



March 16, 2001

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 316/2001-002-00: "Failure of Lower Containment Airlock Door Interlock Results in Inadvertent Opening of Both Doors"

The following commitments are identified in this submittal:

- A review of the current interlock design will be performed to determine if configuration enhancements are necessary to improve reliability of the containment airlock door interlock.
- Preventive maintenance activities for the airlock doors are being reevaluated for reliability improvements.

Should you have any questions regarding this correspondence, please contact Mr. Ronald W. Gaston, Manager, Regulatory Affairs, at 616/465-5901, extension 1366.

Sincerely,

Joseph E. Pollock  
Plant Manager

/bwo  
Attachment

c: J. E. Dyer, Region III  
A. C. Bakken  
L. Brandon  
T. P. Noonan  
R. P. Powers  
M. W. Rencheck  
R. Whale  
NRC Resident Inspector  
Records Center, INPO

IE22

**LICENSEE EVENT REPORT (LER)**

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

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>FACILITY NAME (1)</b> Donald C. Cook Nuclear Plant Unit 2	<b>DOCKET NUMBER (2)</b> 05000-316	<b>PAGE (3)</b> 1 OF 3
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**TITLE (4)**  
Failure of Lower Containment Airlock Door Interlock Results in Inadvertent Opening of Both Doors

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	23	2001	2001	002	00	03	15	2001	FACILITY NAME	DOCKET NUMBER
<b>OPERATING MODE (9)</b>		3	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b>							
<b>POWER LEVEL (10)</b>		0%	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)			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)**

<b>NAME</b> Brenda W. O'Rourke, Compliance Engineer	<b>TELEPHONE NUMBER (Include Area Code)</b> (616) 465-5901 X2604
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**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

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>				<b>EXPECTED SUBMISSION DATE (15)</b>		<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>
<b>YES</b> (If yes, complete EXPECTED SUBMISSION DATE).	X	<b>NO</b>						

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

On January 23, 2001, during the removal of radiation survey equipment from the Unit 2 lower containment personnel airlock, the airlock doors' interlock failed. This allowed the inadvertent opening of both the inner and outer lower containment airlock doors at the same time for approximately 5 seconds. Technical Specification 3.6.1.3 requires both containment airlock doors to be closed; except during normal transit entry and exit through containment, then at least one airlock door shall be closed. Because both lower containment airlock doors were open at the same time, an 8-hour ENS notification was made to the NRC in accordance with 10 CFR 50.72 (b)(3)(v)(C), for a condition or event that could have prevented the fulfillment of the safety function of a system needed to control the release of radioactive material.

The cause for this event was inattention to detail. Although the sign posted on the security gate surrounding the outer containment airlock door provides instructions for proper operation of the containment airlock, personnel exiting lower containment failed to verify that the outer airlock door position indication light was green (indicating that the door was closed) prior to opening the inner containment airlock door. A contributing cause was failure of the lower containment airlock door interlock when challenged.

Both the inner and outer lower containment airlock doors were immediately closed to restore containment integrity. The interlock was also repaired and satisfactorily tested. The individuals involved were counseled regarding the expectations for proper containment entry and exit. Existing containment entry controls (such as postings and position indication lights) were reviewed and determined not to have impacted this event. A review of the current interlock design will be performed to determine if configuration enhancements are necessary to improve reliability of the containment airlock door interlock. This condition is not considered to be safety significant due to the extremely low probability of a LOCA or MSLB occurring during the 5-second time interval in which both airlock doors were open.

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

**Conditions Prior to Event**

Unit 2, Mode 3, Hot Standby

**Description of the Event**

On January 23, 2001, during the removal of radiation survey equipment from the Unit 2 lower containment personnel airlock, the airlock doors' interlock failed. This allowed the inadvertent opening of both the inner and outer lower containment airlock doors at the same time. With both doors open, a rapid change in containment pressure occurred causing several ice condenser lower inlet doors to open.

Based on interviews with personnel involved in the event, the door configuration follows the timeline described below: Personnel (party 1) located in the airlock with the outer airlock door open, noticed the handwheel of the inner door beginning to turn by personnel (party 2) located in the instrument room. Party 1 immediately exited the airlock into the Auxiliary Building, pulling the door in the closed direction upon exiting. Party 1 noted that as the outer door was approaching closed, the inner door came off its closed seat. Once party 2 had entered the airlock after closing the inner door, it was noted that the outer door handwheel was turning in the closed direction. Both parties immediately concluded that the containment airlock door interlocks had failed and that containment integrity had been violated. It is estimated that the condition where both doors were off their closed seats existed for approximately 5 seconds.

Technical Specification (TS) 3.6.1.3 requires both containment airlock doors to be closed; except during normal transit entry and exit through containment, then at least one airlock door shall be closed. Because both lower containment airlock doors were open at the same time, an 8-hour ENS notification (Event No. 37681) was made to the NRC in accordance with 10 CFR 50.72 (b)(3)(v)(C), for a condition or event that could have prevented the fulfillment of the safety function of a system needed to control the release of radioactive material. In addition, since both containment airlock doors were inoperable, the action statement for TS 3.6.1.3 was not met and TS 3.0.3 was entered. However, this condition is not reportable since both airlock doors were closed within one hour.

LER 316/2001-002-00 is being submitted in accordance with the requirements of 10 CFR 50.73 (a)(2)(v)(C) for a condition or event that could have prevented the fulfillment of a safety function needed to control the release of radioactive material.

**Cause of the Event**

The cause for this event was inattention to detail. Although the sign posted on the outer airlock door security gate provides instructions for proper operation of the containment airlock, personnel exiting lower containment failed to verify that the outer airlock door position indication light was green (indicating that the door was closed) prior to opening the inner containment airlock door.

A contributing cause was the failure of the lower containment airlock door interlock when challenged.

**Analysis of Event**

The containment system is a steel-lined, reinforced concrete structure, including foundations, access hatches, and penetrations. This system is designed and constructed to maintain full containment integrity when subject to accident temperatures and pressures, and the postulated earthquake conditions. The structure is designed for no loss of function under various tornado or accident conditions. The containment system is provided with two personnel access airlocks. Each personnel access airlock is a welded steel assembly with a door at each end and equipped with a double compressible seal to insure leak tightness of the lock. Both airlock doors are designed to open in towards containment so in the event of an accident, the higher pressures expected inside containment during an accident would force the doors closed if the doors were in a near-closed position. The doors of the personnel locks are interlocked so that one door cannot be opened unless the

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

other is sealed. Indicating lights have been provided outside each airlock door to indicate whether the opposite door is being operated.

With both lower containment airlock doors off their closed seats, concurrently, for approximately 5 seconds, several of containment's accident and mitigation functions supported by the airlock could have been impacted. Specifically;

- The function of the containment system to limit the release of radioactive fission products following an accident to limit the dose to the public and control room operators in accordance with 10 CFR 100 and GDC 19. Any radioactive release would have been an unmonitored release path.
- The function of the airlock to provide protection for the reactor vessel and other safety related systems, structures and components from internal and external missiles and natural phenomena.
- The function of accumulating and directing water to support the emergency core cooling system and containment spray system functions during the recirculation phase of an accident.

Because the lower containment personnel airlock doors are configured to open into containment, the pressures experienced inside containment during the initial moments of a Loss of Coolant Accident (LOCA) or a Main Steam Line Break (MSLB) would assist in closing the doors and holding them closed. This postulated LOCA or MSLB would have resulted in a release of the containment atmosphere until the outer airlock door was fully closed. Any release would have been of short duration as the pressure wave of the event would have assisted in closing both doors, since the doors were in the near-closed position. As such, this condition would not have prevented the containment system from fulfilling its accident and mitigation functions as described above. It should be noted that the probability of a LOCA or MSLB occurring during the 5-second time interval in which both airlock doors were open is extremely low. Due to the extremely short duration of time that the doors were open and the likelihood of an accident occurring, this condition is not considered to be safety significant.

**Corrective Actions**

Both the inner and outer lower containment airlock doors were immediately closed to restore containment integrity. The airlock door interlock was repaired and satisfactorily tested. The ice condenser lower inlet doors were also closed.

Existing containment entry controls (such as postings and position indication lights) were reviewed and determined not to have impacted this event. However, these controls are being reviewed for potential enhancements.

Recently performed TS surveillances of the lower containment airlock door interlocks were reviewed and found to have been successfully completed.

The individuals involved were counseled regarding the expectations for proper containment entry and exit. The counseling specifically addressed the importance of verifying the position of the opposite airlock door via the airlock door position indication lights prior to opening any containment airlock door.

A review of the current interlock design will be performed to determine if configuration enhancements are necessary to improve reliability of the containment airlock door interlock.

Preventive maintenance activities for the airlock doors are being reevaluated for reliability improvements.

**Similar Events**

None