NRC Form 366* (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 2	0 5 0 0 0 2 3 7	1 OF 0 5

TITLE (4) Snubber 1301, 1302 and 1303 Functional Test Results
Out of Tolerance Due to Upgraded Test Acceptance Criteria

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)
0 2	2 0	8 7	8 7	—	0 0 5	—	0 0	0 3	2 1	8 7	Dresden Unit 3	0 5 0 0 0 2 4 9
											N/A	0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	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 (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		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	TELEPHONE NUMBER
Joseph Welch Technical Staff Engineer (X-422)	AREA CODE 8 1 5 9 4 2 - 2 9 2 0

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	
B	B T	S N B	A 3 9 1	Y							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On February 18, 1987 between 1010 hours and 1200 hours, with Unit 2 shut down for a refueling outage, snubbers #1301, 1302 and 1303 failed to activate or bleed within the allowable ranges during performance of Dresden Technical Staff Surveillance (DTS) 020-2. Per Technical Specification 4.6.I.3 an engineering evaluation was deemed necessary and initiated. The analysis showed that these piping systems do not meet the final safety analysis report operability criteria but do meet operability criteria using the NRC accepted I.E. Bulletin 79-14 program. For these reasons, the safety significance of this event was judged to be minimal. These three snubbers encompass 100% of the hydraulic safety-related snubbers located on Unit 2. Therefore, no additional snubbers were required to be tested due to these failures, since all of the hydraulic units had been tested.

The root cause of this event was an upgrade in the testing acceptance criteria. Technical Specifications in effect during previous testing did not require specific acceptance criteria for activation velocities and and bleed rates, as is currently required.

Modification M12-2-83 47 had been initiated to replace these three hydraulic snubbers with two mechanical snubbers and a rigid strut. This will be completed prior to startup from the current refueling outage. A similar event occurred on Dresden Unit 3 on February 2, 1986. The corrective action taken was to replace the hydraulic snubber with a mechanical type snubber. This was the last remaining safety-related hydraulic snubber on Unit 3. The three isolation condenser snubbers were the only remaining on Unit 2.

IE 22 1/1

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Dresden Nuclear Power Station, Unit 2	0 5 0 0 0 2 3 7	8 7	— 0 0 5	— 0 0	0 2 OF 0 5

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

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power. Energy Industry Identification System (EIIS) codes are identified in the test as [XX].

EVENT IDENTIFICATION:

Isolation Condenser [BO] System Snubbers 1301, 1302, and 1303 Functional Test Results Out of Tolerance Due to Upgraded Test Acceptance Criteria.

A. PLANT CONDITIONS PRIOR TO EVENT:

Mode: N - Refuel Reactor Power: 0% Reactor Pressure: 0 psig

B. DESCRIPTION OF EVENT:

On February 18, 1987 between 1010 hours and 1200 hours, with Unit 2 shut down for a refueling outage, snubbers #1301, 1302 and 1303 failed to activate (lockup) within the allowable velocity range of 1 to 10 inches/minute or bleed (release) within the allowable rate of .5 to 5 inches per minute during performance of Dresden Technical Staff Surveillance (DTS) 020-2, Snubber Functional Testing. Snubber 1303 was located on isolation condenser [BO] steam supply line 2-1302-14" and snubbers 1301 and 1302 were located on isolation condenser [BO] condensate return line 2-1303-12". The results of the snubber testing are as follows:

Snubber	Support I.D.	Compression Activation Velocity Inches/Minute	Tension Activation Velocity Inches/Minute
1301	2-1301-M-203	49.9	48.7
1302	2-1301-M-204	40.2	41.5
1303	M-1163D-79	>49.9	48.0

Snubber #1303, with an activation (lockup) velocity greater than 49.9 inches/minute, could not be activated in the compression direction on the test machine.

Per Technical Specification 4.6.I.3 an engineering evaluation was initiated On February 20, 1987 at 1130 hours, the Technical Staff Supervisor was notified that preliminary analysis had determined that the snubber mode of failure significantly degraded the isolation condenser system [BO] under a postulated accident condition. The NRC was notified by telephone at 1500 hours on 2/20/87 to report this degraded condition.

In accordance with Confirmatory Action Letter (CAL) 85-04 issued to Dresden Station by the NRC on April 5, 1985, a verbal report was given to the NRC Region III Office within 2 working days on 2/18/87 at 1330 hours. Also, a written report, required by the CAL within 30 calendar days, was issued on March 5, 1987. Per Technical Specification 4.6.I.2.a.(ii) for each

hydraulic snubber found inoperable, an additional 10% of the hydraulic snubbers must be tested.

These three snubbers encompassed 100% of the safety-related hydraulic snubbers located on Unit 2. Therefore, no additional snubbers were required to be tested due to these failures.

C. CAUSE OF EVENT:

The root cause of this event was an upgrade in snubber testing acceptance criteria. Previous testing did not require verification of a specific activation (lockup) velocity or bleed rate. On June 3, 1982 Amendment number 70 to the Dresden Unit 2 Technical Specifications, requiring in Section 4.6.I.2 snubber functional operability testing which includes verification of specific activation (lockup) velocity and bleed (release) rate ranges, was transmitted. These requirements were not to become effective until competitive marketable test fixtures were available. Until such time, but in no case to exceed December 31, 1983, demonstration of the bleed function and verification of the force initiating free movement in either tension or compression to be less than the specified maximum breakaway force was sufficient. Accordingly, Dresden Station has revised DTS 020-2 snubber testing acceptance criteria to include verification of specific activation velocity and bleed rate ranges, and all hydraulic snubbers tested are tested on a certified test bench capable fo evaluating these parameters. Review of testing records indicates that these snubbers were last functionally tested on the following dates, which are prior to the upgrade in testing criteria.

Snubber	Work Request Number/Date
1301	14194/7-2-81
1302	2353/10-13-79
1303	16523/10-26-81

These snubbers were also visually inspected on December 4, 1984 with no problems noted.

D. SAFETY ANALYSIS:

These snubbers were located on the isolation condenser [BO] steam supply and condensate return lines. The isolation condenser [BO] is used for reactor heat removal under conditions when the main condenser [SG] is isolated. Technical Specification 3.5.E.1 requires the isolation condenser [BO] to be operable whenever reactor pressure is greater than 90 psig and irradiated fuel [AC] is in the reactor vessel. Reactor operation is permissible for a maximum of seven days with an inoperative isolation condenser [BO] provided that the high pressure coolant injection system (HPCI) [BJ] is operable. The reactor was in the refuel mode with all rods [AA] in and at atmospheric pressure conditions at this time and thus the isolation condenser [BO] system was not required to be operable. However, degradation of these snubbers probably occurred during power operation.

An analysis was performed reconstructing the computer models of the two lines using 79-14 analysis outputs. These lines were then analyzed with the three "failed" snubbers removed from the models using standard Final Safety Analysis Report (FSAR) methodology. The analysis showed that both piping systems do not meet the FSAR operability criteria. A second operability analysis was performed using a Safe Shutdown Earthquake (SSE) spectra with 2.0% damping, which is in compliance with the I.E. Bulletin 79-14 operability project instruction 21.0. By using these parameters and taking into account the test results of the three failed snubbers, the two piping systems were shown to meet the I.E. Bulletin 79-14 operability criteria.

The safety significance is judged to be minimal due to the availabiltiy of the HPCI [BJ] system to perform similar functions to that of the isolation condenser [BO] and also the fact that the as-found conditions of the snubbers did meet the I.E. Bulletin 79-14 operability criteria even though the FSAR criteria were not met.

E. CORRECTIVE ACTIONS:

Modification M12-2-83-47 had been initiated to replace these three hydraulic snubbers with two mechanical snubbers and a rigid strut and will be completed prior to startup. The new replacement mechanical snubbers were functionally tested prior to installation. Also, per Technical Specification 4.6.I.2.c the two replacement mechanical snubbers shall be functionally tested during the next refueling outage. This is in addition to the required 10% sampling. Since these were the only safety-related hydraulic snubbers installed on Unit 2 no additional units were required to be functionally tested.

Prior to the last refuel outage on Unit 2, DTS 020-2 was revised. This revision provided acceptance criteria of 1 to 10 inches/minute lock-up velocity and .5 to 5 inches/minute bleed rate for hydraulic snubbers. Since that time all hydraulic snubbers tested have been functionally tested on a certified test bench capable of generating these test results.

F. PREVIOUS OCCURRENCES:

1. Non-reportable event (Station Deviation No. 12-3-86-09) on February 7, 1986

This event concerned the discovery of snubber #23 on the Dresden Unit 3 reactor water cleanup system [CE] to be outside the functional testing criteria of DTS 020-2. This snubber, a Bergen-Paterson hydraulic type HSSA10, also had elevated activation velocities and bleed rates, but analysis showed it to be within the appropriate operability criteria. The root cause was determined to be similar, in that testing methods at the time of installation were insufficient. The snubber was replaced with a Pacific Scientific PSA-10 mechanical type, which is not subject to this failure mode.

2. Reportable Event No. 84-22 on Docket 50-237, dated December 5, 1984

This event concerned the failure of three main steam line [SB] mechanical snubbers. The cause of these failures was attributed to condensation induced water hammer which occurred while performing a reactor vessel fast flood procedure. In order to prevent recurrence, the fast flood method is no longer used. This event was not reportable under the current 10 CFR 50.73 rules. However, since past events of this type were reportable and because of the interest in this issue shown by the NRC, it was submitted as a voluntary report.

G. COMPONENT FAILURE DATA:

Manufacturer: ITT Grinnel

Nomenclature: Snubber

Model Number: 2½" Bore, 5" Stroke

Mfg. Part No: N/A

Commonwealth Edison
Dresden Nuclear Power Station
R.R. #1
Morris, Illinois 60450
Telephone 815/942-2920

March 21, 1987

EDE LTR #87-172

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

Licensee Event Report #87-005-0, Docket #050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73 (a)(2)(ii)(B).

John W. Wujeiga

for E.D. Eenigenburg
Station Manager
Dresden Nuclear Power Station

EDE/kjl

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
File/NRC
File/Numerical

1/1
IE22