CONSUMERS POWER COMPANY Docket 50-155 Request for Change to the Technical Specifications License DPR-6

For the reasons hereinafter set forth, it is requested that the Technical Specifications contained in Facility Operating License DPR-6, Docket 50-155, issued to Consumers Power Company on May 1, 1964, for the Big Rock Point Plant, be changed as described in Section I below:

I. Change

Revise Section 6.1.2 (Column 4 of Items 2 and 3) to read:

"Sensor Trip Device

Low Reactor Water Level (4 Level Switches)

Low Steam Drum Water Level (4 Level Switches) ≥ 8.5" Below Steam Drum Center Line (Calibrated for Operating Temperature and Pressure)"

Scram Setting

and Tolerance

≥ 610'5"

II. Discussion

- A. Low reactor water level. This change removes the ± 1" tolerance on the set point while maintaining the limit of the previously stated minimum. (Present Technical Specifications require 610'6" ± 1".)
- B. Low steam drum level. This change allows the set point to be calibrated for normal operating pressure and temperature (steady state power). The present Technical Specification implies that the calibration applies to all primary system conditions when the reactor head is on and control rods are withdrawn from the core.

As described in Licensee Event Report 79-22, evaluation of level instrumentation identified a potential deficiency. The deficiency was related to the elevated temperature in the level instrumentation reference leg which could result in flashing of the reference level liquid during a rapid primary system depressurization. Under these conditions erroneous high-level readings would occur.

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To resolve this deficiency, the instrument is being modified to reduce the reference leg temperature. This is being done by removing the jacket and heat clamps that currently exist around and between the variable leg and the reference leg of the level instrument. Some heat shielding may also be provided to further isolate the heating effects of the variable leg on the reference leg. These modifications will reduce the temperature in the reference leg to about 250°F and will prevent erroneous high-level reading during a rapid primary system depressurization event.

The modification described above will significantly reduce the temperature compensation ability of the level instrumentation. To assure that the appropriate set points are maintained for initiating safety system action, the following changes are being made.

LOW REACTOR WATER LEVEL

The Technical Specifications change will allow a higher safety system set point level to be selected such that under all operating and accident conditions the actual reactor water level set point will not be less than 610'5".

LOW STEAM DRUM WATER LEVEL

For drum level measurements, operating restraints do not allow establishment of a set point high enough to accommodate the drift associated with loss in temperature compensation while meeting the present specification under all operating conditions (specifically during primary system heatup and cooldown). The proposed specification ch. ge requires the instrument to be calibrated for the full power operating conditions. While the actual set point level will be lower at other temperatures, the minimum primary system liquid inventory assumed in the accident analysis will be maintained.

For conditions which occur during normal system heatup and cooldown, the actual low steam drum water level set point may be lower than that specified for full power operation. However, the total primary systems inventory (mass) at the reduced set point will be greater than or equal to either that assumed in the accident analysis or that which would be available at the set point during normal operating conditions. Table 1 shows the relationship of the primary system mass as a function of system temperature (and corresponding scram point).

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TABLE 1

Low Drum Level Scram Vs System Parameters With Temperature Compensation Removed From Steam Drum Level Instruments

Psys (Psia)	Tsys (°F)	*Actual Scram Point (In)	**Mass at Scram (Lbm)	***% Mo	
1,350	582	-8"	38,500	100	
1,000	545	-10"	38,500	100	
500	467	-12"	40,300	105	
14.7	212	-16"	43,400	113	

*Scram point is the actual drum level below center line.
**Mass in the system above the core at the corresponding low drum level.
***Percent mass above the core as compared to 100% power at 1,350 psia with drum
level at 8" below center line.

The accident analysis remains valid.

III. Conclusions

Based on the foregoing, both the Big Rock Point Plant Review Committee and the Safety and Audit Review Board have concluded that this change is acceptable from a safety standpoint.

CONSUMERS POWER COMPANY

R B DeWitt Vice President-Nuclear Operations

Sworn and subscribed to before me this 23rd day of October 1979.

Dorothy H Bartkus, Notary Public Jackson County, Michigan My commission expires March 26, 1983.

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6.1.2 Reactor Safety System During Power Operation

The following tabulation gives the arrangement of the reactor safety system that shall be effective during power operation:

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Sensor and Trip Device	Trip Contact in Each Channel	s Coincidence in Each Channel	Scram Setting and Tolerance	Special Features	Instrument Ranges	Warning Annunciation Trip Set Point
High Reactor Pres- sure (4 Pressure Switches)	. 2	1 Out of 2	50±5 Psi Above Reactor Oper- ating Pressure		100-1700 Psig	5±5 Psi Above Reactor Operating Pressure
Low Reactor Water Level (4 Level Switches)	2	1 Out of 2	Elevation ≥ 610'5"	Closes containment sphere isolation valves. If reactor pressure is less than 200 psig, actuates core spray system. (Note: Spray water will not enter reactor vessel until reactor pressure drops below fire header pressure.)	Fixed Level Trip Point No Range	
Low Steam Drum Water Level (4 Level Switches)	2	1 Out of 2	> 8.5" Below Steam Drum Center Line (Calibrated for Operating Temp and Pressure)		-30" to +30" Water	-4" Below Steam Drum Center Line
Main Steam Line Backup Isolation Valve Closure (4 Position Switches)	1221	1 Out of 2	50±5 Percent of Full Closure		Position Switch Trains Adjustable Full Valve Travel	
High Condenser Pressure (4 Pres- sure Switches)	°°	1 Out of 2	8.0±0.5" of Hg Absolute Pres- sure	Bypassed by pressure interlock as described in Section 6.1.3.	0 - 30" Hg Vac	15