

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palisades Nuclear Plant										DOCKET NUMBER (2) 0 5 0 0 0 2 1 5 5					PAGE 13 1 OF 0 2	
TITLE (4) Thermal Degradation of Cable Insulation																
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)						
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES				DOCKET NUMBER(S)			
0 7	0 3	8 4	8 4	0 1 0	0 0	0 8	1 3	8 4	NA				0 5 0 0 0 1 1			
										NA				0 5 0 0 0 1 1		
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)														
N		20.402(b)				20.408(a)				80.73(a)(2)(iv)				73.71(b)		
POWER LEVEL (10)		20.408(a)(1)(i)				80.38(a)(1)				80.73(a)(2)(v)				73.71(c)		
0 1 0 1 0		20.408(a)(1)(ii)				80.38(a)(2)				80.73(a)(2)(vi)				X OTHER (Specify in Abstract below and in Text, NRC Form 305a)		
		20.408(a)(1)(iii)				80.73(a)(2)(i)				80.73(a)(2)(vii)(A)				Voluntary Report		
		20.408(a)(1)(iv)				80.73(a)(2)(ii)				80.73(a)(2)(vii)(B)						
		20.408(a)(1)(v)				80.73(a)(2)(iii)				80.73(a)(2)(ix)						
LICENSEE CONTACT FOR THIS LER (12)																
NAME										TELEPHONE NUMBER						
David W. Rogers; Technical Engineer; Palisades										AREA CODE 612 6716 141-189113						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS						
SUPPLEMENTAL REPORT EXPECTED (14)																
YES (If yes, complete EXPECTED SUBMISSION DATE)										X NO						
										EXPECTED SUBMISSION DATE (15)						
										MONTH DAY YEAR						

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On July 3, 1984, a section of cable tray which was enclosed by a fire barrier was discovered to be extremely hot to the touch. Further investigation of the condition revealed that the insulation on many of the cables in the cable tray had sustained damage due to the excessive temperatures. Subsequent evaluation determined the cause to be long term thermal degradation. The damaged cable was removed and replaced with new cable. The fire barrier was redesigned and relocated along the cable tray.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Palisades Nuclear Plant	0500025584	-0	10	-0	00	2	OF 02

TEXT (If more space is required, use additional NRC Form 366A's) (17)

On July 3, 1984, while trouble shooting wiring to containment sump level switch LS-0360 [LS], personnel discovered that a section of cable tray CP-250, which was enclosed by a fire barrier, was extremely hot to the touch. Further investigation of the cables [CBL] inside the fire barrier revealed that 47 of the 73 cables had sustained various levels of damage as a result of the excessively high temperatures. At the time of discovery, the Plant was being taken from cold shutdown toward hot shutdown, for eventual return to power operation from a long refueling outage.

Subsequent evaluation has determined that the damage to the cable insulation resulted from long term thermal degradation, attributed to excessive heat buildup inside the fire barrier itself. High ambient temperatures, the lack of ventilation in the area and the design of the fire barrier itself contributed to a condition which precluded proper dissipation of the heat produced by the energized cables in the area enclosed by the fire barrier.

The fire barrier was one of three similar barriers installed in the containment building during 1979. The remaining two barriers were subsequently inspected to verify the condition of the cables passing through the respective barriers. No evidence of excessive temperatures or thermal degradation was apparent.

Corrective action to the damaged cables consisted of removal of the damaged portion of the cables and replacement with spliced sections of cable. Additionally, the fire barrier was redesigned and relocated along the cable tray to facilitate proper heat dissipation.

Early investigation into the cause of the occurrence included the possibility that the excessive temperatures resulted from a phase imbalance condition in the three-phase pressurizer heater power cables which comprise the majority of the cables in cable tray CP-250. Evaluation of the possibility that the phase imbalance condition was the source of the heat which caused the thermal degradation of the cables has subsequently been completed. The results of the evaluation indicate that the effect of unbalanced three-phase currents is insignificant and, therefore, did not contribute to the excessive temperatures and resulting thermal degradation.

A temperature monitoring device was installed in the cable tray within the fire barrier to provide the capability to monitor the fire barrier temperature. Per the Confirmatory Action Letter of July 13, 1984, regarding this subject, the Palisades Plant has implemented measures for monitoring the temperature within the fire barrier.

Since implementation, there have been several instances of missed temperature readings or lost documentation of readings which were taken. The appropriate personnel have been counselled regarding these occurrences. The temperature within the fire barrier has remained relatively stable, between approximately 150 and 160 degrees F.

No threat to public health or safety resulted from the occurrence. No additional actions are planned other than continued implementation of the requirements per the Confirmatory Action Letter.



Consumers
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August 13, 1984

US Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 -
PALISADES PLANT - LICENSEE EVENT REPORT 84-010
(THERMAL DEGRADATION OF CABLE INSULATION)

Attached please find Licensee Event Report (LER) 84-010 (Thermal Degradation of Cable Insulation) which is submitted to the NRC as a voluntary LER for information purposes.

Brian D Johnson
Staff Licensing Engineer

CC Administrator, Region III, USNRC
Director, Office of Nuclear Reactor Regulation
NRC Resident Inspector - Palisades

Attachment