating a certain margin for the rod bow DNBR penalty. The amount of this DNBR margin was established using the rod bow magnitude predicted by the B&W rod bow model (rod bow (mils) = $11.5 + 0.069\sqrt{\text{burnup}}$). Recent discussions with the NRC staff, however, indicated that the staff review of the B&W rod bow model has not yet been completed, and therefore a rod bow DNBR margin equal to that resulting from the NRC interim model would have to be provided.

In the case of Oconee 1 Cycle 4, only the flux/flow trip setpoint does not include the DNBR margin required by the NRC interim model. To provide the necessary DNBR margin, it is proposed to set the pump monitor trip function to trip the reactor upon loss of one pump during four-pump operation if the indicated reactor power is greater than 80%FP.

The existing pump monitor trip function is set to trip the reactor upon loss of two pumps, and as such the analysis basis for the existing flux/flow trip setpoint in a two-pump coastdown. By changing the pump monitor setpoint to trip on the indicated loss of one pump, the flux/flow trip setpoint analysis need only to consider a one-pump coastdown. The proposed change provides DNBR margins of 40% for Oconee 1, 34% for Oconee 2, and 32% for Oconee 3.

In the case of Oconee 2 Cycle 3 and Oconee 3 Cycle 3, the necessary DNBR margins for the flux/flow trip setpoints were demonstrated by taking credit for additional RC flow available over the thermal-hydraulic design flow. Because of the pump monitor trip on loss of one pump, these flow credits are not required.

Pursuant to 10CFR §50.90, the attached proposed changes to Oconee 1 Cycle 4, Oconee 2 Cycle 3 and Oconee 3 Cycle 3 Technical Specifications limits are requested. These revisicns include the proposed modification for the pump monitor trip setpoint and delete the surveillance requirement for measuring reactor coolant system flow.

Very truly yours,

William O. Parker, Jr.

MST:ge

Attachment

WILLIAM O. PARKER, JR., being duly sworn, states that he is Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this request for amendment of the Oconee Nuclear Station Facility Operating Licenses DPR-38, DPR-47, and DPR-55; and that all statements and matters set forth therein are true and correct to the best of his knowledge.

William O. Parker, Jr.

William O. Parker, Jr., Vice President

Subscribed and sworn to before me this 14th day of September, 1977.

Vivian B. Robbins

Notary Public

My Commission Expires:

Feb. 15, 1982

2.3 LIMITING SAFETY SYSTEM SETTINGS, PROTECTIVE INSTRUMENTATION

Applicability

Applies to instruments monitoring reactor power, reactor power imbalance, reactor coolant system pressure, reactor coolant outlet temperature, flow, number of pumps in operation, and high reactor building pressure.

Objective

To provide automatic protective action to prevent any combination of process variables from exceeding a safety limit.

Specification

The reactor protective system trip setting limits and the permissible bypasses for the instrument channels shall be as stated in Table 2.3.1A-Unit 1
and 2.3-1B-Unit 2
2.3-1C-Unit 3

Figure 2.3-2A-Unit 1
2.3-2B-Unit 2
2.3-2C-Unit 3

The pump monitors shall produce a reactor trip for the following conditions:

a. Loss of one pump during four-pump operation if power level is greater than 80% of rated power

b. Loss of two pumps and reactor power level is greater than 55% of rated power. (Power/RC pump trip setpoint is reset to 55% for operation with one pump in each loop).

c. Loss of two pumps in one reactor coolant loop and reactor power level is greater than 0.0% of rated power.

d. Loss of one or two pumps during two-pump operation.

Bases

The reactor protective system consists of four instrument channels to monitor each of several selected plant conditions which will cause a reactor trip if any one of these conditions deviates from a pre-selected operating range to the degree that a safety limit may be reached.

The trip setting limits for protective system instrumentation are listed in Table 2.3-1A-Unit 1. The safety analysis has been based upon these protective
2.3-1B-Unit 2
2.3-1C-Unit 3
system instrumentation trip setpoints plus calibration and instrumentation errors.

Nuclear Overpower

A reactor trip at high power level (neutron flux) is provided to prevent damage to the fuel cladding from reactivity excursions too rapid to be detected by pressure and temperature measurements.

Table 2.3-1A
Unit 1

Reactor Protective System Trip Setting Limits

	RPS Segment	Four Reactor Coolant Pumps Operating (Operating Power -100% Rated)	Three Reactor Coolant Pumps Operating (Operating Power -75% Rated)	Two Reactor Coolant Pumps Operating in A Single Loop (Operating Power -46% Rated)	One Reactor Coolant Pump Operating in Each Loop (Operating Power -49% Rated)	Shutdown Bypass
1.	Nuclear Power Max. (% Rated)	105.5	105.5	105.5	105.5	5.0(3)
2.	Nuclear Power Max. Based on Flow (2) and Imbalance, (% Rated)	1.055 times flow minus reduction due to imbalance	1.055 times flow minus reduction due to imbalance	0.949 times flow minus reduction due to imbalance	1.055 times flow minus reduction due to imbalance	Bypassed
3.	Nuclear Power Max. Based on Pump Monitors, (%, Rated)	NA	80%	55% (5)(6)	55% (5)	Bypassed
4.	High Reactor Coolant System Pressure, psig, Max.	2355	2355	2355	2355	1720(4)
5.	Low Reactor Coolant System Pressure, psig, Min.	1800	1800	1800	1800	Bypassed
6.	Variable Low Reactor Coolant System Pressure psig, Min.	$(11.14\ T_{out} - 4706)$(1)	$(11.14\ T_{out} - 4706)$(1)	$(11.14\ T_{out} - 4706)$(1)	$(11.14\ T_{out} - 4706)$(1)	Bypassed
7.	Reactor Coolant Temp. F., Max.	619	619	619 (6)	619	619
8.	High Reactor Building Pressure, psig, Max.	4	4	4	4	4

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(1) T_{out} is in degrees Fahrenheit (^{o}F).

(2) Reactor Coolant System Flow, %.

(3) Administratively controlled reduction set only during reactor shutdown.

(4) Automatically set when other segments of the RPS are bypassed.

(5) Reactor power level trip set point produced by pump contact monitor reset to 55.0%.

(6) Specification 3.1.8 applies. Trip one of the two protection channels receiving outlet temperature information from sensors in the idle loop.

Table 2.3-1B
Unit 2

Reactor Protective System Trip Setting Limits

	RPS Segment	Four Reactor Coolant Pumps Operating (Operating Power -100% Rated)	Three Reactor Coolant Pumps Operating (Operating Power -75% Rated)	Two Reactor Coolant Pumps Operating in A Single Loop (Operating Power -46% Rated)	One Reactor Coolant Pump Operating in Each Loop (Operating -49% Rated)	Shutdown Bypass
1.	Nuclear Power Max. (% Rated)	105.5	105.5	105.5	105.5	5.0[3]
2.	Nuclear Power Max. Based on Flow (2) and Imbalance, (% Rated)	1.055 times flow minus reduction due to imbalance	1.055 times flow minus reduction due to imbalance	0.949 times flow minus reduction due to imbalance	1.055 times flow minus reduction due to imbalance	Bypassed
3.	Nuclear Power Max. Based on Pump Monitors, (% Rated)	NA	80%	55% (5) (6)	55%	Bypassed
4.	High Reactor Coolant System Pressure, psig, Max.	2355	2355	2355	2355	1720[4]
5.	Low Reactor Coolant System Pressure, psig, Min.	1800	1800	1800	1800	Bypassed
6.	Variable Low Reactor Coolant System Pressure psig, Min.	$(11.14\ T_{out} - 4706)$[1]	$(11.14\ T_{out} - 4706)$[1]	$(11.14\ T_{out} - 4706)$[1]	$(11.14\ T_{out} - 4706)$[1]	Bypassed
7.	Reactor Coolant Temp. F., Max.	619	619	619 (6)	619	619
8.	High Reactor Building Pressure, psig, Max.	4	4	4	4	4

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(1) T_{out} is in degrees Fahrenheit (^{o}F).

(2) Reactor Coolant System Flow, %.

(3) Administratively controlled reduction set only during reactor shutdown.

(4) Automatically set when other segments of the RPS are bypassed.

(5) Reactor power level trip set point produced by pump contact monitor reset to 55.0%.

(6) Specification 3.1.8 applies. Trip one of the two protection channels receiving outlet temperature information from sensors in the idle loop.

Table 2.3-1C

Unit 3

Reactor Protective System Trip Setting Limits

RPS Segment	Four Reactor Coolant Pumps Operating (Operating Power -100% Rated)	Three Reactor Coolant Pumps Operating (Operating Power -75% Rated)	One Reactor Coolant Pump Operating in Each Loop (Operating -49% Rated)	Shutdown Bypass
1. Nuclear Power Max. (% Rated)	105.5	105.5	105.5	5.0[3]
2. Nuclear Power Max. Based on Flow (2) and Imbalance, (% Rated)	1.055 times flow minus reduction due to imbalance	1.055 times flow minus reduction due to imbalance	1.055 times flow minus reduction due to imbalance	Bypassed
3. Nuclear Power Max. Based on Pump Monitors, (% Rated)	NA	80%	55%	Bypassed
4. High Reactor Coolant System Pressure, psig, Max.	2355	2355	2355	1720[4]
5. Low Reactor Coolant System Pressure, psig, Min.	1800	1800	1800	Bypassed
6. Variable Low Reactor Coolant System Pressure psig, Min.	$(11.14\ T_{out} - 4706)$[1]	$(11.14\ T_{out} - 4706)$[1]	$(11.14\ T_{out} - 4706)$[1]	Bypassed
7. Reactor Coolant Temp. F., Max.	619	619	619	619
8. High Reactor Building Pressure, psig, Max.	4	4	4	4

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(1) T_{out} is in degrees Fahrenheit (^{o}F).
(2) Reactor Coolant System Flow, %.
(3) Administratively controlled reduction set only during reactor shutdown.
(4) Automatically set when other segments of the RPS are bypassed.

Table 4.1-2
MINIMUM EQUIPMENT TEST FREQUENCY

	Item	Test	Frequency
1.	Control Rod Movement(1)	Movement of Each Rod	Bi-Weekly
2.	Pressurizer Safety Valves	Setpoint	50% Annually
3.	Main Steam Safety Valves	Setpoint	25% Annually
4.	Refueling System Interlocks	Functional	Prior to Refueling
5.	Main Steam Stop Valves(1)	Movement of Each Stop Valve	Monthly
6.	Reactor Coolant System(2) Leakage	Evaluate	Daily
7.	Condenser Cooling Water System Gravity Flow Test	Functional	Annually
8.	High Pressure Service Water Pumps and Power Supplies	Functional	Monthly
9.	Spent Fuel Cooling System	Functional	Prior to Refueling
10.	Hydraulic Snubbers on Safety-Related Systems	Visual Inspection	Annually
11.	High Pressure and Low(3) Pressure Injection System	Vent Pump Casings	Monthly and Prior to Testing

(1) Applicable only when the reactor is critical

(2) Applicable only when the reactor coolant is above 200°F and at a steady-state temperature and pressure.

(3) Operating pumps excluded.