

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1)

Perry Nuclear Power Plant, Unit 1

DOCKET NUMBER (2)

050004401 OF 03

PAGE (3)

TITLE (4)

Ruptured Seal On Outer Door of Upper Containment Airlock Results in Technical Specification Violation and a Loss of Containment Integrity

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 NAMES		DOCKET NUMBER(S)
04	18	90	90	007	000	05	18	90			05000
											05000

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)											
POWER LEVEL (10)	20.002(b)	20.002(e)	20.002(i)	20.002(j)	20.002(k)	20.002(l)	20.002(m)	20.002(n)	20.002(o)	20.002(p)	20.002(q)	20.002(r)
100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>						
	20.002(s)	20.002(t)	20.002(u)	20.002(v)	20.002(w)	20.002(x)	20.002(y)	20.002(z)	20.002(aa)	20.002(ab)	20.002(ac)	20.002(ad)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

LICENSEE CONTACT FOR THIS LER (12)											
NAME										TELEPHONE NUMBER	
Henry L. Hegrat, Compliance Engineer, Extension 6855										2116 215191-137137	
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
B	NIH	SIEAIL	W131010	Y					

SUPPLEMENTAL REPORT EXPECTED (14)										MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)												
<input checked="" type="checkbox"/> NO												

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

At 0107 on April 18, 1990, a seal on the outer door of the Upper Containment Airlock ruptured, while the inner door was opened, resulting in violation of Technical Specification 3.6.1.3 and a loss of containment integrity being declared for a total of approximately two minutes. At the time of the event, a Chemistry Technician was entering containment to obtain samples. Inadequate communications between the control room and the technician resulted in the technician using the inner door again causing two more losses of containment integrity.

The cause of this event was equipment failure. The small seal on the outer door ruptured causing the outer door to become inoperable, resulting in a loss of containment integrity when the inner door was opened. Additionally, personnel errors (inadequate knowledge/training and inadequate communication) were responsible for the second and third loss of containment integrity.

To prevent recurrence, the small seal on the outer door of the Upper Containment Airlock was replaced and an engineering evaluation is being performed to determine what caused the seal failure. Radiological Controls Training for people who operate the airlock doors is being enhanced to explain the consequences of improper operation of airlock doors and signs are being posted inside the containment airlocks to provide additional operating instructions. The event was discussed with the operator who is fully aware of the impact that inadequate communication had on this event. Additionally, as part of the established requalification training program, all plant licensed operators will be instructed on the lessons learned from this event.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-30), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		-	0 0 7	-	0 0	0 2 OF 0 3

TEXT (If more space is required, use additional NRC Form 360A or 17)

At 0107 on April 18, 1990, a seal [SEAL] on the outer door of the Upper Containment [NH] Airlock [AL] ruptured, while the inner door was opened, resulting in violation of Technical Specification 3.6.1.3 and a loss of containment integrity being declared for a total of approximately two minutes. At the time of the event, the plant was in Operational Condition 1 (Power Operation) at approximately 100 percent of rated thermal power with the Reactor Pressure Vessel [RPV] at saturated conditions at approximately 1013 psig.

At 0107 on April 18, 1990, a Chemistry Technician entered containment, to obtain samples, using the Upper Containment Airlock. At the time of the event, the Lower Containment Airlock was inoperable due to maintenance. The technician entered through the outer door, using manual operation of the Airlock, and saw the proper indications, after closing the outer door, to open the inner door. When the technician opened the inner door, the control room received an alarm and indications that both the inner and outer airlock doors were open at the same time. (Outer door small seal low pressure occurring with the opening of the inner door caused the alarm and indications). Additionally, the technician in the airlock noted that the outer door no longer indicated closed. The control room operator contacted the technician and, not realizing that the technician was inside containment, gave instructions which resulted in the technician exiting containment via the inner door (which again caused the alarm in the control room) to manually open and close the outer door in anticipation of clearing the problem. After closing the inner door, the technician opened and closed the outer door but could not clear the open indications. The technician then re-entered containment through the inner door (again causing the alarm in the control room). Upon closing the inner door and contacting the control room to inform them that the outer door problem had not cleared, the technician was instructed to remain in containment until one of the airlocks became operable. The technician exited containment via the Lower Containment Airlock after the Lower Containment Airlock was declared operable at approximately 0530 on April 18, 1990. Subsequently, the small seal on the outer door of the Upper Containment Airlock was replaced and the Upper Containment Airlock was declared operable at 0835 on April 21, 1990.

The cause of this event was equipment failure. The small seal on the outer door ruptured (a rip approximately three eighths of an inch long) causing the outer door to become inoperable and a loss of containment integrity when the inner door was opened. Additionally, personnel errors, inadequate knowledge/training and inadequate communication, were responsible for the second and third loss of containment integrity. Once problems with the outer door were suspected, the inner door should not have been reopened until the outer door was repaired. The manual cycling of the door should have been accomplished by someone outside of containment. This would have eliminated the last two openings of the inner door and reduced the risk of extended loss of containment integrity had the inner door malfunctioned while being operated. The control room operator did not establish the exact location of the Chemistry Technician prior to instructing him to manually cycle the outer door and the Chemistry Technician operated the airlock doors without the doors indicating proper conditions for operation.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Perry Nuclear Power Plant, Unit 1	0500044090	007	00	03	OF	03

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

The personnel airlocks are welded steel assemblies with double doors, each equipped with double gaskets or seals. The airlocks are designed so that pressure inside the containment would aid in positively seating the door assemblies. Only one closed door in each airlock is required to maintain the integrity of the containment. During this event, the inner door of one airlock was opened for a total of approximately two minutes while the outer door was inoperable. Technical Specification 3.6.1.3 contains a footnote which allows passage into and out of containment during power operation for up to 1 hour (cumulative) per year to repair an inoperable inner airlock door. Although this allowance did not specifically permit the sequence of events which occurred on April 18, 1990, its bases would bound any resulting effects on safe plant operation. Additionally, the large seal on the outer door continued to function properly during this event. As a result, no direct communication between the inside and outside of containment was possible, even though Technical Specifications required the outer door to be declared inoperable. Therefore, this event is not considered to be safety significant. Previous Licensee Event Reports have been submitted because of problems with containment airlocks. LER 87-061 addressed a problem with locking pins, LER 88-032 addressed problems with 3-way ball valves and a blistered seal, and LER 88-035 addressed a mechanical interlock failure. However, the recent failure mechanism has not been experienced before, and none of the corrective actions from previous LERs could have been expected to prevent this event.

To prevent recurrence, the small seal on the outer door of the Upper Containment Airlock was replaced and an engineering evaluation is being performed to determine what caused the seal failure. Radiological Controls Training for people who operate the airlock doors is being enhanced to explain the consequences of improper operation of airlock doors and signs are being posted inside the containment airlocks to provide additional operating instructions. The event was discussed with the operator who is fully aware of the impact that inadequate communication had on this event. Additionally, as part of the established requalification training program, all plant licensed operators will be instructed on the lessons learned from this event.

Energy Industry Identification System codes are identified in the text as [XX].