



Commonwealth Edison
Braidwood Nuclear Power Station
Route #1, Box 84
Braceville, Illinois 60407
Telephone 815/458-2801

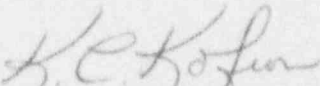
April 11, 1994
BW/94-0057

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

Dear Sir:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted in accordance with the requirement of 10CFR50.73(a)(2)(ii), which requires a 30-day written report.

This report is number 94-003-00, Docket No. 50-456.


K. L. Kofron
Station Manager
Braidwood Station

Encl: Licensee Event Report
No. 456/94-003-00

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
CECo Distribution List

9404130132 940411
PDR ADOCK 05000456
S PDR

JEH

LICENSEE EVENT REPORT (LER)

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

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 (MNBR 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.

FACILITY NAME (1)
Braidwood 1

DOCKET NUMBER (2)
05000456

PAGE (3)
1 OF 6

TITLE (4)
As Found Integrated Leak Rate Test Failures Due to Preservice Construction Deficiencies

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 NUMBERS
03	11	94	94	-- 003 --	00	04	11	94	FACILITY NAME Braidwood Unit 2	DOCKET NUMBER 05000457

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	000	20.402(b)			20.405(c)			50.73(a)(2)(iv)		73.71(b)
		20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)		73.71(c)
		20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)		OTHER
		20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iv)			X 50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)		
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)

NAME
M. Smith, System Engineering

TELEPHONE NUMBER (Include Area Code)
(815)458-2801 x2365

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)

YES (If yes, complete EXPECTED SUBMISSION DATE). NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)
 During ALR04 the Unit 1 Primary Containment Type A Integrated Leakage Test (ILRT), BwVS 6.1.2.a-1, the as-found condition was in excess of the value allowed by Technical Specifications for surveillance testing. During walkdowns of the potential leakage areas of containment it was discovered that air was escaping from around the containment emergency hatch outer barrel. Attempts to quantify the leakage were not successful. Unexpected leakage was detected at the emergency hatch and a decision was made to depressurize containment and perform an internal inspection of containment. It was revealed that the emergency personnel hatch barrel was missing welded caps on all six of its concrete vent pipes which are required per original design. The concrete vent pipes were capped and tested. The ILRT was reperformed. Initially it appeared that the test would fail. Isolation of a known leakage source, the Service Air (SA) penetration, reduced the leakage of containment below the acceptable leakage value (0.75 La or 5.78 scfm). The ILRT was successfully completed, and the containment as-left leakage met surveillance requirements. An inspection of the Unit 2 containment revealed the emergency hatch concrete vent pipe caps were also missing. A 96 hour NOED was obtained from the NRC and the concrete vent pipes were capped and tested satisfactorily. There have been previous similar occurrences of ILRT failures on Units 1 and 2.

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TEXT CONTINUATION

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

A. PLANT CONDITIONS PRIOR TO THE EVENT:

UNIT: 1 EVENT DATE: MARCH 11, 1994
EVENT TIME: 1547
MODE: 5 RX POWER: 0%
RCS [AB] TEMP/PRESS: 95 degrees F / 65 psig;

UNIT: 2 EVENT DATE: MARCH 14, 1994
EVENT TIME: 1350
MODE: 1 RX POWER: 100%
RCS [AB] TEMP/PRESS: NOT/NOP;

B. DESCRIPTION OF EVENT:

UNIT 1:

Braidwood Unit 1 was starting its fourth refueling outage and commenced performance of the Integrated Leak Rate Test (ILRT). At 1845 hours on March 10, 1994 Unit 1 containment reached the proper test pressure of 46 psig, and the air compressors used for pressurization were secured. At 1925 hours the temperature stabilization phase of the ILRT was initiated. Temperature stabilization was established in approximately 4 hours as expected. At 0310 hours on March 11, 1994 during a walkdown of potential containment leak paths at test pressure, an undetermined amount of leakage was discovered around the emergency hatch outer barrel. At the same time, the projected leakage rate was in excess of the 0.75 La (5.78 scfm) required by Technical Specifications for surveillance testing, and it was believed that the emergency hatch leakage was causing the projected failure.

Throughout the day on March 11, efforts were initiated to quantify the leakage from the emergency hatch outer barrel area. The leakage from the outer barrel could not be quantified accurately, but it was postulated that it was a major leakage source. Field teams were unable to identify additional leakage which would be causing the test to fail. Since no additional leakage paths could be identified the test was declared a failure at 1800 hours.

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An ENS notification was made at 1847 hours on March 11 under 10CFR50.72(b)(2)(i).

An eight hour informational leakage test was conducted to quantify the containment leakage followed by successful verification of the test instrumentation as required by Technical Specifications. The as-found leakage rate of containment was determined to be 0.9 La (6.9 scfm) which did not meet the surveillance testing requirements.

Containment access was accomplished at approximately 1800 hours on March 12, 1994. An inspection team entered containment to inspect the emergency hatch area and perform vacuum box testing on selected portions of the containment liner. At approximately 2000 hours the team identified that six concrete vent pipes approximately six inches in diameter and length welded to the lower perimeter of the emergency hatch outer barrel, were missing welded caps as required by design. The pipes were filled with concrete. The function of the pipes was to provide a vent path during the concrete pour around the emergency hatch. During the construction process these pipes were supposed to have had caps welded on.

The concrete vent pipes had caps installed and were leakage tested at ILRT pressure. The leakage through all six vent pipes was determined to be 0.68 scfm. If the ILRT were failing due to this one leakage source the leakage would need to be greater than 0.68 scfm. This leakage testing was determined to be inconclusive for the following reasons: Testing of the repaired vent plugs was performed after the vent pipes had approximately 2 inches of concrete removed from inside of the pipes to accommodate welding of the caps. Also, the containment structure was not pressurized to ILRT test pressure which could alter the measured leakage.

Since the containment leakage investigation revealed no other sources of leakage it was decided to reperform the ILRT procedure.

At 1200 hours on March 14, 1994 the Unit 1 ILRT was reentered.

UNIT 2:

At 1350 hours on March 14 an inspection of the Unit 2 emergency hatch revealed that the outer barrel concrete vent pipes were not capped. An ENS notification was made at 1430 hours under 10CFR50.72(b)(2)(i). LCOAR 6.1.1-1a was entered at 1350 hours to track the Unit 2 containment integrity concern.

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At 1540 hours a Notice of Enforcement Discretion was verbally approved by Region III to provide time to correct the condition without shutting the Unit down. Technical Specification 3.6.1.1, Containment Integrity, states that without primary containment integrity, restore containment integrity within 1 hour or be in Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours. The Notice of Enforcement Discretion was granted to be in effect until March 18, 1994 at 1350 hours, at which time Unit 2 would be shutdown in accordance with Technical Specification 3.6.1.1, Containment Integrity. The Unit 2 concrete vent pipe caps were installed and tested satisfactorily within the required time frame.

UNIT 1:

At 0956 on March 15 the temperature stabilization portion of the Unit 1 ILRT test was entered. Temperature stabilization was accomplished in the anticipated time frame but it still appeared that the leak rate was in excess of the acceptance criteria. A review of the penetrations that had been isolated due to known leakage resulted in a Special Process Procedure (SPP) 94-010 being written and performed to pressurize air between the Service Air (SA) containment isolation valves at a pressure a few pounds below ILRT test pressure. Pressure between the SA containment isolation valves was monitored hourly with a calibrated test gauge. The SPP minimized the leakage through the penetration and resulted in a reduction in containment leakage to within the acceptance criteria.

At 0640 hours on March 16 data acquisition was initiated for the 24 hour mass plot containment leakage test.

At 1350 hours less than 1 scf of Sulfur Hexafluoride tracer gas was injected into containment per SPP 94-011 as a proactive measure to identify containment leakage paths. This testing resulted in containment leakage being identified at the outer perimeter on the containment personnel hatch barrel. This type of leakage indicates that a containment liner leak exist.

At 0709 hours on March 17, 1994 a successful 24 hour mass plot leakage test was completed. The as-left containment leakage was determined to be 0.45 La which fully meets the surveillance testing requirements.

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During the depressurization of containment, pressure was held at 15 psig for a containment entry by a leakage inspection team. This effort identified potential leakage at four mechanical piping penetrations which will require further investigation.

The events associated with Units 1 and 2 are being reported pursuant to 10CFR50.73(a)(2)(ii) - any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded.

C. CAUSE OF EVENT:

The root cause of the containment pressure boundary failing it's as found ILRT was the combined effect of a Preservice Construction deficiency, in that the emergency hatch concrete pipe vents were not capped during initial construction, and Equipment Failure, where it was identified that the SA penetration leakage not being completely isolated. These are the only two significant differences in ILRT test lineups between the two performances of the ILRT test procedure.

Similarly, the cause of the Unit 2 emergency hatch concrete pipe vents not being capped during initial construction was also a Preservice Construction deficiency.

D. SAFETY ANALYSIS:

This event had minimal effect on plant or public safety. The as found leakage of containment was determined to be below the allowable leakage value (La) described in Technical Specification 3.6.1.2, Containment Leakage.

E. CORRECTIVE ACTIONS:

The missing caps on the Emergency Hatch concrete vent pipes were installed on both units. The unit 1 ILRT was reperformed successfully. The Unit 2 concrete vent pipes were tested and found to be acceptable.

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Nuclear Work Request's (NWR) 940006048 and 940007192 were generated to repair Containment Isolation Valves 1SA032 and 1SA033 respectively. The valves will be repaired prior to entering mode 4.

The summation of the local leak rate test performed on the penetrations that were isolated during the test procedure did not add up to the containment leakage measured during the test procedure. This coupled with the observed leakage detected at the personnel hatch outer barrel has prompted the need for further investigation into liner leakage paths. Site engineering is developing a plan to search for additional liner leakage. NTS item 456-180-94-00301 has been assigned to track completion of this item.

F. PREVIOUS OCCURRENCES:

There has been a previous NRC Violation issued involving the ILRT testing failures at Braidwood Station.

NRC INSPECTION REPORT 456/91023 ; 457/91021 - Containment Integrated Leak Rate Test, Units 1 and 2

G. COMPONENT FAILURE DATA:

MANUFACTURER	NOMENCLATURE	MODEL NO.
Masoneilan-Dresser Ind.	1SA032 Containment Isolation Valve	38-20771
Masoneilan-Dresser Ind.	1SA033 Containment Isolation Valve	38-20771