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AEP
INDIANA MICHIGAN POWER

December 8, 2000

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Operating Licenses DPR-58 and DPR-74
Docket Nos. 50-315 and 50-316

Document Control Manager:

In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Report System, the following report is being submitted:

LER 50-315/1999-001-01, General Electric HFA Relays Installed in Emergency Diesel Generators May Not Meet Seismic Qualifications

There are no commitments identified in this submittal.

Should you have any questions regarding this correspondence, please contact Mr. Wayne J. Kropp, Director Regulatory Affairs, at 616/697-5056.

Sincerely,

Joseph E. Pollock
Plant Manager

/bwo
Attachment

c: J. E. Dyer, Region III
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IE22

NRC Form 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Donald C. Cook Nuclear Plant Unit 1	05000-315	1 of 3

TITLE (4)

General Electric HFA Relays Installed in Emergency Diesel Generators May Not Meet Seismic Qualifications

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 NAME	DOCKET NUMBER
01	06	1999	1999	--	001	--	01	12	8	2000	Cook Plant Unit 2	05000-316
											FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	00		20.2201 (b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)	X	50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
M. E. Barfelz, Regulatory Affairs	616 / 465-5901, x1585

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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 15 single-spaced typewritten lines) (16)

This revision replaces the initial LER in its entirety. The LER has been rewritten to provide new information concerning the analysis of the event and corrective actions.

On January 6, 1999, while in mode 5, it was determined that the General Electric (GE) HFA safety related relays installed in plant system circuits may not be properly configured in accordance with vendor instructions for relay contact adjustment and servicing, and therefore, may not meet seismic qualification. The relays were procured with all contacts in the "normally open" position, which were converted to "normally closed" as required for installation. When converting, past plant practices did not verify that all critical relay adjustments were within the vendor specified tolerances. It was determined that, for mode 5, only the Emergency Diesel Generators (EDGs) were adversely impacted such that these relays could prevent the EDGs from performing their safety related function. The EDGs were declared inoperable on January 11, 1999. Follow-up investigations for modes 1 through 4 identified additional HFA relays that were not properly configured. Affected systems included degraded grid detection, Essential Service Water, Safety Injection, Containment Spray, Auxiliary Feedwater and Main Steam. This event was reported on January 11, 1999 under: 10CFR50.72(b)(2)(i), as a condition which, if it had been found while the plant was operating, would have resulted in the plant being seriously degraded, and; 10CFR50.72(b)(2)(iii)(A), a potential to alone prevent fulfillment of the safety function of systems that are needed to maintain the reactor in a safe shutdown condition. Deficiencies in the management of industry operating experience resulted in the failure to address the seismic qualification issues concerning the HFA relays. Corrective Actions were implemented to restore the operability of all affected Unit 1 and Unit 2 systems, and to address the concerns regarding the Operating Experience program. A qualitative assessment of the as found condition against the licensing bases concluded that the improper configuration of the HFA relays resulted in consequences of the condition that were of low safety significance.

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)					PAGE (3)
		YEAR	SEQUENTIAL NUMBER			REVISION NUMBER	
Donald C. Cook Nuclear Plant Unit 1	05000-315	1999	--	001	--	01	2 of 3

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

Conditions Prior to Event

Unit 1 was in Mode 5, Cold Shutdown
Unit 2 was in Mode 5, Cold Shutdown

Description of Event

In late December 1998, engineering personnel began a review related to General Electric (GE) HFA relay (EIIS:27x,42x,52x,87x) contact configuration while reviewing a documentation package related to a plant restart issue. As a result of the review, on January 6, 1999, a concern was identified that the GE HFA safety related relays installed in plant system circuits may not be properly configured in accordance with vendor instructions for relay contact adjustment and servicing instructions, and therefore, may not meet seismic qualification. The GE HFA relays were procured with all contacts in the "normally open" position, which were converted to "normally closed" as required by the circuit in which they are installed. When converting a "normally open" contact to a "normally closed" contact, past plant practices did not verify that all critical relay adjustments were within the vendor specified tolerances, nor were the altered contact arrangements verified to be one of the GE seismically approved configurations. These verifications are necessary to ensure that the seismic qualification has been maintained. An investigation was performed, which confirmed that HFA relays were installed in various safe shutdown control circuits that were not properly configured in accordance with vendor instructions for relay contact adjustment and servicing instructions.

An impact evaluation determined that, for mode 5, only the Emergency Diesel Generators (EDGs) (EIIS: EK) were adversely impacted by unreliable operation of HFA relays such that these relays could prevent the EDGs from performing their safety related function. The EDGs were declared inoperable at 1828 hours on January 11, 1999.

Follow-up investigations for modes 1 through 4 identified additional essential HFA relays that were not properly configured in accordance with vendor instructions for relay contact adjustment and servicing instructions. Affected systems included; Degraded Grid Detection (EIIS: FK), Essential Service Water (EIIS: BI), Safety Injection (EIIS: BQ), Containment Spray (EIIS: BE), Auxiliary Feedwater (EIIS: BA) and Main Steam (EIIS: SB).

This event was reported via the ENS on January 11, 1999 at 2026 hours under: 10CFR50.72(b)(2)(i), as a condition which, if it had been found while the plant was operating, would have resulted in the plant being seriously degraded, and; under 10CFR50.72(b)(2)(iii)(A), a potential to alone prevent fulfillment of the safety function of systems that are needed to maintain the reactor in a safe shutdown condition. This LER is being submitted in accordance with 10CFR50.73(a)(2)(ii) and 10CFR50.73(a)(2)(v)(A) and replaces LER 315/99-001-00 in its entirety.

Cause of Event

The failure to review all related industry operating experience, and take appropriate action, when this potential problem was identified in NRC Information Notice (IN) 83-19 with subsequent information provided in NRC IN 88-69, was the cause of this event. The review was limited, in that it considered only that information included in the NRC INs. General Electric Service Information Letter Number 44, Supplement 4, referenced in the NRC INs contained additional information concerning the potential seismic concerns, however, it was not reviewed. As a result, some HFA relays were not installed and maintained in accordance with vendor recommendations, causing them to be outside of the configurations required for seismic qualification.

Analysis of Event

Seismic qualification of safety related components is a design basis requirement, however UFSAR Chapter 14 accident analysis does not postulate a design basis accident concurrent with a design basis earthquake (DBE). Given that a DBE

would be required to cause the malfunction of the affected HFAs, the probability of a seismic induced malfunction of a HFA relay affecting accident mitigation equipment and accident analysis is extremely low. The most credible event would be the loss of offsite power initiated by malfunctioning HFA relays. However DC Cook has a 4 hour Station Blackout (SBO) coping period which would allow the DBE to pass such that the reliable operation of HFA relays would have returned during the 4 hour coping period thereby allowing onsite AC power to be restored if not also allowing offsite power to be restored. This qualitative assessment of the as found condition against the licensing bases concluded that, based on the low probability of a DBE resulting in loss of offsite power and the ability to sustain the effects of the DBE with the improperly configured HFA relays within the bounds of the SBO analysis, the consequences of this condition were of low safety significance.

Corrective Actions

Reconfiguration Design Changes and calibration Job Orders, necessary to address the mode 5 required EDG HFA relays, were completed by July 5, 1999.

Reconfiguration Design Changes and calibration Job Orders for other affected systems were completed on May 23, 2000, for the Unit 2 HFA relays and on December 5, 2000 for the Unit 1 HFA relays.

The Expanded System Readiness Reviews conducted for plant safety related systems as part of the plant restart effort included consideration of vendor related information, as well as other operating experience information from other plants, to ensure issues such as this were addressed.

Major program enhancements were made to the Operating Experience Program as described in our March 19, 1999 letter titled "ENFORCEMENT ACTION 98-150, 98-151, 98-152 and 98-186 REPLY TO NOTICE OF VIOLATION DATED OCTOBER 13, 1998". As a specific enhancement, the Operating Experience Program now includes additional controls concerning the review of vendor related information.

Previous Similar Events

The following LERs are similar to this event:

LER 50-315/99-019-00 Victoreen Containment High Range Radiation Monitors Not Environmentally Qualified to Withstand Post-LOCA Conditions

LER 50-315/99-027-00 Underrated Fuses Used in 250 VDC System Could Result in Lack of Protective Coordination

The above represents two examples of CNP's failure to adequately consider industry operating experience. Additional examples of CNP's operating experience program deficiencies have been reported. This event, and additional similar events, occurred prior to the implementation of above referenced corrective actions to correct and prevent recurrence.