

Omaha Public Power District  
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Omaha, Nebraska 68102-2247  
402/636-2000

January 31, 1992  
LIC-92-018R

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, DC 20555

- References: 1. Docket No. 50-285  
2. Letter from OPPD (W. G. Gates) to NRC (Document Control Desk) dated September 4, 1991 (LIC-91-201R)  
3. Letter from NRC (D. L. Wigginton) to OPPD (W. G. Gates) dated December 5, 1991

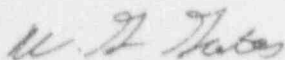
Gentlemen:

SUBJECT: Generic Letter 88-17 Enhancements

As requested by Reference 3, attached is the listing of indications and alarms associated with the Fort Calhoun Station Decay Heat Removal (Shutdown Cooling) system. This list of Control Room alarms and indications is provided to assist the NRC in review of Reference 2.

If you should have any questions, please contact me.

Sincerely,



W. G. Gates  
Division Manager  
Nuclear Operations

WGG/sel

Attachment

- c: LeBoeuf, Lamb, Leiby & MacRae  
R. D. Martin, NRC Regional Administrator, Region IV  
D. L. Wigginton, NRC Senior Project Manager  
R. P. Mullikin, NRC Senior Resident Inspector

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As previously discussed, in each case the relevant acceptance criteria is met which preserves the margin of safety provided by these criteria. It is therefore concluded that the requested changes do not involve a significant reduction in any margin of safety.

### Conclusions

This evaluation describes investigations made for a power uprate to 3430 MWt, equivalent to 105% of original steam flow. A 5% increase in steam flow was factored into the original design basis for Fermi 2. Major analyses, i.e. overpressurization, ECCS/LOCA, and the radiological consequences of the DBA/LOCA, were originally performed at 3430 MWt and were previously approved by the NRC. Those analyses were reperfomed at 3430 MWt + 2% and remain well within regulatory limits. Having arrived at negative declarations with respect to these considerations of 10CFR50.92, this assessment concludes that uprated power operation at 3430 MWt does not involve a significant hazards consideration for Fermi 2.

FORT CALHOUN STATION  
DHR SYSTEM CONTROL ROOM ALARMS & INDICATIONS

At Fort Calhoun Station the Low Pressure Safety Injection (LPSI) pumps serve as the Decay Heat Removal (DHR) system pumps. The plant specific term for DHR at Fort Calhoun Station is Shutdown Cooling. The Containment Spray pumps may be used as a backup when the RCS is vented through a minimum of 47 square inches and RCS temperature is less than 120°F. The pressurizer manway satisfies the minimum area requirement.

The following alarms are presently available in the Control Room to alert the Operators to an off normal condition with the DHR system (except for item 2 which will be installed during the 1992 Refueling Outage):

1. Reactor Coolant System Refueling Level Low (A-4, D5) - Alarms when Reactor Coolant system water level is 2 inches below centerline of the hot leg (LA-197, and LA-119).

MR-FC-89-025, completed during the 1989 outage, improved the accuracy of LA-197 and added the redundant channel LA-119. Calibration procedures for the alarms ensure that the alarms will be received prior to actual level decreasing more than 5 inches below hot leg centerline.

During the 1988 outage following full core off-load, Reactor Coolant system level was lowered to determine the point at which the Decay Heat Removal system began to show signs of vortexing and drawing air into the suction line. Pump motor amperage began minor fluctuations at 7 inches below hot leg centerline.

Therefore, the alarm setpoint of 2 inches is appropriately conservative to assure that the alarm will actuate prior to vortexing (for normal DHR flow rates).

2. Shutdown Cooling System Low Flow Alarm (new alarm to be installed by Modification MR-FC-89-G19 during the 1992 Refueling Outage) - Will alarm on a low flow condition (< 1000 gpm) as sensed by the shutdown cooling flow element (FE-326).
3. LPSI Pump Overload Trip (A-34-1, F7 and A-33-1, F1) - Alarm sound if the control switch is in AFTER CLOSE and the pump breaker is not closed.
4. LPSI Pump Off Normal (A-34-1, D7 and A-33-1, D1) - If the pump control switch is in PULLOUT, the "69" switch is not in NORMAL, or the house hoist switch indicates that the breaker is not racked in, the alarm is received.
5. LPSI Pump Recirculation Mode Auto Trip (A-34-1, G7 and A-33-1, G1) - Indicates that a Recirculation Actuation Signal (RAS) has stopped a LPSI pump.
6. Shutdown Cooling Valves Closed Signal Fail or Violation (A2, C-1L-0) - Alerts the operators that Reactor Coolant system pressure has exceeded the maximum operating pressure of the Shutdown Cooling system or the shutdown cooling system is being automatically isolated (HCV-347 and V-348 will close). During refueling conditions, when the pressurizer manway is removed, the auto closure feature is disabled. However, the alarm is still functional.

Attachment  
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The following indicators are available in the Control Room to monitor and access the state of the DHR system:

1. Reactor Coolant system level (LI-119 and LI-197).
2. Decay Heat Removal system return header pressure (FI-325).
3. Decay Heat Removal system suction and return header temperatures on a trend recorder (TR-346).
4. Decay Heat Removal system heat exchanger outlet temperature (TI-339 and TI-340). These temperatures are available on the Plant Computer. A request has been submitted for development of software that will assign an alarm to these temperatures. This software will be installed during the 1992 outage.
5. Decay Heat Removal system heat exchanger cooling water inlet and outlet temperatures (TI-496, TI-487, TI-493, TI-494, TI-495 and TI-496).
6. Decay Heat Removal system total flow (FIC-326).
7. Decay Heat Removal system individual loop injection flow (FI-328, FI-330, FI-332 and FI-334).
8. Low Pressure and Containment Spray pump motor amperage (AM/SI-1A, AM/SI-1B, AM/SI-3A, AM/SI-3B and AM/SI-3C).
9. Decay Heat Removal system valve position (FCV-326, HCV-327, HCV-329, HCV-331, HCV-333, HCV-335, HCV-347, HCV-348, HCV-2937, HCV-2938, HCV-2947 and HCV-2948).
10. Twenty Eight (28) Core Exit Thermocouples (CETs) when the reactor vessel head is installed. Two independent CETs must be available during reduced inventory conditions when the reactor vessel head is installed.