TOLEDO EDISON
A Centerior Energy Company

EDISON PLAZA
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TOLEDO, OHIO 43652-0001

NP-33-97-007-01
AB-97-0105

Docket No. 50-346

License No. NPF-3

June 20, 1997

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

Ladies and Gentlemen:

LER 97-007, Revision 1
Davis-Besse Nuclear Power Station, Unit No. 1
Date of Occurrence - March 5, 1997

Enclosed please find Revision 1 to License Event Report (LER) 97-007 which is being submitted to document completion of the corrective actions taken. The changed are marked with a revision bar in the right margin. Please destroy or mark superseded on previous copies of the LER.

Very truly yours,

James H. Lash
Plant Manager
Davis-Besse Nuclear Power Station

GMW/tk

Enclosure

IE22

cc: Mr. A. B. Beach
Regional Administrator
USNRC Region III

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

Utility Radiological Safety Board

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

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)
Davis-Besse Unit Number 1	05000346	1 OF 5

TITLE (4)
Surveillance Test Acceptance Criteria Not Conservative Due To Calculation Error

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	05	97	97	-- 007 --	01	06	20	97		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)	100	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)		20.2203(a)(3)(i)		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)		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)
Gerald M. Wolf, Engineer - Licensing	(419) 321-8114

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

During review of a calculation, it was determined that the acceptance criteria of a Surveillance Test to measure the leakage into the Decay Heat Valve Pit was potentially non-conservative. This Surveillance Test is performed to ensure that the valve operator motors within the pit will not become flooded within seven days following a design basis loss of coolant accident (LOCA). A preliminary calculation was performed to determine the proper acceptance criteria. The most recent performance of this test was reviewed and the test results were determined to be adequate to prevent flooding of the valve motor operators within the pit. A review of past test results completed on March 5, 1997, with the plant in Mode 1 operating at 100% power, determined that the results of the Surveillance Test performed September 10, 1983, possibly would have allowed the valve operator motors in the pit to become flooded following a LOCA. The discovery of this past event is being reported in accordance with 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications.

Description of Occurrence:

On January 21, 1997, with the plant in Mode 1 operating at 100 percent power, a condition was discovered that resulted in the acceptance criteria of a Surveillance Test possibly being non-conservative. Technical Specification Surveillance Requirement 4.5.2.f requires a vacuum leakage rate test be performed on the Decay Heat Valve Pit (System BP) watertight enclosure every 18 months. The acceptance criteria for this test are to ensure that the valve operator motors within the pit do not become flooded within seven days following a design basis loss of coolant accident (LOCA). The original calculation to determine the test acceptance criteria assumed that leakage into the pit was limited to the cover on the top of the pit, and the water ingress was due to a postulated static head of water consistent with the maximum water level in containment following the event. During review of design drawings to support development of a plant modification, it was discovered that a leakage path exists that was not previously considered. This leakage path consists of the gasketed side wall at the bottom of the pit. Since this leakage path is at a lower elevation, it will be exposed to a slightly higher static pressure of water following a LOCA.

Since this leakage path was not considered in determining the test acceptance criteria, the existing acceptance criteria were possibly non-conservative. A preliminary calculation was performed to determine the appropriate acceptance criteria. This preliminary calculation defined acceptance criteria that reflected a smaller effective leakage area to assure that water level in the pit does not result in flooding of the valve operator motors. The preliminary calculation accounts for the potential of operational leakage into the pit from such sources as valve packing leaks that can create an existing water level in the pit prior to a LOCA, thereby reducing the amount of water needed to flood the motors. The most recent performance of this Surveillance Test, performed during the plant startup in June 1996, was reviewed and the test results were determined to be adequate to prevent flooding of the motors within the pit. During this review, it was determined that the Surveillance Requirements had not been properly fulfilled due to opening a small inspection port on the Decay Heat Valve Pit enclosure during the plant startup in June 1996 after performance of the Surveillance Test. This event was reported under a previous Licensee Event Report (97-005).

Description of Occurrence: (Continued)

A review of previous Surveillance Test results was conducted to determine if any of the previous results would have resulted in flooding of the valve operator motors following a LOCA. On March 5, 1997, with the plant operating in Mode 1 at 100 percent power, it was determined that the results of the Surveillance Test performed on September 10, 1983, were based on a vacuum decay of 12.15 inches mercury to 4.85 inches mercury over a four hour period. The recent calculation determined that the maximum vacuum decay that could demonstrate an acceptable leakage area was from 12.00 inches mercury to 4.985 inches mercury over a four hour period, with no initial level in the pit. Therefore, the plant operated the entire fourth operating cycle with the potential for the valve operator motors in the Decay Heat Valve Pit to become flooded within seven days following a LOCA This represents a condition prohibited by the plant's Technical Specifications, and is therefore being reported in accordance with 10CFR50.73(a)(2)(i)(B). No other past tests were found where the pit could have become flooded following a LOCA to the extent that the motors would not have been able to operate as designed.

Apparent Cause of Occurrence:

The apparent cause of occurrence was human error, which resulted in an inadequate calculation. The personnel providing input into the calculation to determine the Surveillance Test acceptance criteria apparently did not understand the term "watertight enclosure" to include the walls and floors of the Decay Heat Valve Pit.

Analysis of Occurrence:

The function of the valves in the Decay Heat Valve Pit is to provide a flowpath for post LOCA boron dilution. To fulfill the safety function, the ability to establish a flow path by opening the valves must be maintained for a period of seven days following a LOCA. The function of the watertight enclosure for the Decay Heat Valve Pit is to ensure that the valve operator motors in the pit will not be flooded within these seven days. Emergency procedures in place during the fourth operating cycle would have opened the valves in the pit much earlier than seven days after a LOCA. Based on current plant emergency procedures, it is expected that the valves in the pit will be opened within 24 hours of a LOCA.

Therefore, substantially more leakage could be tolerated without affecting the ability of these valves to open when desired. Because of the design of the watertight enclosure, most leakage discovered during the performance of the Surveillance Test is associated with the top of the enclosure. The acceptance criteria previously established were based on leakage at the top of the enclosure, and the test performed in 1983 was successful based on the previous acceptance criteria. Considering the fact that the valves are procedurally opened well before the seven days specified, the non-conservative acceptance criteria had minimal safety significance.

Corrective Actions:

A new calculation was completed on March 7, 1997, to include the potential leak paths described above. The revised Surveillance Test for performing the vacuum leakage rate test, with updated acceptance criteria based upon the calculation results, became effective on May 6, 1997. The applicable portion of the Updated Safety Analysis Report was revised on April 14, 1997, to reflect the results of this calculation.

Corrective Actions: (Continued)

Several changes have occurred in the procedures and culture at the Davis-Besse Nuclear Power Station since 1989 that should contribute to the prevention of further occurrences. This includes enhancements to the modification process along with greater experience and maturity within the engineering staff. These improvements should preclude the type of omission that occurred during the initial calculation where not all potential leakage paths were considered when performing the calculations to determine the vacuum leakage rate acceptance criteria.

Failure Data:

There has been one LER within the last three years involving the Decay Heat Valve Pit. This event, reported in LER 97-005 on March 13, 1997, occurred due to Surveillance Requirement 4.5.2.f not being fulfilled due to opening a small inspection port on the Decay Heat Valve Pit enclosure cover without performing the Surveillance Test upon reclosure of the inspection port, as specified by the Technical Specifications.

NP-33-97-007-1 PCAQR 97-0071