NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
PALISADES NUCLEAR PLANT	0 5 0 0 0 2 5 5	1 OF 0 3

TITLE (4)

Main Feedwater Pump Start Results in Reactor Critical With PCS Less Than 525 Degrees F

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)
									N/A	0 5 0 0 0
0 8	2 5	8 7	8 7	— 0 2 8	— 0 0	0 9	2 4	8 7	N/A	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)			
POWER LEVEL (10)	0 0 2	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
C S Kozup, Technical Engineer, Palisades	6 1 6 7 6 4 - 8 9 1 3

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
X									

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

Abstract

On August 25, 1987 at 1315, with the reactor critical, the primary coolant system (PCS) [AB] temperature dropped below 525 degrees F. The PCS was below 525 degrees F for twenty seconds with a minimum temperature of 524.6 degrees F obtained. The reactor was taken critical at 0222. This occurrence is being reported as an operational condition prohibited by Plant Technical Specification 3.1.3c.

The PCS temperature decrease was caused by the starting of main feedwater pump, P-1B [SJ;P] shortly after a boron addition to the PCS. Boron was added to PCS to mitigate Xenon burnout and maintain criticality. The feedwater pump was started as part of the routine procedure for returning the secondary system to service.

The PCS temperature drop was alleviated by withdrawing control rods, thereby increasing reactivity and PCS temperature.

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

Description

On August 25, 1987 at 1315, with the reactor critical, the primary coolant system (PCS) [AB] temperature dropped below 525 degrees F. The PCS was below 525 degrees F for twenty seconds with a minimum temperature of 524.6 degrees F obtained. The reactor was taken critical at 0222. This occurrence is being reported as an operational condition prohibited by Plant Technical Specification 3.1.3c.

On August 25, 1987 at 0033, Operations personnel initiated actions to return the reactor to criticality. The reactor was taken critical at 0222. As the reactor was being returned to service within forty-eight hours of shutdown, Xenon existing in the PCS was decaying to below equilibrium values. In order to mitigate the effects of Xenon burnout and maintain reactor criticality, Operations personnel performed a boron addition to the PCS. Shortly after this addition, main feedwater pump, P-1B [SJ;P] was placed in service. The combined effects of the boron addition and main feedwater pump start, both of which results in the reduction of PCS temperature, caused a drop from approximately 533 to 524.6 degrees F.

In order to alleviate the temperature drop, Control Room operators withdrew control rods, causing positive reactivity and a subsequent PCS temperature increase.

Cause Of The Event

The twenty second drop in PCS temperature to below 525 degrees F (ie, 524.6) resulted from placing main feedwater pump P-1B in service shortly after increasing PCS boron concentration. Due to anticipated Xenon burnout rates, PCS boron concentration was being increased in order to maintain criticality. The main feedwater pump was started in accordance with normal operation practices when returning to power operation.

Corrective Action

Through discussions held by the Plant Operations Department Superintendent, on-shift Operations personnel are being provided further emphasis regarding attention to actions which could reduce PCS temperature below 525 degrees F.

A Technical Specification Change (TSC) to section 3.1.3c is being drafted. This TSC will be in accordance with Standard Technical Specification 3/4.1.1.4 and will provide a fifteen minute action statement for restoration of PCS temperature. This change was previously submitted on February 5, 1985, however, was withdrawn on March 5, 1986 with NRC concurrence on May 28, 1986. The withdrawal was based on the interpretation that the Action

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

requirements of specification 3.0.3 applied and thereby allowed one hour to meet the requirements in specification 3.1.3c. We now believe the 15 minute action statement provides clearer guidance and is consistent with NRC approved Standard Technical Specifications.

Analysis Of The Event

As primary coolant system temperature was below 525 degrees F (ie, 524.6) for only twenty seconds and prompt operator action mitigated the event causing the temperature decrease, no threat to the general public was imposed. As recognized by Standard Technical Specifications, allowance of a fifteen minute limiting condition of operation, this item is not considered a significant safety hazard.

This event is being reported per 10CFR50.73 (a)(2)(i) as an operational condition prohibited by Plant Technical Specifications.

Additional Information

For additional information regarding occurrences of the reactor being critical with the primary coolant system less than 525 degrees F, reference Licensee Event Reports 84-014, 87-018 and 87-022.

Consumers Power
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September 24, 1987

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
LICENSEE EVENT REPORT 87-028 (MAIN FEEDWATER PUMP START
RESULTS IN REACTOR CRITICAL WITH PCS LESS THAN 525 DEGREES F)

Licensee Event Report (LER) 87-028, (Main Feedwater Pump Start Results in Reactor Critical With PCS Less than 525 Degrees F) is attached. This event is reportable to the NRC per 10CFR50.73(a)(2)(i).

Brian D Johnson
Staff Licensing Engineer

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

Attachment

IE22

OC0987-0168-NL04