



**Florida
Power**

CORPORATION

Crystal River Unit 3
Docket No. 50-302

October 15, 1991

3F1091-08

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Reference: Licensee Event Report (LER) 91-06-01

Dear Sir:

Enclosed is Licensee Event Report (LER) 91-06-01 which is submitted in accordance with 10 CFR 50.73.

This supplement provides the results of root cause analysis and revision of the corrective action.

Sincerely,

G. L. Boldt
Vice President
Nuclear Production

WLR:mag

Enclosure

xc: Regional Administrator, Region II
Project Manager, Region II
Senior Resident Inspector

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A Florida Progress Company

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LICENSEE EVENT REPORT (LER)

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 (P-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

FACILITY NAME (1) CRYSTAL RIVER UNIT 3 (CR-3) DOCKET NUMBER (2) 050003021 OF 04 PAGE (3) 1 OF 04

TITLE (4) Both Equipment Hatch Airlock Doors Open Simultaneous Due To Loose Door Chain Mechanism

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)
06	07	91	91	006	01	10	15	91	N/A		050000
									N/A		050000

OPERATING MODE (9) 1 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)

20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
20.406(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v)	73.71(c)
20.406(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
20.406(a)(1)(iv)	X 50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: W. A. STEPHENSON, NUCLEAR SAFETY SUPERVISOR

TELEPHONE NUMBER: AREA CODE 904 795-6466

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS
X	NH	AL	C13D	YES					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

At 0715 June 7, 1991, while investigating a problem with the Reactor Building (RB) equipment hatch airlock to pass its door interlock and seal test, an operator opened the outer door, entered the airlock and found the inner door slightly open. The period both inner and outer doors were open was less than one minute. The operator immediately exited the equipment hatch, closed the outer door and attempted to remotely close the inner door. At 1345, a repair team entered the equipment hatch and the inner door was again found open. The repair team immediately closed the outer door. Although they were able to close the inner door they were not able to determine what caused the malfunction. At 1835, a second repair team entered the hatch and discovered the inner door swing chain was loose and tightened the chain. At 2145, the airlock was restored to operable status following successful post maintenance testing. Both doors had been open simultaneously three times for approximately one minute each time.

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-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) CRYSTAL RIVER UNIT 3 (CR-3)	DOCKET NUMBER (2) 0 5 0 0 0 3 0 2 9 1	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (if more space is required, use additional NRC Form 266A's) (17)

EVENT DESCRIPTION

At 0715 June 7, 1991, the inner door of the Reactor Building (RB) equipment hatch airlock [NH,AL] was found slightly open while the outer door was also open. This report of this event is being made per the requirements of 10CFR50.73(a)(2)(i)(B), (a)(2)(ii) and (2)(v)(C). The following is a description of the conditions prior to the event and the actions taken after discovery.

Crystal River Unit 3 (CR-3) was operating at 100% Rated Thermal Power. On June 7, 1991 just prior to the event, the equipment hatch airlock interlock test had been conducted satisfactorily. This test is conducted by operating the doors manually from outside the hatch. Each door is exercised and the other door handwheel is checked to assure it can not be operated. At the conclusion of this test, the procedure requires that a visual check be done to verify the inner door is closed. The visual check requirement was intended to be a "coarse" verification of door closure in that the next portion of the procedure, to pressurize the space between the double rubber o-rings of the inner door, would verify that it was closed tight enough to achieve a pressure seal. This test indicated the airlock door(s) was not sealed. The licensed operator performing the leak test entered the airlock to check for possible causes of the problem and discovered the inner door open. At 0715 June 7, 1991, CR-3 entered the Action Statement for an inoperable RB airlock (Technical Specification 3.6.1.3). A one hour report was made to the NRC Operations Center since this provided a direct path to the environment from the RB for the short time the outer door was open.

The operator immediately exited the equipment hatch airlock and closed the outer door. The licensed operator and a non-licensed operator then exercised the inner door from outside the airlock twice to close the door. Both of these operators had operated the airlock doors numerous times in the past and felt that the inner door was closed. The operators then pressurized the door seals again. The results appeared to indicate the door was closed but not sealing properly.

In preparation for a repair team entering the equipment hatch airlock, a pre-job planning meeting was conducted with operations and maintenance. During the pre-job meeting, the possibility that the inner door might still be open was discussed and actions planned accordingly. An off-duty Shift Supervisor, with the concurrence of the Shift Supervisor on Duty (SSOD), decided to make the entry through the equipment hatch airlock instead of the personnel hatch for the following reasons:

- 1) Another door seal test was conducted that appeared to indicate the door was closed although not sealing properly.
- 2) The RB pressure was close to atmospheric pressure; therefore, an unmonitored release would not occur if the inner door was open.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORMS, 50 COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) CRYSTAL RIVER UNIT 3 (CR-3)	DOCKET NUMBER (2) 0 5 0 0 0 3 0 2 9 1	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		---	0 0 6	---	0 1 0	3 OF 0 4

TEXT (If more space is required, use additional NRC Form 306A's) (17)

- 3) The Technical Specification 3.6.1.3 for the containment airlock does not specifically prohibit access with one door inoperable. Access via the outer door for troubleshooting with the inner door open was not considered to be a violation of containment integrity per Technical Specification 3.6.1.1.

At 1345, the repair team entered the equipment hatch airlock. The inner door was found open. The repair team immediately closed the outer door. Repair team individuals inside the airlock then exercised the inner door and visually verified the inner door was closed. The repair team was unable to determine why the door was open, exited the airlock and informed the SSOD that they had found the inner door open.

At 1635, a second repair team was dispatched to the equipment hatch via the personnel hatch. This team was able to locate the cause of the malfunction and repair the door. The interlock test was conducted from the inside of the equipment hatch airlock satisfactorily. The door seal test was also conducted satisfactorily.

At 2145, the equipment hatch airlock was returned to service and the Technical Specification Action Statement was exited. The total time the equipment hatch airlock was inoperable was 14.5 hours.

CAUSE

The RB equipment hatch airlock inner door did not close fully because the inner door swing chain was loose. The exact cause of the slack in the chain cannot be determined; however, there are several possible causes which may have lead to this condition. One possible cause could be personnel error in the operation of the door itself (misuse). Based on interviews with utility personnel, there is no evidence that this is the root cause. Another possible personnel error cause has to do with the door timing being altered from the routine operations of defeating/restoring the door interlocks during outage periods. According to the equipment supplier, this possibility is not likely. A third possible cause is normal wear of the chain and associated components. Although the hatch was inspected by Chicago Bridge & Iron during Refuel 7, it is possible that the lock nuts on the chain adjusting rods loosened. The manufacturer confirmed that these chains do require adjustment from time to time. Although each of the above possibilities could explain the door failure, the exact cause cannot be determined.

The interlock test did not indicate the inner door was open with the outer door open because the test was designed to be conducted from outside the airlock to minimize potential exposure to airborne and surface contamination areas.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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-330), 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) CRYSTAL RIVER UNIT 3 (CR-3)	DOCLET NUMBER (2) 0 5 0 0 0 3 0 2 9 1	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0 0	0 0 6	0 1	0 4	OF 0 4

TEXT (if more space is required, use additional NRC Form 305A's) (17)

EVENT ANALYSIS

The problem with the RB equipment hatch airlock inner door led to three instances where there was a direct path from the RB to the environment and public. The first instance occurred during performance of the visual check required by the interlock test. The second instance occurred when the operator entered the airlock to determine why the airlock doors were not sealing properly. The third instance occurred during troubleshooting. Each time that both doors were open was very short (approximately one minute each time). This short time did not pose a hazard to the public.

Based on a qualitative review of this problem, it is likely the atmospheric pressure inside the RB allowed no more release of radiation than the minute amount that leaves when the pressure equalizing valves and doors are operated for normal personnel/equipment entry.

CORRECTIVE ACTION

The inner door swing chain was tightened and the door was tested satisfactorily.

FPC will implement a maintenance program to prevent chain adjustment problems from compromising the correct operation of the personnel hatch.

FPC has revised the associated Surveillance Procedure to provide a more positive assurance of personnel hatch proper function and operation.

FPC will evaluate moving the limit switches for more positive door position indication to provide additional assurance that the door is closed.

PREVIOUS SIMILAR EVENTS

One previous similar event was found. In 1981, during shutdown, bent hinge pins and defective alignment caused both doors of the RB personnel hatch to be open simultaneously.