Consumers Power Company

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Operating Reactor Branch No 5
Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 -
PALISADES PLANT - RESPONSE TO NRC EVALUATION OF RESPONSE TO IE BULLETIN 80-06

In response to NRC letter dated January 13, 1983 Consumers Power Company has reviewed the NRC staffs reasons for judging our September 14, 1981 response to be unacceptable and has prepared the following additional information:

The first objection was that in Consumers Power Company's letter to the NRC dated September 14, 1981 (providing justification as to why Engineered Safety System (ESF) equipment should not remain in emergency mode upon reset), three items were not justified. Justification for those three items has been provided as part of Attachment 1.

The second objection was directed against any valve that went from an open position in the emergency mode, to a close position upon ESF reset. The NRC stated that the intent of IEB 80-06 was not satisfied, because "specific operator evaluation and actions are required to keep various safety-related components in the emergency mode on ESF reset". Specific equipment characteristics and required actions are discussed in Attachment 2.

It was also stated that according to Consumers Power Company's previous justifications, "ESF reset may be desirable prior to reaching post-trip conditions". This is not the case, as Emergency Operating Procedures (EOP) 1.4.12, clearly states that safety injection can be reset only after all the post-trip conditions (Attachment 3) have been met.

The valves in question have been designed for proper operation in their present state. A condition of containment high pressure (CHP), will not allow reset of ESF and since the equipment will not be performing a safety-related function once CHP is cleared, it is permissable for the valves to close on ESF reset.

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Circuitry modifications are deemed necessary on valves SV-0825 and SV-0878. The valves provide a necessary cooling function and should not be closed upon ESF reset. Procedural requirements are not sufficient to ensure safety of the system in this case.

Each group of valves has been reviewed and justified from its own particular function in the system. In conclusion, with the exception of the two valves mentioned above, it is Consumers Power Company's contention that the additional information provided demonstrates that the existing ESF system should remain unchanged.

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ATTACHMENT I - 1 Page

PREVIOUSLY UNJUSTIFIED EQUIPMENT

Item #	Component #	Component Description	Position Upon ESF Reset	Drawing # Drawing Location
19	SV0944	Component Cooling Water to Radwaste Evap	Open	M209 F/1
20	SV0977B	Component Cooling Water From Radwaste Evap	Open	M209 F/1
16	SV0944A	Component Cooling Water To Fuel Pool Hx	Open	M209 F/1

The Component Cooling Water (CCW) System is capable of accomodating the radwaste evaporators and the fuel pool cooling system without starving the heat loads that would be present upon ESF reset. Opening the above valves upon ESF reset is the preferred action since fuel pool cooling is a continuous requirement regardless of operating mode and the evaporators need cooling water to process radwaste. Although the radwaste evaporators may not be used for some time after a DBA, modifying valves SV0944 and SV0977B or utilizing procedural modifications to control valve status would not significantly increase plant safety.

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ATTACHMENT II - 7 Pages

JUSTIFICATIONS FOR EQUIPMENT NOT REMAINING IN EMERGENCY MODE ON ESF RESET

Item #	Component #	Component Description	Position Upon ESF Reset	Drawing # Drawing Location
8	SV0825	Service Water to ESF Room Coolers	Closed	M208 C/3
1	SV0878	Service Water to ESF Room Coolers	Closed	M208 C/3

The purpose of the ESF room coolers, is to maintain room temperature below 90°F. They are sized to accomodate the heat load generated by the operating safety injection pumps and radiant heat from the safety injection piping.

At the time of reset, containment spray (CS) and low pressure safety injection (LPSI) pumps should be shutdown, but the high pressure safety injection (HPSI) pumps will still be in operation. The operation of these pumps, along with piping and other equipment in the room, will contribute significantly to heat input into the room. Since the room is not properly alarmed to alert operations personnel of high temperature conditions, modifications to the valve control circuitry are required to prevent valve closure upon ESF reset.

Item #	Component #	Component Description	Position Upon ESF Reset	Drawing # Drawing Location
18	SV0861	Service Water From Containment Cooler	Closed	M208 C/6
24	SV0864	Service Water From Containment Cooler	Closed	M208 A/6
27	SV0867	Service Water From Containment Cooler	Closed	M208 D/8
17	SV0873	Service Water From Containment Cooler	Closed	M208 A/8

The function of the containment air recirculation and cooling system, according to FSAR 6.3.1 is to, "Remove heat and vapor from the containment atmosphere during normal plant operation and, in the event of a DBA, to limit the containment building pressure rise and reduce the leakage of airborne radioactivity by providing a means of cooling the containment atmosphere".

The containment cooler service water valves are 8" valves in parallel with 4" automatic control valves. The 4" control valves are thermally actuated by temperature controllers (TC-0838, 0848, 0863 and 0872) with set points of 60°F.

In the event of a DBA, the 8" valves would open to provide additional flow. A condition of containment high pressure (CHP) must be cleared, before ESF equipment can be reset. Once reset is accomplished, the 4" valves will regulate the water flow and the 8" valves can be shutdown. Therefore, service water to the containment coolers would not be disrupted during a condition requiring the coolers to perform their safety function.

Item #	Component #	Component Description	Position Upon ESF Reset	Drawing # Drawing Location
23	SV0937	Component Cooling Water To Shutdown Hx	Closed	M209 H/3
7	SV0938	Component Cooling Water To Shutdown Hx	Closed	M209 F/3

The purpose of the shutdown heat exchangers, according to FSAR 6.1.2.2(d), is "to remove decay heat and sensible heat during plant cooldowns and cold shutdowns".

On an initial ESF signal, cooling is provided by the safety injection and refueling water tank (SIRW). This tank holds a minimum of 250,000 gallons of water and will provide cooling for at least 20 minutes, with a 42" line break. Upon depletion of the SIRW tank, the CS pumps will take suction from the containment sump. The sump water will be cooled through the shutdown heat exchangers, before return to the containment spray headers.

A standing CHP condition will not allow ESF reset. Once CHP is cleared, the CS pumps no longer need to be in operation and cooling of containment sump will not be necessary. Therefore, it is permissible for valves SV0937 and SV0938 to close on reset.

Item #	Component #	Component Description	Position Upon ESF Reset	Drawing # Drawing Location
15	SV0913	Component Cooling Water To Seal Cooling	Closed	M209 D/3
11	SV0950	Component Cooling Water To Seal Cooling	Closed	M209 C/5

The purpose of the Component Cooling Water (CCW), going to the LPSI, HPSI and CS pumps, is to provide cooling to the mechanical seals.

In the event of a DBA, all pumps would be operating, however, ESF reset cannot occur until a Containment High Pressure (CHP) situation no longer existed. Once CHP was cleared, LPSI and CS pumps can be shutdown, but HPSI pumps will still be in operation. According to Palisades Plant Emergency Operating Procedures (EOP) 1.4.13, the operator should place the seal cooling handswitch in the open position before ESF reset, this would allow cooling to the seals of any safety injection pumps still in operation. Should the operator fail to open the handswitch, the lack of seal cooling would only tend to shorten seal life and not affect the safety of the system. FSAR 6.1.2 states that HPSI and LPSI pump seals are designed for operation at 300°F, but are provided with cooling to extend seal life.

Item #	Component #	Component Description	Position Upon ESF Reset	Drawing # Drawing Location
28	SV0437A	Iodine Removal Tank Discharge Valve	Closed	M205 F/2
30	SV0437B	Iodine Removal Tank Discharge Valve	Closed	M204 F/2

According to FSAR 6.4.2.1, the function of the iodine removal tank is to provide sodium hydroxide to the water from the SIRW tank, after a Loss-Of-Coolant-Accident, to establish a neutral pH and to provide for iodine retention.

This system will be initiated upon receipt of a Containment High Pressure (CHP) signal and cannot be reset with this signal present. By the time CHP is cleared, the iodine removal tank will have performed its function and the closing of the valves is warranted.

Item #	Component #	Component Description	Position Upon ESF Reset	Drawing # Drawing Location
29	SV3001	Containment Spray System Discharge Valve	Closed	M203 H/3
31	SV3002	Containment Spray System Discharge Valve	Closed	M203 G/3

The function of the containment spray system, according to FSAR 6.2.1, is "to limit the containment building pressure rise and reduce the leakage of airborne radioactivity by providing a means for cooling the containment atmosphere after occurence of a Loss-Of-Coolant-Accident".

On a DBA, the containment spray system discharge valves would be open. ESF reset cannot be accomplished until Containment High Pressure (CHP) and Containment High Radiation (CHR) are both cleared. Once these conditions are cleared, the CS pumps can be shutdown and the valves can, therefore, be closed on ESF reset.

POST-REACTOR TRIP CONDITIONS WHICH MUST BE MET IN ORDER TO RESET SAFETY INJECTION PER EMERGENCY OPERATING PROCEDURE #1

"REACTOR TRIP"

1. The reactor is shut down and will remain shut down.
2. The hot and cold leg temperatures are at least 50°F subcooled.
3. The cause of the low pressure condition is known and corrected.
4. Pressurizer pressure is greater than 1700 psia and is returning to normal.
5. Pressurizer level is greater than 20% and is returning to normal.
6. TAVG is stable or increasing and is less than 545°F.