Omaha Public Power District
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402/536-4000

April 14, 1988
LIC-88-219

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Reference: Docket No. 50-285

SUBJECT: Special Report on Inoperability of Post-Accident Monitoring Instrumentation

Gentlemen:

The Omaha Public Power District, holder of Operating License DPR-40, submits this special report pursuant to the requirements of Fort Calhoun Station Unit No. 1 Technical Specification 2.21, "Post-Accident Monitoring Instrumentation."

Fort Calhoun Station Unit No. 1 Technical Specification 2.21 Table 2-10 Item 8, specifies the requirements for the core exit thermocouples (CETs). Action (i) requires with the number of Operable Core Exit Thermocouples less than the four required by NUREG-0737, either restore the number of operable channels to at least four within seven (7) days of discovery of the inoperability, or prepare and submit a special report to the Nuclear Regulatory Commission. This report is being submitted because for more than seven days core quadrant 1 had only three operable CETs.

On March 15, 1988 at 0401, alarms were received in the Control Room indicating problems with the Qualified Safety Parameter Display System Channel A (QSPDS A). The situation was assessed and QSPDS A was declared inoperable. At 0417 Operations personnel noticed the smell of hot insulation emanating from within the QSPDS A panel AI-208A and immediately de-energized the panel. De-energizing the panel resulted in halting the source of the fumes.

Maintenance Order #881100 was issued to investigate the problem. It was discovered that the Isolated Expander Module on the DT-1748-1 Expander Card had been overheated resulting in the failure of the QSPDS A panel. The DT-1748-1 Expander Card collects and relays the inputs from 8 Core Exit Thermocouples and the inputs from 4 Heated Junction Thermocouples (2 heated and 2 unheated) to the QSPDS A central processing unit. The damaged card was replaced and function testing initiated.

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The number of core exit thermocouples per quadrant for each channel is shown in Figure 1. Figure 2 indicates the number of CETs affected and the number of CETs operable. Only quadrant 1 had less than four operable CETs as a result of the card failure. Table 1 indicates that the number of Heated Junction Thermocouples (HJTCs) was within Technical Specification requirements during the equipment failure.

During the trouble shooting on March 23, 1988, the ISBC-544 Communications Controller Board was found to be inoperable. The ISBC-544 Communications Controller Board interfaces the central processing unit with the screen in the QSPDS A panel and with the Emergency Response Facility Computer System as part of the Safety Parameter Display System (SPDS). The defective board was subsequently replaced. After replacement of the DT-1748-1 card, the QSPDS A panel was calibrated using procedure CP-A/QSPDS. Surveillance tests ST-SCMM-1 F.1 and ST-HJTC-1 F.1 were satisfactorily performed following the replacement of the ISBC-544 Communications Controller Board. The equipment was returned to service and declared operable on March 23, 1988 at 1705.

Subsequently it was discovered that some seismic bracing had not been reinstalled in the panel since the March 23 repair. Therefore, at 1530 hours on April 6, 1988 QSPDS A was again declared inoperable. The required repairs were completed at 1117 hours on April 9, 1988. Corrective actions have been completed. This special report is being issued within the 30 day limit as specified in Technical Specification 2.21 Table 2-10, Item 8 (i).

Sincerely,

R L Gaworski for

R. L. Andrews
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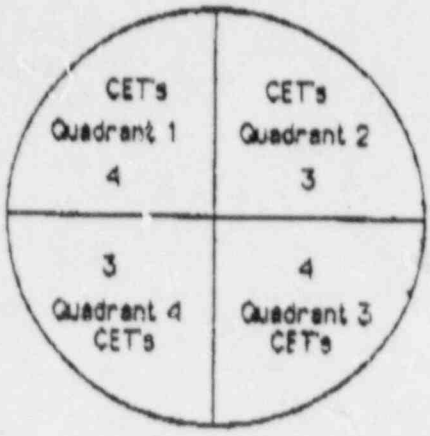
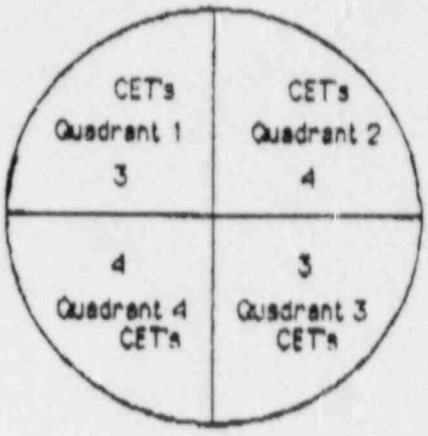
Number of Core Exit Thermocouples installed in QSPDS Channels A & B



QSPDS Channel A

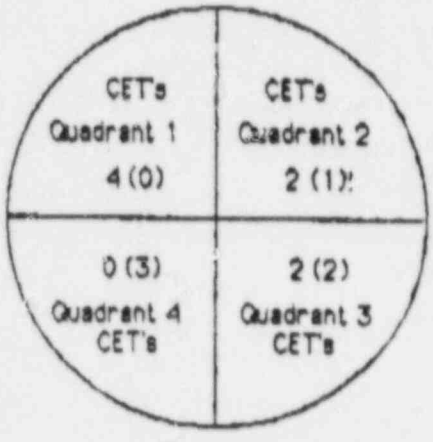


QSPDS Channel B

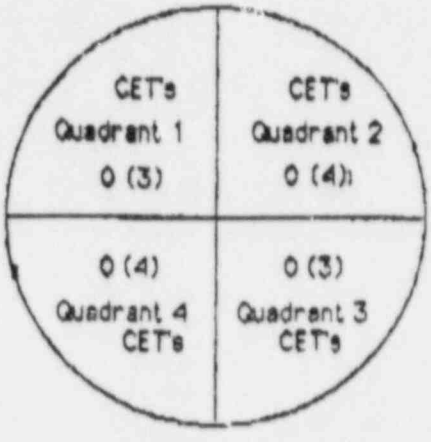
Nureg-0737 Item II.F.2 requires each core quadrant to be monitored by 4 Core Exit Thermocouples if this can not be maintained restore to at least four per core quadrant within 7 days or within 30 days of the discovery of inoperability submit a report to the Nuclear Regulatory Commission. Fort Calhoun Technical Specification 2.21 requires at least 2 Core Exit Thermocouples per core quadrant or restore to a least 2 per core quadrant within 7 days or be in hot shutdown within 12 hours. If no Core Exit Thermocouples are operable in a core quadrant either restore the inoperable channel(s) within 48 hours or be in hot shutdown within 12 hours.

Figure 1

Number of Core Exit Thermocouples Affected in QSPDS Channels A & B
by Damaged QSPDS Card



QSPDS Channel A



QSPDS Channel B

Numbers represent the number of affected Core Exit Thermocouples in each quadrant.
Numbers in parenthesis represent operable Core Exit Thermocouples

Figure 2

Affected Heated Junction Thermocouples by QSPDS Channel A Inoperability

HEATED HJTC	AFFECTED	UNHEATED HJTC	AFFECTED
TH1A	NO	TU1A	NO
TH2A	NO	TU2A	NO
TH3A	NO*	TU3A	NO*
TH4A	NO	TU4A	NO
TH5A	NO	TU5A	NO
TH6A	NO	TU6A	NO
TH7A	YES	TU7A	YES
TH8A	YES	TU8A	YES

*PREVIOUSLY INOPERABLE

Heated Junction Thermocouples operate as a pair (one heated and one unheated comprise a functional Heated Junction Thermocouple). Heated Junction Thermocouples 1-4 comprise the Upper string and Heated Junction Thermocouples 5-8 comprise the Lower String. Technical Specification 2.21 defines an operable string as having four functional Heated Junction Thermocouples with at least 2 each in the Upper and Lower Strings.

Table 1