CATEGORY 1

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FACIL:50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana M 05000316
AUTH.NAME AUTHOR AFFILIATION
SCHOEPF,P. Indiana Michigan Power Co.
BLIND,A.A. Indiana Michigan Power Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-010-00:on 971210,use of teflon packing on Containment airlock door interlock shaft results in potentially degraded condition.Cause is still under investigation.Telfon packing rings have been replaced w/ERDM o-rings.

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AEP
INDIANA
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January 9, 1998

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

Operating Licenses DPR-74
Docket No. 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:

97-010-00

Sincerely,

A. A. Blind
Site Vice President

/mbd

Attachment

c: A. B. Beach, Region III
E. E. Fitzpatrick
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Records Center, INPO
NRC Resident Inspector

IE22

NRC FORM 366 (5-92) 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)

FACILITY NAME (1)	DOCKET NUMBER (2)	Page 1 of 3
Donald C. Cook Nuclear Plant - Unit 2	50-316	

TITLE (4)
Use of Teflon Packing on Containment Airlock Door Interlock Shaft Results in Potentially Degraded Condition

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
12	10	97	97	-- 010 --	00	01	09	98	Cook Unit 1	50-315
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	6
POWER LEVEL (10)	0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(3)(i)		50.73(a)(2)(iii)		73.71(b)
	20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(iv)		73.71
	20.2203(a)(2)(i)		20.2203(a)(4)		50.73(a)(2)(v)		OTHER
	20.2203(a)(2)(ii)		50.36(c)(1)		50.73(a)(2)(vii)		(Specify in Abstract below and in Text, NRC Form 366A)
	20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(viii)(A)		
	20.2203(a)(2)(iv)		50.73(a)(2)(i)		50.73(a)(2)(viii)(B)		
	20.2203(a)(2)(v)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mr. Paul Schoepf, Safety Related Mechanical Engineering Superintendent	616/465-5901, x2408

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	NO		02	06	98

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

On December 10, 1997, with Unit 2 in cold shutdown, it was determined that the seal for the inner bulkhead interlock shaft of the Unit 2 upper containment airlock consisted of Teflon packing rings rather than the specified EPDM elastomer. As Teflon degrades when exposed to the high radiation levels that could exist inside the containment following a postulated loss of coolant accident, a leakage path from the containment into the airlock compartment could have been opened. This condition was reported via ENS at 1726 hours EST the same day in accordance with 10CFR50.72(b)(2)(i), as a degraded condition discovered while the reactor was shutdown.

The root cause for the condition is still under investigation. The Teflon packing rings on the inner bulkhead interlock shaft have been replaced with EPDM o-rings on all of the affected airlocks. Appropriate preventive actions will be put in place once the root cause for the condition is determined.

An evaluation of the impact of the use of Teflon seals in the inner bulkhead interlock shaft concluded that although there could have been increased leakage into the airlock following a postulated Loss of Coolant Accident, the outer airlock bulkhead and its associated sealed door would provide a barrier to excessive radioactive material releases. Therefore, the condition did not present a significant risk to the health and safety of the public.

Conditions Prior to Event
Unit 2 was in Mode 6, Refueling
Unit 1 was in Mode 5, Cold Shutdown

Description of the Event
During periodic maintenance of the Unit 2 upper containment airlock, the seal for the inner bulkhead interlock shaft was found to consist of Teflon packing rings rather than the specified EPDM elastomer. Teflon would degrade when exposed to the high radiation levels which could exist inside the containment following a postulated Loss of Coolant Accident (LOCA). After deterioration of the rings, a leakage path from the containment into the airlock compartment could have been opened, which could have exceeded the Technical Specification (T/S) leakage requirement. Leakage from the airlock to the outside would not have been adversely impacted by this condition.

The Unit 2 lower airlock, and the Unit 1 upper and lower airlock interlock shafts were also examined. It was determined that Teflon packing had been used on these interlock shafts as well.

Cause of the Event
In 1984, the service life of organic materials came into question. As a result, a general refurbishment and upgrade of the airlocks was performed between 1984 and 1989. A change to the airlock drawing issued by Trentec, Inc in June 1988 listed the interlock shaft seal as Grafoil packing. This drawing was received by AEPSC, but there is no record that it was transmitted to the plant for use. The root cause of why the records were not transmitted is still being investigated. This information will be provided in an update to this LER.

Analysis of the Event
On December 10, 1997, it was determined that this condition was reportable under the provisions of 10CFR50.73(2)(ii), as a condition that resulted in the condition of the nuclear power plant being seriously degraded. The condition was reported at 1726 hours EST the same day. This LER is therefore submitted in accordance with 10CFR50.73(a)(2)(ii).

The personnel airlock has two doors in series, and each door is designed and constructed to withstand the design basis containment pressure of 12 psig. The Teflon seals are used to seal a shaft which penetrates the inner bulkhead. The seals are located inside the shaft mechanism. Although Teflon is known to be susceptible to radiation damage, it is unlikely that a complete loss of sealing capability would have occurred because the seals are retained inside the shaft and would still function as a barrier to flow.

Even if there could have been significant flow through the shaft seal, the outer door provides a barrier to increased leakage to the environment outside of the containment boundary. The airlock, which contains both the inner and the outer door, is leak tested in accordance with 10 CFR 50, Appendix J and meets the leakage criteria established in the T/S.

Corrective Action

The Teflon packing rings on the inner bulkhead interlock shaft have been replaced with EPDM o-rings for the upper and lower airlocks on both units.

Appropriate preventive actions will be put in place once the root cause of the condition has been determined. These actions, along with the root cause itself, will be provided in an update to this LER.

Failed Component Identification

Not Applicable

Previous Similar Events

To be determined