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SUBJECT: LER 96-007-00:on 961122,electrical breakers were not seismically qualified in test/disconnect position.Circuit breaker mfg did not consider "raced out" breaker position n during testing.Relocated circuit breakers.W/961217 ltr.

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December 19, 1996
GO2-96-244

Docket No. 50-397

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: **NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21, LICENSEE EVENT REPORT NO. 96-007-00**

Transmitted herewith is Licensee Event Report No. 96-007-00 for WNP-2. This report is submitted in response to the reporting requirements of 10 CFR 73(a)(2)(ii), and discusses the items of reportability, corrective action taken, and action taken to preclude recurrence.

Should you have any questions or desire additional information regarding this matter, please call me or Ms. Lourdes Fernandez at (509) 377-4147.

Respectfully,

C O Smith / For

P. R. Bemis
Vice President, Nuclear Operations
Mail Drop PE23

REB

Enclosure

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	1 of 4

TITLE (4) ELECTRICAL BREAKERS NOT SEISMICALLY QUALIFIED IN THE TEST/DISCONNECT POSITION

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)
11	22	96	96	- 0 0 7 -	0 0	12	19	96	N/A	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1
POWER LEVEL (10)	1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11)

__ 20.402(b)	__ 20.405c	__ 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)	__ 50.73(a)(2)(i)	__ 50.73(a)(2)(viii)A	
__ 20.405(a)(1)(iv)	_X_ 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	TELEPHONE NUMBER
R E Brownlee, Licensing Engineer	509	377-2085

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)	MONTH	DAY	YEAR
__ YES (if yes, complete EXPECTED SUBMISSION DATE)	_X_ NO				

ABSTRACT (16)

On November 22, 1996 at 1605, it was determined that the WNP-2 plant had been in an unanalyzed condition due to a spare electrical circuit breaker in the safety-related 4160 volt switchgear being in a physical position not addressed by seismic analysis. The breaker was being stored in the "racked out" or test/disconnect position. A plant walkdown noted no other safety-related breakers in the "racked out" position. The potential existed, during a seismic event, for the "racked out" breaker to impact adjacent safety-related breaker cubicals and possibly affect their performance. Immediate corrective action was to remove the spare breaker from the switchgear and store it in a qualified configuration. The procedure for "racking out" breakers has also been changed to ensure safety-related breakers are not placed in a non-seismically qualified position.

The NRC has been notified of this event pursuant to the 1 hour reporting requirements of 10 CFR 50.72(b)(1)(ii)(A).

The root cause of this event was that the circuit breaker manufacturer did not consider the "racked out" breaker position during seismic qualification testing (Equipment Not Per Design). A contributing cause was that the Supply System seismic qualification review overlooked the need for testing when breakers are in the "racked out" position (Analysis Deficiency).

Event Description

On November 22, 1996 at 1605, with the plant operating at 100% power, it was determined that the WNP-2 plant had been in an unanalyzed condition due to a spare electrical breaker in the safety-related 4160 volt switchgear being in a physical position not addressed by seismic analysis. The breaker was being stored in the "racked out" or test/disconnect position. A plant walkdown which identified the breaker was prompted by reports from other utilities that Westinghouse circuit breakers were not seismically qualified in certain test or disengaged positions. The walkdown noted no other breakers in the "racked out" position.

The NRC was notified of this event pursuant to the 1 hour reporting requirements of 10 CFR 50.72(b)(1)(ii)(A).

Immediate Corrective Action

Immediate corrective action was to relocate the circuit breaker from the switchgear to the switchgear room and store per approved procedures. Other safety-related switchgear which contain breakers that can be "racked out" were inspected and determined to not contain breakers in the "racked out" position. Guidance was issued to the operating crews to ensure 4160 volt and 480 volt safety-related breakers are maintained in a seismically qualified position. The procedure for "racking out" breakers was changed to ensure safety-related breakers are placed in seismically qualified positions or are removed from the switchgear.

Further Evaluation

Other nuclear utilities had recently reported that Westinghouse low and medium voltage circuit breakers were not seismically qualified in certain "racked out" positions. Investigation determined that a similar condition existed at WNP-2, resulting in a spare 4160 volt breaker [ED][52], which was in the "racked out" position, being removed from safety-related bus E-SM-8 [SWGR] and stored in an acceptable manner. Seismic qualification of draw out circuit breakers in their "racked out" positions is necessary because the circuit breakers could impact the inside of the breaker cubical during a seismic event, possibly affecting the performance of critical relays and other components in the switchgear.

Discussions with the vendor (Westinghouse) and review of applicable seismic qualification files has determined that safety-related 4160 volt Model DHP circuit breakers were only seismically tested and qualified in the "Connect" position, and not seismically tested and qualified in the "Test/Disconnect" position. These medium voltage safety-related circuit breakers are located on safety-related buses E-SM-7 and E-SM-8. Likewise, safety-related 480 volt Model DS circuit breakers were only seismically tested and qualified in the "Connect" and "Disconnect" positions, and not seismically tested and qualified in "Test" or "Remove" positions. These low voltage [EB] safety-related circuit breakers are located in safety-related buses E-SL-71, 73, 81, and 83.

Westinghouse Model DHP 4160 volt circuit breakers are also used in diesel generator switchgear (E-SM-DG1/7 and E-SM-DG2/8) and the recirculation pump trip switchgear (E-SH-9, 10, 11 and 12). However, these breakers do not require additional seismic qualification since "racking out" a breaker in these switchgear assemblies renders the switchgear inoperable and there are no other adjacent switchgear cubicals which must remain operable.

The General Electric (GE) and Asea-Brown-Boveri (ABB) companies have also supplied 4160 volt safety-related circuit breakers that are not seismically qualified in their "racked out " positions. The GE circuit breakers are located in safety-related bus E-SM-4, and the ABB circuit breakers are located in safety-related buses E-SM-75/7/2 and E-SM-85/8/2.

A review of contracts that were issued to purchase the safety-related breakers generally showed that the contracts required the breakers to be seismically qualified to Electrical Standard IEEE-344-1971. This standard requires demonstration of seismic capability by testing, analysis or a combination of testing and analysis. IEEE-344 also states that equipment should be mounted in the manner which simulates the service mounting. Various test reports were submitted by the vendor suppliers to WNP-2 for approval under the contracts. Most of the test reports submitted did not address qualification of the circuit breakers in the "racked out" condition. One report on recirculation pump trip breakers documents an unsuccessful attempt to qualify the breaker in the "racked out" position, but it has been determined that the lack of qualification for the recirculation pump trip breaker in the "racked out" position is not a problem as noted in the above discussion on Model DHP circuit breakers.

Root Cause

The root cause of this event was that the circuit breaker manufacturer did not consider the breaker "racked out" position during seismic qualification testing (Equipment Not Per Design). A contributing cause was that the seismic qualification review performed by the Supply System overlooked the need for testing when breakers are in the "racked out" position (Analysis Deficiency).

Further Corrective Action

Seismic qualification files for existing safety-related switchgear will be revised to specifically address lack of seismic qualification with breakers in the "racked out" position. Also, plant seismic qualification standards will be revised to provide guidance to consider all modes of operation/use when determining the required qualification configurations for draw out circuit breakers.

Assessment of Safety Consequences

Upon discovery, the spare breaker was immediately placed in a safe storage position. There have also been no seismic events that resulted in the spare breaker causing damage to other safety-related equipment. Although an unanalyzed condition, it is unlikely that an earthquake of sufficient magnitude and frequency would have occurred and caused the "racked out" spare breaker to damage adjacent safety-related Division 2 switchgear. Had an earthquake occurred, Division 1 switchgear could not be damaged by the spare breaker because each division is located in a different equipment room. In addition, had the breaker jarred other safety-related equipment during a seismic event, there is a high recovery probability for that equipment. Recovery would most likely involve resetting relays and/or closing breakers. During past operating cycles, other safety-related switchgear may have been racked out, but this is an infrequent occurrence. Furthermore, the duration that a safety-related breaker would remain in the "racked out" position with the reactor at power would be minimized through compliance with plant Technical Specifications. In addition, it is even less likely that division 1 and 2 safety-related breakers would be "racked out" at the same time, subjecting both trains of safety-related power to a possible seismic event, again due to limitations imposed by Technical Specifications.

Previous Similar Events

There have been no previous similar events at WNP-2 associated with seismic qualification of circuit breakers in the "racked out" position.