TABLE 3.3.6-2

CONTROL ROD BLOCK INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
1. ROD BLOCK MONITOR		
a. Upscale##	$\leq$ 0.66 W + 42%	$\leq$ 0.66 W + 45%
b. Inoperative	NA	NA
c. Downscale	$\geq$ 5/125 divisions of full scale	$\geq$ 3/125 of divisions full scale
2. APRM		
a. Flow Biased Neutron Flux - Upscale ##	$\leq$ 0.58 W + 50%*	$\leq$ 0.58 W + 53%*
b. Inoperative	NA	NA
c. Downscale	$\geq$ 5% of RATED THERMAL POWER	$\geq$ 3% of RATED THERMAL POWER
d. Neutron Flux - Upscale Startup	$\leq$ 12% of RATED THERMAL POWER	$\leq$ 14% of RATED THERMAL POWER
3. SOURCE RANGE MONITORS		
a. Detector not full in	NA	NA
b. Upscale	$\leq 2 \times 10^5$ cps	$\leq 4 \times 10^5$ cps
c. Inoperative	NA	NA
d. Downscale	$\geq$ 0.7 cps**	$\geq$ 0.5 cps**
4. INTERMEDIATE RANGE MONITORS		
a. Detector not full in	NA	NA
b. Upscale	$\leq$ 108/125 divisions of full scale	$\leq$ 110/125 divisions of full scale
c. Inoperative	NA	NA
d. Downscale	$\geq$ 5/125 divisions of full scale	$\geq$ 3/125 divisions of full scale
5. SCRAM DISCHARGE VOLUME		
a. Water Level - High	$\leq$ 44 gallons	$\leq$ 44 gallons
6. REACTOR COOLANT SYSTEM RECIRCULATION FLOW		
a. Upscale	$\leq$ 108/125 divisions of full scale	$\leq$ 111/125 divisions of full scale
b. Inoperative	NA	NA
c. Comparator	$\leq$ 10% flow deviation	$\leq$ 11% flow deviation

*The Average Power Range Monitor rod block function is varied as a function of recirculation loop flow (W). The trip setting of this function must be maintained in accordance with Specification 3.2.2.

**Provided signal-to-noise ratio is $\geq$ 2. Otherwise, 3 cps as trip setpoint and 2.8 cps for allowable value.

##See Specification 3.4.1.1.2.a for single loop operation requirements.

REACTOR COOLANT SYSTEM

RECIRCULATION LOOPS - SINGLE LOOP OPERATION

LIMITING CONDITION FOR OPERATION

3.4.1.1.2 One reactor coolant recirculation loop shall be in operation with the pump speed $\leq$ ~~90%~~ 80% of the rated pump speed, and

a. the following revised specification limits shall be followed:

1. Specification 2.1.2: the MCPR Safety Limit shall be increased to 1.07.

2. Table 2.2.1-1: the APRM Flow-Biased Scram Trip Setpoints shall be as follows:

	Trip Setpoint	Allowable Value
	$\leq$ 0.58W + 55%	$\leq$ 0.58W + 58%.

3. Specification 3.2.1: The MAPLHGR limits shall be the limits specified in Figures 3.2.1-1 and 3.2.1-2, ~~and 3.2.1-3~~, multiplied by ~~0.0~~ 0.81, and Figure 3.2.1-3 multiplied by 1.0.

4. Specification 3.2.2: the APRM Setpoints shall be as follows:

	Trip Setpoint	Allowable Value
	$S \leq$ (0.58W + 55%)T	$S \leq$ (0.58W + 58%)T
	$S_{RB} \leq$ (0.58W + 46%)T	$S_{RB} \leq$ (0.58W + 49%)T

Insert 5. → 6

~~5.~~ Table 3.3.6-2: the RBM/APRM Control Rod Block Setpoints shall be as follows:

		Trip Setpoint	Allowable Value
a.	RBM - Upscale	$\leq$ 0.66W + 37%	$\leq$ 0.66W + 40%

~~5.a.1 and 5.a.2 shall be used in conjunction with the MCPR limits specified in Figures 3.2.3-1a and 3.2.3-1b, respectively.~~

		Trip Setpoint	Allowable Value
b.	APRM-Flow Biased	$\leq$ 0.58W + 46%	$\leq$ 0.58W + 49%

b. APRM and LPRM*** neutron flux noise levels shall be less than three times their established baseline levels when THERMAL POWER is greater than the limit specified in Figure 3/4.1.1.1-1.

c. Total core flow shall be greater than or equal to 42 million lbs/hr when THERMAL POWER is greater than the limit specified in Figure 3.4.1.1.1-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1* and 2*, except during two loop operation.#

ACTION:

a. With no reactor coolant system recirculation loops in operation, take the ACTION required by Specification 3.4.1.1.1.

INSERT

5. Specification 3.2.3 : The MINIMUM CRITICAL POWER RATIO (MCPR) shall be greater than or equal to the largest of the following values:

   a. 1.42,

   b. the MCPR determined from Figure 3.2.3-1 plus 0.01_{3AN}

   c. the MCPR determined from Figure 3.2.3-2 plus 0.01.

LIMITING CONDITION FOR OPERATION (Continued)

b. With any of the limits specified in 3/4.1.1.2a not satisfied:

1. Upon entering single loop operation, comply with the new limits within 6 hours or be in at least HOT SHUTDOWN within the following 6 hours.

2. If the provisions of ACTION b.1 do not apply, take the ACTION(s) required by the referenced Specification(s).

c. With the APRM or LPRM*** neutron flux noise levels greater than or equal to three times their established baseline levels when THERMAL POWER is greater than the limit specified in Figure 3,4.1.1.1-1, immediately initiate corrective action and restore the noise levels to within the required limits within 2 hours by initiating an orderly reduction of THERMAL POWER to less than or equal to the limit specified in Figure 3.4.1.1.1-1. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

d. With one or more jet pumps inoperable, be in at least HOT SHUTDOWN within 12 hours.

e. With total core flow less than 42 million lbs/hr when THERMAL POWER is greater than the limit specified in Figure 3,4.1.1.1-1, immediately initiate corrective action by either:

1. Reducing THERMAL POWER to less than or equal to the limit specified in Figure 3.4.1.1.1-1 within 4 hours, or

2. Increasing total core flow to greater than or equal to 42 million lbs/hr within 4 hours.

SURVEILLANCE REQUIREMENTS

4.4.1.1.2.1 Upon entering single loop operation and at least once per 24 hours thereafter, verify that the pump speed in the operating loop is $\leq$ ~~90%~~ 80% of the rated pump speed.

4.4.1.1.2.2 With THERMAL POWER greater than the limit specified in Figure 3.4.1.1.1-1, determine the APRM and LPRM*** neutron flux noise levels within 1 hour. Continue to determine the noise levels at least once per 8 hours and within 30 minutes after the completion of the THERMAL POWER increase $\geq$ 5% of RATED THERMAL POWER.

4.4.1.1.2.3 Within 15 minutes prior to either THERMAL POWER increase resulting from a control rod withdrawal or recirculation loop flow increase, verify that the following differential temperature requirements are met if THERMAL POWER is $<$ 30%**** of RATED THERMAL POWER or the recirculation loop flow in the operating recirculation loop is $\leq$ 50%**** of rated loop flow:

BASES

3/4.4.1 RECIRCULATION SYSTEM

Operation with one reactor recirculation loop inoperable has been evaluated and found acceptable, provided that the unit is operated in accordance with Specification 3.4.1.1.2.

INSERT A

~~For single loop operation, the MAPLHGR limits are multiplied by a factor of 0.8. This multiplication factor precludes extended operation with one loop out of service.~~

For single loop operation, the RBM and APRM setpoints are adjusted by a 7% decrease in recirculation drive flow to account for the active loop drive flow that bypasses the core and goes up through the inactive loop jet pumps.

Surveillance on the pump speed of the operating recirculation loop is imposed to exclude the possibility of excessive reactor vessel internals vibration. Surveillance on differential temperatures below the threshold limits of THERMAL POWER or recirculation loop flow mitigates undue thermal stress on vessel nozzles, recirculation pumps and the vessel bottom head during extended operation in the single loop mode. The threshold limits are those values which will sweep up the cold water from the vessel bottom head.

THERMAL POWER, core flow, and neutron flux noise level limitations are prescribed in accordance with the recommendations of General Electric Service Information Letter No. 380, Revision 1, "BWR Core Thermal Hydraulic Stability," dated February 10, 1984.

An inoperable jet pump is not, in itself, a sufficient reason to declare a recirculation loop inoperable, but it does, in case of a design basis accident, increase the blowdown area and reduce the capability of reflooding the core; thus, the requirement for shutdown of the facility with a jet pump inoperable. Jet pump failure can be detected by monitoring jet pump performance on a prescribed schedule for significant degradation.

Recirculation pump speed mismatch limits are in compliance with the ECCS LOCA analysis design criteria for two loop operation. The limits will ensure an adequate core flow coastdown from either recirculation loop following a LOCA. In the case where the mismatch limits cannot be maintained during the loop operation, continued operation is permitted in the single loop mode.

In order to prevent undue stress on the vessel nozzles and bottom head region, the recirculation loop temperatures shall be within 50°F of each other prior to startup of an idle loop. The loop temperature must also be within 50°F of the reactor pressure vessel coolant temperature to prevent thermal shock to the recirculation pump and recirculation nozzles. Since the coolant in the bottom of the vessel is at a lower temperature than the coolant in the upper regions of the core, undue stress on the vessel would result if the temperature difference was greater than 145°F.

INSERT A

For single loop operation, the MAPLHGR limits are multiplied by a factor of 0.81 for GE fuel and 1.0 for the ENC fuel. These multiplication factors are derived from LOCA analyses initiated from single loop operation. The resulting MAPLHGR limits for single loop operation assure the peak cladding temperature during a LOCA event remains below 2200°F.

The MINIMUM CRITICAL POWER RATIO (MCPR) limits for single loop operation assure that the Safety Limit MCPR is not exceeded for any Anticipated Operational Occurrence (AOO) and for the Recirculation Pump Seizure Accident.