TOLEDO EDISON
A Centerior Energy Company

EDISON PLAZA
300 MADISON AVENUE
TOLEDO, OHIO 43652-0001

NP-33-96-002
AB-96-0013

Docket No. 50-346

License No. NPF-3

April 19, 1996

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Gentlemen:

LER 96-002
Davis-Besse Nuclear Power Station, Unit No. 1
Date of Occurrence - March 20, 1996

Enclosed please find Licensee Event Report 96-002, which is being submitted to provide 30 days written notification of the subject occurrence. This LER is being submitted in accordance with 10CFR50.73(a)(2)(ii)(B).

Very truly yours,

John K. Wood

John K. Wood
Plant Manager
Davis-Besse Nuclear Power Station

JKW/llh

Enclosure

cc: Mr. H. J. Miller
Regional Administrator
U3NRC Region III

Mr. Stan Stasek
DB-1 NRC Sr. Resident Inspector

Utility Radiological Safety Board

IE22
1/1

NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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)
Davis-Besse Unit Number 1	05000 - 346	1 OF 7

TITLE (4)
Potential Loss of Remote Shutdown Capability due to MOV Fire Induced Damage

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	20	96	96	-- 002 --	00	04	19	96		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	94		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
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
			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 (Include Area Code)
Peter W. Smith, Supervisor - Compliance	(419) 321-7744

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
X	YES (If yes, complete EXPECTED SUBMISSION DATE)	NO		07	31	96

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At 1548 hours on March 20, 1996, with the unit in Mode 1 at 94% power, a condition was identified that potentially was outside of the Appendix R design basis. Re-evaluation of Nuclear Regulatory Commission (NRC) Information Notice (IN) 92-18 indicated that the Davis-Besse Nuclear Power Station (DBNPS) could be susceptible to the scenario described in IN 92-18. The scenario involves a potential loss of remote shutdown capability due to spurious energization of motor operated valves to a stalled condition, damaging the valves, and preventing subsequent manual operation from outside the control room to achieve and maintain safe shutdown following a control room fire. The NRC was notified of this condition at 1558 hours on March 20, 1996 via the Emergency Notification System (ENS) in accordance with 10CFR50.72(b)(1)(ii)(B). As compensatory measures, an hourly roving fire watch was established for the cable spreading room. Continuous manning of the control room meets the requirements for a continuous fire watch. Evaluation of susceptible valves was commenced. This event is being reported in accordance with 10CFR50.73(a)(2)(ii)(B).

REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 -- FACILITY NAME 8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

Description of Occurrence

At 1548 hours on March 20, 1996, with the unit in Mode 1 at 94% power, Potential Condition Adverse to Quality Report (PCAQR) 96-0324 documented a condition which potentially constitutes a condition outside of the Appendix R design basis for the DBNPS. This PCAQR relates to Toledo Edison's previous evaluation of IN 92-18 which was completed in 1994. Information Notice 92-18 identified a potential for loss of remote shutdown capability following a control room fire. The IN identified a scenario where a control room fire could energize motor operated valves (MOV) to a stalled condition because MOV protective features might be bypassed. This scenario would be of concern if a MOV was damaged when stalled thus preventing its subsequent manual operation from outside the control room to achieve and maintain safe shutdown.

In April, 1994, Toledo Edison completed its initial evaluation of IN 92-18. Toledo Edison determined that there were approximately 35 MOVs which were potentially affected by the scenario described in IN 92-18. Toledo Edison evaluated this situation and concluded that no further action was necessary based on the low probability for the event to occur. This evaluation was consistent with information provided to utilities by the Nuclear Management and Resources Council (NUMARC, now the Nuclear Energy Institute, NEI) in August, 1992.

On January 18, 1996, the Palisades Nuclear Plant (PNP) submitted Licensee Event Report (LER) 95-015 identifying concerns with potential valve damage as a result of the scenario discussed in IN 92-18. The PNP LER 95-015 documented that the PNP had reconsidered their initial assessment. Following a review of the PNP LER 95-015, Toledo Edison's initial response to IN 92-18, and based on discussions with the NRC staff on March 20, 1996, Toledo Edison determined that additional evaluation of the effects of this scenario on MOVs needed for safe shutdown was required. This scenario was determined to potentially constitute a condition outside the Appendix R design basis for the DBNPS.

Accordingly, the NRC was notified via the ENS at 1558 hours on March 20, 1996 that DBNPS may be prone to a similar scenario to that described in IN 92-18. This ENS notification was made in accordance with 10CFR50.72(b)(1)(ii)(B). This event is being reported in accordance with 10CFR50.73(a)(2)(ii)(B), since this condition potentially constitutes a condition outside of the Appendix R design basis.

Apparent Cause of Occurrence:

The apparent cause of occurrence was that a fire induced hot short which could bypass the valve protective features resulting in the actuator operating to the point of physical damage was considered to be a low probability scenario. In addition, the initial evaluation of IN 92-18 which was completed in April, 1994 maintained that no additional actions were required based on the low probability of this scenario. Toledo Edison believed that this assessment was consistent with the information provided by the NUMARC in August of 1992. Toledo Edison first became aware that this approach was not acceptable to the NRC during a March 20, 1996 telephone discussion with the NRC staff.

Analysis of Occurrence:

The scenario described in IN 92-18 and the subject of this LER is considered to have a low probability of occurrence. The control room is continuously manned, and the cable spreading room is equipped with fire detection and suppression systems. Thus, fires in these areas have a high probability of early detection and suppression before the adverse effects described in IN 92-18 could occur. Therefore, the condition reported by this LER is considered to be of low safety significance. Nonetheless, the scenario described in IN 92-18 is possible at the DBNPS and represents a condition not in strict conformance with the Appendix R design basis.

The DBNPS was originally licensed in April of 1977, before the existence of Appendix R. 10CFR50.48(b) became effective on February 17, 1981, and required all nuclear plants licensed prior to January 1, 1979 to comply with the requirements of Appendix R. In May of 1991, the NRC issued a safety evaluation concluding that the fire protection program at the DBNPS conforms with the guidelines in Appendix A to Branch Technical Position APCSB 9.5-1, the requirements of Appendix R to 10CFR Part 50, and the supplemental staff guidance on fire protection. Implicit in meeting these requirements is the ability to achieve and maintain safe shutdown from outside the control room.

On February 28, 1992, IN 92-18, Potential for Loss of Remote Shutdown Capability During a Control Room Fire, was issued to alert addressees to conditions found at several reactors that could result in the loss of capability to maintain the reactor in a safe shutdown condition in the unlikely event that a control room fire required control room evacuation.

In August 1992, NUMARC evaluated the IN and advised licensees to carefully weigh the information provided by IN 92-18 prior to taking any action. NUMARC also provided a perspective regarding low probability of the scenario for consideration by licensees in their evaluation of the IN. Toledo Edison's assessment was consistent with guidance provided by NUMARC.

In April 1994, an initial evaluation of IN 92-18 was completed. A review of the Fire Hazard Analysis Report (FHAR) indicated that approximately 35 MOVs required operation in the event of a serious control room fire. The circuits for these valves were similar to those described in IN 92-18. The conclusion of the review was that while the scenario described in IN 92-18 was possible at Davis-Besse, no further action was required because of the low probability of this scenario. The assessment concluded that a significant fire would have to take place, it must affect the cables of the MOVs in question, it must short the proper two conductors in the cable without grounding or open circuiting, and it must happen in the short time it takes the operator to either depower the valve or to transfer it to local control. Based on this assessment, the issue was then considered closed.

The PNP LER 95-015 was issued on January 18, 1996 and identified the potential for valve damage as a result of the scenario discussed in IN 92-18. Palisades determined during an Appendix R reanalysis program that IN 92-18 had not been evaluated adequately. Based upon the recent review, it was determined that the PNP was outside the plant design basis.

On March 20, 1996, PCAQR 96-0324 was initiated and a further evaluation of the circuits associated with the MOVs credited for safe shutdown in the event of a fire was begun. This evaluation conservatively expands the scope of review beyond the control room fire scenario described in IN 92-18. The evaluation now considers single hot shorts in all fire areas containing circuits for safe shutdown MOVs. Preliminary results indicate there now are a total of 88 MOVs to be evaluated. The increase in number of MOVs is the result of the expansion of scope beyond the IN 92-18 control room scenario.

Of the total group of 88 MOVs, 63 are associated with the control room. This number is larger than the previous number in the original IN 92-18 evaluation because many of these MOVs previously were not assumed to be vulnerable to this scenario.

The list of valves was reviewed to determine if there were any unique features of the wiring or use of the valves which would permit them to be screened from further evaluation. As a result, it was determined that a number of the valves (approximately 20) are either normally depowered, have a unique wiring scheme, or are otherwise not subject to a single fault. The remaining MOVs were subjected to a more detailed preliminary review.

The detailed review consisted of determining the specific cables which are routed through specific fire areas. For each fire area, a cable-by-cable review was conducted for the affected valves. This preliminary review concluded that:

1) Approximately 31 valves would potentially be affected in the control room/cable spreading room scenario.

2) Approximately 37 valves would potentially be subject to spurious actuation for fires in areas outside of the control room/cable spreading room.

The use of alternate valves/flow paths unaffected by specific fires is being evaluated and is expected to provide resolution for many of the valves noted above. As these results are preliminary at this time, the number of valves noted above is subject to change as the evaluation proceeds.

Corrective Actions:

1. Interim corrective actions consist of hourly roving fire watches for the cable spreading room. The control room is continuously manned which meets the requirements of a continuous fire watch. Additional fire watches will be established for fire areas outside the control room/cable spreading room, as determined necessary as the evaluation proceeds. The fire watches are credited as compensatory measures to ensure that the probability of occurrence of a fire and subsequent postulated fire damage to an MOV control circuit is low. The fire watches will continue until permanent corrective actions are completed.

2. Engineering evaluations will be completed on all fire areas with MOV circuits susceptible to a hot short which would bypass valve protective features. This evaluation includes:

   a. Verifying the results of the preliminary circuit evaluation discussed above.

   b. Reviewing the valves to determine whether spurious operation will result in damage to the operator such that it cannot be manually operated.

   c. Revising the FHAR and the applicable steps in the shutdown procedures for the MOVs where resolution can be provided through the use of an unaffected alternate valve or flow path.

   These actions are expected to be completed by June 28, 1996.

3. Further corrective actions, which may be required as a result of the above evaluations, will be identified in a supplement to this report. The supplement is expected to be submitted by July 31, 1996.

Failure Data:

LER 93-008 documented a condition where the plant was considered to have operated outside the design basis due to the isolation of auxiliary feedwater from one steam generator. The condition reported in LER 93-008 is unrelated to the condition described above relating to compliance with 10CFR50, Appendix R.

NP-33-96-0002 PCAQR 96-0324