

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) PALISADES NUCLEAR PLANT	DOCKET NUMBER (2) 0 5 0 0 0 2 5 5	PAGE (3) 1 OF 3
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TITLE (4)
Safety Injection System Functions Blocked

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)
02	12	85	85	001	00	03	19	85	NA		0 5 0 0 0
									NA		0 5 0 0 0

OPERATING MODE (9) N

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

20.402(b)	20.406(c)	80.73(a)(2)(iv)	73.71(b)
20.406(a)(1)(i)	80.36(c)(1)	80.73(a)(2)(v)	73.71(e)
20.406(a)(1)(ii)	80.36(c)(2)	80.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.406(a)(1)(iii)	80.73(a)(2)(i)	80.73(a)(2)(vii)(A)	Voluntary
20.406(a)(1)(iv)	80.73(a)(2)(ii)	80.73(a)(2)(vii)(B)	
20.406(a)(1)(v)	80.73(a)(2)(iii)	80.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
David W Rogers; Technical Engineer; Palisades	612 6 7164 1-18 9113

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
B	JIE	RELIY E	10120	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On February 18, 1985 with the Plant at 98% power, a relay failure was identified in a Safety Injection System (SIS) test circuit. The failed relay blocked an automatic SIS initiation of a pressurizer heater trip and a concentrated boric acid supply valve actuation signal. The blocking function was inserted during an SIS Surveillance Test and failed to clear on completion of the test. No specific cause for the relay failure was determined. A similar blocking circuit in the opposite channel was found to not have annunciation capabilities for this type of failure.

A precaution was added to the SIS Surveillance Procedure to identify the actuations that are inoperable with the blocking relay annunciator lit. A review of other test procedures will be performed. The malfunctioning relay will be replaced. Annunciation of the blocking relay status will be provided for the opposite channel.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

On February 18, 1985, with the Plant at 98% power, a relay (JE, RLY) failure was identified in a Safety Injection System (SIS) test circuit. Further evaluation revealed that the failure had blocked the automatic SIS initiation of a pressurizer heater (AB, EHTH) trip and a concentrated boric acid supply valve (CB,V) actuation signal. The blocking function was inserted during an SIS Technical Specification Surveillance Test on February 12, 1985 and failed to clear on completion of the test. The blocked condition was indicated by an annunciator remaining lit, but was not specifically identified until February 18, 1985.

Safety Injection System Technical Specification Surveillance Procedure QO-1 demonstrates the operability of the SIS initiation circuits by utilizing the internal testing capabilities of the SIS circuitry. During QO-1, certain SIS actuations are blocked by test relays. In particular, a relay is provided to block a pressurizer heater trip and to prevent a concentrated boric acid supply valve from opening. In addition, the relay will cause an annunciator to indicate "Pressurizer Heaters Blocking Relays Actuated". Surveillance Procedure QO-1 did not address the status of this annunciator and the effect of this relay on SIS actuations. Plant personnel assumed that only the annunciator had malfunctioned. A precaution was subsequently added to QO-1 to identify the SIS actuations that are inoperable with the respective annunciator lit. A review of surveillance procedures will be performed to identify the potential for similar occurrences during other tests.

In this event, a normally deenergized, pneumatic time-delay-open relay (Eagle Signal, Airflex Timer, Model AF30A601) failed to open an integral contact within the relay. This contact maintained the blocking function after the relay was deenergized. Investigation of the failure was not able to specifically identify any cause. While attempting to isolate the failure mode, the condition cleared and could not be duplicated. A similar occurrence was identified on November 17, 1984 and is suspected to have involved this same relay. However, in this case, the condition cleared before any troubleshooting occurred and the faulty relay could not be specifically identified. The relay will be replaced and evaluated for proper operation.

Although no generic concerns have been determined, the potential failure of a similar relay in the opposite SIS channel was considered. Since annunciation of a blocked condition was not provided, direct readings were performed and confirmed the correct position of the blocking relays. An engineering request was submitted to provide annunciation of the blocking relay status in this channel.

The pressurizer heater trip was added as an SIS actuation to preclude a postulated loss of containment integrity during a loss of coolant accident (LOCA) with offsite power available. The scenario assumes that a maximum containment water level covers the pressurizer heater transformers and the resulting overcurrent fails to trip the heater circuit breakers. Since the containment penetration is unable to withstand the resultant cable temperatures, a redundant feature was needed to ensure the heaters would be tripped. In the design basis LOCA, offsite power is unavailable, and pressurizer heaters are eliminated during the resulting load shed prior to diesel generator loading.

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TEXT (If more space is required, use additional NRC Form 365A x) (17)

The concentrated boric acid supply isolation valve is opened during an SIS actuation to provide a direct flow path from the concentrated boric acid pumps (CB, P) to the charging pumps (CB, P) suction line. Redundant flowpaths are provided by automatic SIS actuation of a gravity feed supply from the concentrated boric acid tanks (CB, TK) or by manual actuation of a supply from the Safety Injection and Refueling Water Tank (CB, TK). In addition, manual actuation of the valve from the Control Room was not affected by the failed blocking relay. Proper opening of this valve is verified on a checklist performed after an SIS actuation.



Consumers
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General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0550

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Director,
Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
LICENSEE EVENT REPORT 85-001 - SAFETY INJECTION SYSTEMS BLOCKED - VOLUNTARY
REPORT

Licensee Event Report (LER) 85-001 (Safety Injection Systems Blocked) is
attached. This event is being submitted as a voluntary report.

Ralph R Frisch
Ralph R Frisch

Senior Licensing Analyst

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

Attachment

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