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Palisades Nuclear Plant: 27780 Blue Star Memorial Highway, Covert, MI 49043


G B Slade
General Manager

April 3, 1992

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
LICENSEE EVENT REPORT 92-018 - LACK OF ENVIRONMENTAL QUALIFICATION FOR
CONTAINMENT ELECTRICAL PENETRATIONS FOR THE SAFETY INJECTION TANKS ELECTRICAL
CONTROL SCHEME

Licensee Event Report (LER) 92-018 is attached. This event is reportable to
the NRC in accordance with 10CFR50.73(a)(2)(ii)(B) as a condition outside the
design basis of the plant.


Gerald B. Slade
General Manager

CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

Attachment

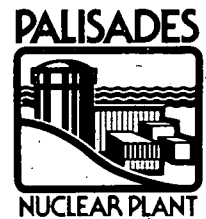
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palisades Plant		DOCKET NUMBER (2) 0 5 0 0 0 2 5 5 1	PAGE (3) OF 0 4
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TITLE (4) LACK OF ENVIRONMENTAL QUALIFICATION FOR CONTAINMENT ELECTRICAL PENETRATIONS FOR THE SAFETY INJECTION TANKS ELECTRICAL CONTROL SCHEME

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 3	0 5	9 2	9 2	0 1	8	0 0	0 4	0 3	9 2	N/A		0 5 0 0 0
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) <input type="checkbox"/> 20.402(b) <input type="checkbox"/> 20.408(a)(1)(i) <input type="checkbox"/> 20.408(a)(1)(ii) <input type="checkbox"/> 20.408(a)(1)(iii) <input type="checkbox"/> 20.408(a)(1)(iv) <input type="checkbox"/> 20.408(a)(1)(v) <input type="checkbox"/> 20.408(a)(2)(i) <input type="checkbox"/> 20.408(a)(2)(ii) <input checked="" type="checkbox"/> 20.408(a)(2)(iii) <input type="checkbox"/> 20.408(a)(2)(iv) <input type="checkbox"/> 20.408(a)(2)(v)												

OPERATING MODE (9) N	POWER LEVEL (10) 0 0 0	LICENSEE CONTACT FOR THIS LER (12) NAME: Cris T. Hillman, Staff Licensing Engineer TELEPHONE NUMBER: 6 1 6 7 6 4 - 1 8 9 1 3	
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	MONTH	DAY

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

ABSTRACT

On March 5, 1992, with the plant shutdown for the refueling, it was determined that the containment electrical penetration connectors for the solenoid valves which supply control air to the Safety Injection Tanks pressure and fill control valves were not environmentally qualified in accordance with 10 CFR 50.49.

The root cause for this event is the lack of adequate technical guidance and administrative controls for the removal of equipment from the environmental qualification (EQ) list.

Corrective actions for this event include replacing the containment electrical penetration connectors with environmentally qualified connectors, additional training on EQ program requirements, development of an engineering design guide on environmental qualification, and review of equipment removed from the EQ list to assure adequate justification for the removal exists.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 2	0 1 8	0 0	0 2	OF 0 4

TEXT IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC Form 308A (9/83)

EVENT DESCRIPTION

On March 5, 1992, with the plant in cold shutdown for the 1992 refueling outage, it was determined that the containment electrical penetration connectors [NH;PEN] for the solenoid valves which supply control air to the Safety Injection Tanks (SITs) pressure and fill control valves [BP;PCV] were not environmentally qualified in accordance with 10 CFR 50.49. This condition was discovered during an environmental qualification review of the entire electrical scheme for the SITs pressure and fill control valves.

This event is reportable to the NRC in accordance with 10CFR50.73(a)(2)(ii)(B) as a condition outside the design basis of the plant.

CAUSE OF THE EVENT

The root cause for this event is the lack of adequate technical guidance and administrative controls for the removal of equipment from the environmental qualification (EQ) list.

This event does not involve the failure of any equipment important to safety.

ANALYSIS OF THE EVENT

Solenoid valves SV-0338, SV-0342, SV-0346 and SV-0347 are used for supplying the control air to the four Safety Injection Tanks pressure and fill control valves CV-3038, CV-3042, CV-3046 and CV-3047, respectively. The solenoid valves are normally energized during plant operation which permits the pressure transmitters to control the valve position. SIT pressure is monitored in the SIT discharge line between the inboard and outboard check valves. If the SIT pressure exceeds the pressure transmitter set-point, which may occur due to leakage through the primary coolant system (PCS) check valve, the pressure transmitters PT-0338, PT-0342, PT-0346, and PT-0347 signal the control valves to open to allow drainage of the SIT to the radioactive waste treatment system, to reduce the SIT pressure.

The subject solenoid valves are required to close on a safety injection signal (SIS) in order to close the associated control valves and thereby prevent the loss of fluid from the SITs. The solenoid valves are designed to automatically de-energize upon receipt of an SIS which overrides the automatic pressure control loop signal and keeps the control valves closed.

The solenoid valves are located inside containment which is considered a harsh environment during a loss of coolant accident (LOCA). Since the pressure and fill control valves (and ultimately the solenoid valves which control the supply air to these valves) are required to operate during a LOCA, the solenoid valves are required to be environmentally qualified in accordance with 10 CFR 50.49.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		05000255	92-018	00	03	OF 04

TEXT IS HERE ENTERED IN REPORT, AND ADDITIONAL NRC FORM 2554 (1/77)

Solenoid valves SV-0338, SV-0342, SV-0346 and SV-0347 were on the original environmental qualification submittal of 1980 which stated they could not be qualified for the harsh environment and would be replaced with qualified solenoids. The solenoid valves were replaced about September 1981. It is unknown exactly when the solenoid valves were removed from the EQ list; however, their removal was based on the fact that the valves fail to their safe position and that they receive a Safety Injection Signal to close prior to experiencing a "significant harsh environment." It has since been determined that this basis is not technically adequate to justify the removal of safety related equipment from the EQ list, although it may provide an adequate basis for qualifying the equipment for less than the full duration of the accident.

Although the solenoid valves are qualified, the penetration connectors were found to be environmentally unqualified which could cause their electrical circuits to fail, thereby preventing them from performing their safety function. The lack of environmental qualification of the penetration connectors (EZ221-16 and EZ221-17) was identified during the review of the solenoid valves instrument loops to assure adequate environmental qualification.

During the time the solenoid valves were not on the EQ list, there were general modifications to replace many environmentally non-qualified electrical containment penetration connectors with environmentally qualified connectors. Since the SIT pressure and fill control valve solenoids were not on the EQ list, and no other environmentally qualified equipment utilized their penetration connectors, there appeared to be no justification to replace the connectors, and, therefore, the connectors were not replaced.

CORRECTIVE ACTION

Corrective action was immediately initiated to return the SITs control valves solenoid valves to the active EQ list. The qualified life calculation for the SITs control valves solenoid valves was checked to see if the remaining qualified life was acceptable. The remaining qualified life is acceptable.

The maintenance records for the solenoid valves were reviewed to assure the solenoid valves were maintained in accordance with the qualification requirements. The solenoid valves have been properly maintained in accordance with environmental qualification requirements.

Based on the remaining qualified life and the adequacy of maintenance, the solenoid valves remain qualified and will be placed back on the EQ list.

A modification was initiated to replace the electrical penetration connectors during the 1992 refueling outage.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Palisades Plant	DOCKET NUMBER (2) 051000255	LER NUMBER (3)			PAGE (3)	
		YEAR 92	SEQUENTIAL NUMBER 018	REVISION NUMBER 00	04	OF 04

TEXT IN THIS SPACE IS REQUIRED, USE ADDITIONAL NRC Form 2064's (117)

Additional corrective actions include training on EQ program requirements for plant and engineering personnel involved in engineering and maintenance of electrical equipment environmental qualification, development of an engineering design guide on EQ, and review of equipment removed from the EQ list to assure adequate justification for the removal exists.

ADDITIONAL INFORMATION

Recently submitted licensee event reports which also deal with the subject of lack of environmental qualification include LER 92006, LER 92007, LER 92012 and LER 92013.