ATTACHMENT

Consumers Power Company
Palisades Plant
Docket 50-255

PROPOSED PAGES

TECHNICAL SPECIFICATIONS CHANGE REQUEST

CORE EXIT THERMOCOUPLES

November 25, 1987

4 Pages

If the bypass is not effected, the out-of-service channel (Power Removed) assumes a tripped condition (except high rate-of-change of power, high power level and high pressurizer pressure),[1] which results in a one-out-of-three channel logic. If, in the 2 of 4 logic system of either the reactor protective system or the engineered safeguards system, one channel is bypassed and a second channel manually placed in a tripped condition, the resulting logic is 1 of 2. At rated power, the minimum operable high-power level channels is 3 in order to provide adequate flux tilt detection. If only 2 channels are operable, the reactor power level is reduced to 70% rated power which protects the reactor from possibly exceeding design peaking factors due to undetected flux tilts and from exceeding dropped rod peaking factors in the event that a turbine runback signal is required from the power range channels.

The engineered safeguards system provides a 2 of 4 logic on the signal used to actuate the equipment connected to each of the 2 emergency diesel generator units.

Two start-up channels are available any time reactivity changes are deliberately being introduced into the reactor and the neutron power is not visible on the log-range nuclear instrumentation or above 10^{-4}% of rated power. This ensures that redundant start-up instrumentation is available to operators to monitor effects of reactivity changes when neutron power levels are only visible on the start-up channels. In the event only one start-up range channel is available and the neutron power level is sufficiently high that it is being monitored by both channels of log-range instrumentation, a startup can be performed in accordance with footnote (d) of Table 3.17.4.

Sixteen (four per core quadrant) environmentally qualified core exit thermocouples (cable and connectors) with readout from 0 to 2300°F are provided for monitoring the potential approach to inadequate core cooling. The core exit thermocouples are an integral part of the incore detector assembly and are located at the top of each incore assembly to measure primary coolant outlet temperatures. /

References

(1) Updated FSAR, Sections 7.2.2 and 7.2.7.

Table 3.17.4 (Cont'd)

No	Functional Unit	Minimum Operable Channels	Minimum Degree of Redundancy	Permissible Bypass Conditions
8.	Pressurizer Water Level (LI-0102)	2	1	Not required in Cold or Refueling Shutdown
9.	Pressurizer Code Safety Relief Valves Position Indication (Acoustic Monitor or Temperature Indication)	1 per Valve	None	Not Required below 325°F
10.	Power Operated Relief Valves (Acoustic Monitor or Temperature Indication)	1 per Valve	None	Not required when PORV isolation valve is closed and its indication system is operable
11.	PORV Isolation Valves Position Indication	1 per Valve	None	Not required when reactor is depressurized and vented through a vent ≥1.3 sq.in.
12.	Subcooling Margin Monitor	1	None	Not required below 515°F
13.	Auxiliary Feed Flow Rate Indication	1 per flow Control Valve (h)	None	Not required below 325°F
14.	Auxiliary Feedwater Actuation System Sensor Channels	2 per steam generator (e)	1	Not required below 325°F
15.	Auxiliary Feedwater Actuation System Actuation Channels	2 (f)	1	Not required below 325°F
16.	Excore Detector	1 (g)	None	None
17.	Core Exit Thermocouples	2/core Quadrant (i)	1/core Quadrant	Not required in cold or Refueling Shutdown / / / /

(e) Auxiliary Feedwater System Actuation System Sensor Channels contain pump auto initiation circuitry. If two sensor channels for one steam generator are inoperable, one of the steam generator low level bistable modules in one of the inoperable channels must be in the tripped condition.

Table 3.17.4 (Cont'd)

No	Functional Unit	Minimum Operable Channels	Minimum Degree of Redundancy	Permissible Bypass Conditions
8.	Pressurizer Water Level (LI-0102)	2	1	Not required in Cold or Refueling Shutdown
9.	Pressurizer Code Safety Relief Valves Position Indication (Acoustic Monitor or Temperature Indication)	1 per Valve	None	Not Required below 325°F
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(e) Auxiliary Feedwater System Actuation System Sensor Channels contain pump auto initiation circuitry. If two sensor channels for one steam generator are inoperable, one of the steam generator low level bistable modules in one of the inoperable channels must be in the tripped condition.

(f) With one auxiliary Feedwater Actuation System Actuation Channel inoperable, in lieu of the requirement of 3.17.2, provide a second licensed operator in the control room within 2 hours. With both inoperable, in lieu of following the requirements of 3.17.2, start and maintain in operation the turbine driven auxiliary feed pump.

(g) Calculate the Quadrant Power Tilt using the excore readings at least once per 12 hours when the excore detectors deviation alarms are inoperable.

(h) With two flow rate indicators inoperable for a given control valve, the control valve shall be considered inoperable and the requirements of 3.5.2(e) apply.

(i) The core exit thermocouples in core locations (H2, G7, J7, J10), (Q4, R7, R8, N11), (M13, X14, Q16, R17) and (B13, H13, J16, G17) are to be used in determining the minimum channels operable requirement. /

TABLE 4.1.3

Minimum Frequencies for Checks, Calibrations and Testing of Miscellaneous Instrumentation and Controls (Contd)

Channel Description	Function	Frequency	Surveillance Method
23. Core Exit Thermocouples(6)	a. Check b. Calibrate	M (6)	a. Comparison of Channels b. Known voltage substituted for thermocouple /

(6) Only applicable to core thermocouple in core locations H2, G7, J7, J10, Q4, R7, R8, N11, M13, X14, Q16, R17, B13, H13, J16 and G17. These thermocouples will be calibrated on a refueling cycle frequency. / /