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 FULLER, R.E. Washington Public Power Supply System
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 93-004-00: on 930127, determined that two inadequately installed fuses could have caused loss of RHR capability during seismic event. Caused by improper installation of fuses. Fuse deficiencies will be evaluated. W/930226 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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February 26, 1993
G02-93-047

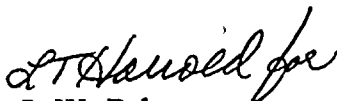
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Washington, D.C. 20555

**SUBJECT: NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 93-004-00**

Transmitted herewith is Licensee Event Report No. 93-004 for the WNP-2 Plant. This report is submitted in response to the report requirements of 10CFR50.73 and discusses the items of reportability, corrective action taken, and action taken to preclude recurrence.

Sincerely,



J. W. Baker
WNP-2 Plant Manager (Mail Drop 927M)

JWB/REF/nw
Enclosure

cc: Mr. J. B. Martin, NRC - Region V
Mr. R. Barr, NRC Resident Inspector (Mail Drop 901A, 2 Copies)
INPO Records Center - Atlanta, GA
Mr. D. L. Williams, BPA (Mail Drop 399)

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)

Washington Nuclear Plant - Unit 2

DOCKET NUMBER (2)

0 5 0 0 0 3 9 -7

PAGE (3)

1 OF 5

TITLE (4)

IMPROPERLY SEATED FUSES COULD HAVE CAUSED A LOSS OF RESIDUAL HEAT
REMOVAL CAPABILITY DURING A SEISMIC EVENT

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 NUMBERS(S)			
0	1	2	7	9	3	9	3	0	0	4	0	0	0
0	1	2	7	9	3	9	3	0	0	4	0	0	0

OPERATING MODE (9) 4 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10)	20.402(b)	20.405(c)	50.73(a)(2)(iv)	77.71(b)
	20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v)	73.73(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
R. E. Fuller, Licensing Engineer	AREA CODE 5 0 9 3 7 7 - 4 1 4 8

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)

☐ YES (If yes, complete EXPECTED SUBMISSION DATE) ☒ NO

ABSTRACT (16)

On January 27, 1993, a Design Engineer determined that two inadequately installed fuses (F03-2 and F04-2) caused Division 2 of the Residual Heat Removal (RHR) System to be inoperable. This condition could have prevented the RHR System from performing its safety function during the time when Division 1 of RHR was also inoperable. A seismic event may have dislodged the fuses. A review determined that the fuses could have been in this configuration since Plant startup. These discrepancies were found during performance of the Plant Fuse Walkdown Program, which was initiated in part to identify these types of deficiencies.

The fuses were properly reseated in their fuse clips.

The root cause was improper installation of the fuses.

No further corrective actions were identified because formal controls for fuse replacement now exist and the Fuse Walkdown Program is meeting management expectations.

The safety significance of this event is negligible because the probability of a seismic event occurring coincident with the opposing division of RHR being unavailable is low. This condition posed no threat to the health and safety of Plant personnel or the public.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION															
FACILITY NAME (1)		DOCKET NUMBER (2)					LER NUMBER (8)			PAGE (3)					
Washington Nuclear Plant - Unit 2		0	5	0	0	0	3	9	7	Year	Number	Rev. No.			
		9	3							0	0	4		0	0
													2	OF	5
TITLE (4) IMPROPERLY SEATED FUSES COULD HAVE CAUSED A LOSS OF RESIDUAL HEAT REMOVAL CAPABILITY DURING A SEISMIC EVENT															

Plant Conditions

Power Level - 0%

Plant Mode - 4 (Cold Shutdown)

Event Description

On January 27, 1993, a Design Engineer determined that two inadequately installed fuses (F03-2 and F04-2) caused Division 2 of the Residual Heat Removal (RHR) System to be inoperable. This condition could have prevented the RHR System from performing its safety function during the time when Division 1 of RHR was inoperable. The Design Engineer determined that a seismic event could have dislodged one end of one or both fuses from its fuse clip and render the Division 2 RHR "B" and "C" trains inoperable. They were judged inoperable because numerous control devices associated with these RHR trains would have lost power. Therefore, any time the Division 1 RHR train "A" was inoperable when RHR was required to be operable, a condition existed that could have prevented the RHR System from performing its Suppression Pool Cooling (SPC), Shutdown Cooling (SDC), Drywell Spray (DWS), Low Pressure Coolant Injection (LPCI) and Suppression Pool Spray (SPS) safety functions. This inspection was being done as part of the WNP-2 Fuse Walkdown Program.

The problem with the fuses was initially identified during inspection of the Control Room electrical distribution panel E-DP-S1/2A on January 14, 1993. At that time the WNP-2 Fuse Program Engineer identified the fuses to be improperly engaged in their fuse clips. Engineering evaluations were initiated at that time to identify the safety-related equipment affected by the fuses and determine operability.

The Plant was shutdown due to an unrelated scram on January 21, 1993. On January 22, 1993, the Engineering Department recommended to Operations to reseal the fuses because the engineering evaluation determined safety-related equipment is powered by these fuses. However, the operability evaluation on the fuses had not yet been completed.

Due to possible Nuclear Steam Supply Shutoff System (NSSSS) actuations from fuse manipulation, Operations determined it was inappropriate at this time to risk loss of shutdown cooling prior to completion of the operability evaluation. To preclude undesirable Plant transients due to fuse manipulation, correction of fuse deficiencies are made after careful review of the results and recommendations of the engineering evaluations. The corrective action options are identified and the potential impact of each on Plant safety and operation is assessed. Preplanned actions are then implemented to correct the deficiency in a manner to minimize the possibility of an undesirable Plant transient.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION															
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										3	OF	5			
TITLE (4) IMPROPERLY SEATED FUSES COULD HAVE CAUSED A LOSS OF RESIDUAL HEAT REMOVAL CAPABILITY DURING A SEISMIC EVENT															

On January 26, 1993, prior to restart from the shutdown, the fuses were properly installed into their fuse clips without a loss of power or perturbation of any safety-related equipment. As a precaution prior to reseating the fuses, the Reactor Operators appropriately secured and isolated RHR SDC for approximately 11 minutes in anticipation of possible NSSSS and/or RHR trip actuations during the fuse manipulation. Reactor Recirculation Pump RRC-P-1A was operating during the entire time providing forced core circulation as required per the Technical Specifications (TS).

Immediate Corrective Action

No immediate corrective action was taken to reseat the fuses when the deficiency was initially identified. There was insufficient information to determine the potential impact to the Plant due to the possible loss of circuit continuity during fuse manipulation.

Further Evaluation and Corrective Action

A. Further Evaluation

1. This event is considered reportable per 10CFR 50.73(a)(2)(v)(A), (B) and (D) as a condition alone that could have prevented the RHR System from performing its safety functions to maintain the reactor in a safe shutdown condition, remove residual heat, and mitigate the consequences of an accident. Also, this event is reportable per 10CFR 50.73(a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications. The NRC was verbally notified of this condition on February 12, 1993, per 10CFR 50.72(b)(2)(iii)(B). This late notification was made when it was discovered, during preparation of the LER, that the NRC had not been notified as required per 10CFR 50.72. It was also later recognized that whenever RHR "A" was inoperable coincident with the improper fuse installation, SPC was inoperable which represented an Unusual Event (UE) per PPM 13.1.1, Emergency Plans.
2. Plant procedure PPM 1.3.47, Fuse Replacement Control, was initiated in January 1988 to provide formal control of fuse replacement using a Fuse Control Log. Prior to that time, no record was kept of fuse replacements. Review of the Fuse Control Log revealed that fuses F03-2 and F04-2 were not changed since the log was established. Review of Clearance Orders and Maintenance Work Requests (MWR) also revealed no instance whereby the fuses would have been replaced prior to establishing a fuse log. It was concluded that these fuses had not been replaced since startup, and therefore, they had been improperly installed prior to startup.

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													4	OF	5
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3. The Plant Fuse Walkdown Program was initiated in 1987 due to the large number of deficiencies found during limited inspections. Since that time, the Program has discovered many misaligned fuses and degraded fuse clips in addition to incorrect fuse types and sizes. These identified deficiencies have since been corrected. The improper installation of fuses F03-2 and F04-2 reported herein represents the only configuration identified by the Fuse Walkdown Program that could prevent a system from performing its safety function.

The Fuse Walkdown Program scope includes an inspection of all electrical panels at WNP-2. The inspection is approximately 70% complete and is expected to be completed by August 1994.

B. Root Cause

The root cause of this condition was improper installation of the fuses. The specific date when the improper installation occurred is indeterminate. The fuses were either installed improperly during Plant construction or replaced improperly after construction and prior to January 11, 1988. This was a period when there were no formal controls placed on fuse replacement and no record of fuse replacement was maintained.

C. Further Corrective Action

The timeliness of the operability determinations for fuse deficiencies will be evaluated to determine if management expectations are being satisfied. The results of this evaluation will be incorporated into the planned changes to the operability determination process. This will be completed by March 31, 1993.

Safety Significance

The safety significance of this event is negligible. The probability of a seismic event occurring coincident with the Division 1 RHR being unavailable is low. This condition posed no threat to the health and safety of Plant personnel or the public.

Similar Events

: There are no similar events.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION																
FACILITY NAME (1)		DOCKET NUMBER (2)					LER NUMBER (8)			PAGE (3)						
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EIIS Information

Text Reference

Suppression Pool System
 Low Voltage
 Low Pressure Core Spray
 RHR/Containment Spray

EIIS Reference

System Component

BT	--
EC	FU
BM	--
BO	

