

CATEGORY 1

REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9709020281 DOC. DATE: 97/08/25 NOTARIZED: NO DOCKET #
 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana M 05000316
 AUTH. NAME AUTHOR AFFILIATION
 FITZPATRICK, E. Indiana Michigan Power Co.
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Responds to 970414 RAI re GL 87-02, "Verification of Seismic Adequacy of Mechanical & Electrical Equipment in Operating Reactors."

DISTRIBUTION CODE: A025D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 TITLE: Seismic Qualification of Equipment in Operating Plants - A-46 - GL-87

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	OGC/HDS2	1 1	PD3-3 PD	1 1
	HICKMAN, J	1 1		
INTERNAL:	<u>FILE CENTER 01</u>	1 1	NRR/DE	1 1
	NRR/DE/ECGB	1 1	NRR/DE/EMEB	2 2
	NRR/DRCH/HHFB	1 1	NRR/DRCH/HICB	1 1
	NRR/DRPE/PD1-3	1 1	NRR/DSSA/SRXB	1 1
EXTERNAL:	NRC PDR	1 1		

NOTE TO ALL "RIDS" RECIPIENTS:
 PLEASE HELP US TO REDUCE WASTE. TO HAVE YOUR NAME OR ORGANIZATION REMOVED FROM DISTRIBUTION LISTS OR REDUCE THE NUMBER OF COPIES RECEIVED BY YOU OR YOUR ORGANIZATION, CONTACT THE DOCUMENT CONTROL DESK (DCD) ON EXTENSION 415-2083

TOTAL NUMBER OF COPIES REQUIRED: LTTR 13 ENCL 13

C
A
T
E
G
O
R
Y

1

D
O
C
U
M
E
N
T

Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1395



August 25, 1997

AEP:NRC:1040F

Docket Nos.: 50-315
50-316

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

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
GENERIC LETTER 87-02, VERIFICATION OF SEISMIC ADEQUACY OF
MECHANICAL AND ELECTRICAL EQUIPMENT IN OPERATING REACTORS
REQUEST FOR ADDITIONAL INFORMATION RESPONSE

This letter responds to your April 14, 1997, request for additional information (RAI). The requested response date was extended by your staff to accommodate our originally scheduled date for the shutdown procedure implementation.

The attachment to this letter contains our response to your RAI.

Sincerely,


E. E. Fitzpatrick
Vice President

vlb

Attachment

c: A. A. Blind
A. B. Beach
MDEQ - DW & RPD
NRC Resident Inspector
J. R. Padgett

A0251,

9709020281 970825
PDR ADDCK 05000315
PDR



ATTACHMENT TO AEP:NRC:1040F

GENERIC LETTER 87-02, VERIFICATION OF SEISMIC ADEQUACY
OF MECHANICAL AND ELECTRICAL EQUIPMENT IN OPERATING REACTORS
REQUEST FOR ADDITIONAL INFORMATION RESPONSE

Following are our responses to the NRC's request for additional information dated April 14, 1997, regarding our AEP:NRC:1040C submittal dated January 30, 1996. This letter provides our response to generic letter 87-02.

NRC Item A

"Section 5.1, "Guidance Philosophy and Development," of the Safe Shutdown Equipment List Report, states in part, "operator actions are limited to those which have been proceduralized and the operators have been trained to perform." The discussion also states that: "Examples of anticipated additional (beyond normal actions) operation actions follows:", which includes actions to ensure control air, switchgear room cooling, and control room air conditioning is maintained. Describe the operator training provided and or scheduled to ensure these additional operator actions are well understood and can be accomplished by the operating crew?"

Response to Item A

The following procedures have been developed to support the operator response actions required to bring the plant to a safe shutdown condition following a seismic event: OHP-4022.001.007, "Earthquake", and OHP-4022.064.002, "Loss of Control Air Recovery". Both of these documents were reviewed by plant operators to determine the skill level necessary to perform the required actions. Included in this review were "additional" operator actions, including maintenance of control air, switchgear room cooling, and control room air conditioning. Based on this review, no new skills were identified, nor were there any performance issues identified requiring additional training or practice.

Training has been conducted on both procedures for all licensed operators and shift technical advisors in accordance with lesson plans RQ-X-2222 and RQ-C-2232. The training format consisted of table top reviews and role playing to systematically challenge the operators with situational application of the procedures. The training also provided an additional validation of the procedures.

Simulator training was limited to the loss of control air procedure because the earthquake procedure directs actions outside the control room complex that are not conducive to simulator training. The operators began simulator training the week of July 14, 1997, on the loss of control air recovery procedure (OHP 4022.064.002). This training is being conducted in accordance with lesson plan RQ-S-A003. The simulator training exercises the procedure using a normal crew compliment and includes two scenarios, with safety injection and without safety injection.

Non-licensed operators also commenced training on the control air system the week of July 14, 1997.

NRC Item B

"The discussion regarding the three additional (beyond normal actions) operator actions determined that there was ample time for the operators to decide that action needed to be taken and to actually perform the actions. Describe the types of barriers to successful operator performance that were considered as part of this review? Were issues such as lighting, heat and humidity,

harsh environmental conditions, and the potential for damaged plant equipment and structures along the ingress/egress paths to the local areas where operators need to take these actions considered?"

Response to Item B

Section 3.2.5 of the generic implementation procedure states that the only potential event postulated to occur, other than a design basis safe shutdown earthquake, is a loss of offsite power. Other events that could cause harsh environmental conditions such as loss-of-coolant accidents, high energy breaks, and fires do not have to be considered for the unreviewed safety issue (USI) A-46 program. Therefore, the only "harsh environmental conditions" that must be considered for the resolution of USI A-46 are those that are associated with the safe shutdown earthquake and loss of offsite power. Both of these conditions were explicitly considered in the development of the procedures written in response to a seismic event.

In addition to the harsh condition issues, several additional barriers to success were considered during the development of the earthquake and loss of control air recovery procedures. These barriers included the availability, or partial availability, of system components, the loss of plant lighting, the need to consider alternate access/egress routes, and the need to consider overall plant conditions when transiting the plant. In response to these barriers, procedural guidance (OHP-4022.001.007) was developed to prompt the operators to consider the aforementioned barriers. These included the use of self-contained lighting (miners hats), procedural guidance warning of potential access/egress concerns, and equipment/system availability issues.

NRC Item C

"Section 5.1, "Procedure Assumptions", indicates that the seismic procedure is patterned after the Westinghouse Emergency Operating Procedures (EOPs). Section 5.2, "Synopsis of Operator Actions," also looks very similar to the current EOP E-0 entry procedure. In the event of a plant transient caused by a seismic event, are the operators directed to initiate the seismic abnormal operating procedure in lieu of the EOPs? If the seismic event causes a reactor trip, do the operators then transition into the EOPs (E-0) and perform the EOPs and well as the seismic abnormal procedure concurrently? How have the operators been trained to take such actions and has this philosophy been adopted into the appropriate administrative procedures governing operator conduct of operations and EOP usage?"

Response to Item C

The philosophy of response development was that awareness of the seismic event and entry into the seismic response procedure results from a response to the seismic annunciator alarm (OHP 4024.123, drop 42). Operators' awareness of the seismic response abnormal operating procedure provides them with the knowledge of a location for alternate control strategies in the event they are needed while implementing the emergency operating procedures (EOPs).

If the seismic event results in a loss of control air with a reactor trip, the operators enter E-0, "Reactor Trip or Safety Injection". Without a concurrent safety injection, the operators

transition to ES-0.1, "Reactor Trip Response". ES-0.1 entry without control air results in a transition to the loss of control air recovery abnormal operating procedure (OHP 4022.064.002) that has been revised to cope with a seismic event. With the seismic annunciator alarming, the operators would implement the earthquake abnormal operating procedure (OHP 4022.001.007) as plant conditions and system operations dictate.

If the seismic event results in a loss of control air without a reactor trip, the loss of control air recovery abnormal operating procedure (OHP 4022.001.007) requires that the reactor be tripped. The reactor trip results in the entry into the EOP network, as described previously.

If the seismic event does not result in a reactor trip or loss of control air, the seismic annunciator response procedure requires entry into the earthquake abnormal operating procedure (OHP 4022.001.007).

Administrative guidance has been developed regarding the use of EOPs concurrently with other plant operating procedures, including abnormal and annunciator procedures. OHI-4023, "Emergency Operating Procedure Users Guide", provides explicit direction on the use of EOPs and other non-emergency operating procedures at Cook Nuclear Plant. Concurrent usage of EOP and non-EOP procedures is reinforced during simulator training.

NRC Item D

"Section 5.0, "Operator Actions," of the Relay Evaluation Report discusses two actions which must be performed as a result of the relay evaluation. It appears that these two actions have been discussed in the Safe Shutdown Report and are the subject of question (A), above. If these actions are different than those discussed above, please indicate what types of evaluations were performed to ensure operators were able to take these actions, in the time frame specified, with consideration for possible harsh or adverse environmental conditions prevailing at the time these actions were required? Are the operator actions associated with resetting the SSEL equipment affected by the postulated contact chatter considered to be routine and consistent with the skill of the craft? If not, what operator training and operational aids were developed to ensure the operators will perform the actions required to reset the affected equipment?"

Response to Item D

These actions are the same as those discussed in item A. Resetting of the failed equipment regardless of the initiating event is considered operator "skill-of-the-trade". This information is included in basic operator training programs and documented in accordance with NL-0-1000, "Generic Task Qualification Card", and NL-0-1010, "Abnormal/Emergency Task Qualification Card". With respect to postulated contact chatter resulting from a seismic event, the occurrence of contact chatter is expected at the time of the event. Subsequent resetting of equipment after the seismic event should not be affected by contact chatter.

NRC Item E

"Section 4.6, "Class of Twenty-One Evaluation Results," of the Seismic Evaluation Report described a few generic interaction issues including seismic housekeeping issues in the control room. Were any of the items identified significant missile hazards to plant personnel or control room equipment? How were these housekeeping issues addressed?"

Response to Item E

Four generic interaction issues were identified during the seismic verification walkdown. They were: 1) general seismic housekeeping in the control room; 2) overhead sodium lamps with open hooks in the diesel generator room; 3) portable fire extinguisher mounted on small hooks; and 4) loose tie-down cables on emergency battery lights. None of the items represented a significant missile hazard to plant personnel or control room equipment as explained below.

The issue of seismic housekeeping in the control room involves tool carts and step ladders that were loosely chained. The as-found conditions were such that these items could not have moved far enough to interact with cabinets containing essential relays. However, the concern was that there was a potential for these items to be chained in such a way that they could interact with nearby equipment in the event of a design basis earthquake. This issue is now addressed by a plant-wide transient material control program. Procedure PMP 5020.RTM.001, entitled "Restraint of Transient Material", requires, among other things, that a loose item be restrained by at least two points to ensure it does not roll or rotate and interact with plant equipment during an earthquake.

The issue of overhead sodium lamps with open hook is not applicable in the control room. There are no overhead sodium lamps in the control room.

The issue of portable fire extinguishers mounted on short hooks is that they might become dislodged and cause seismic interaction with cabinets containing essential relays. The seismic review team judged this scenario to be very unlikely because the maximum vertical acceleration at the control room floor level is much less than 1.0g. However, to be conservative, the extinguisher hooks in the control rooms will be replaced with longer ones per the schedule provided in our reference letter AEP:NRC:1040C.

The issue of the emergency battery light unit was, on some units, the steel cable wrapped around the battery to prevent it from falling off the supporting bracket was not very tight. The mounting of emergency battery light units in the control rooms has since been changed to a bolted connection; therefore, the cable is no longer used.