



**Commonwealth Edison**  
Dresden Nuclear Power Station  
6500 North Dresden Road  
Morris, Illinois 60450  
Telephone 815/942-2920

October 17, 1994

EDELTR 94-0041

TO: U.S. NUCLEAR REGULATORY COMMISSION  
Document Control Desk  
Washington, D. C. 20555

SUBJECT: LER 94-041, docket 50-237

Licensee Event Report 94-026, Docket 50-237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10CFR60.73a.

Sincerely,

  
E.D. Eenigenburg  
U2 Station Manager  
Dresden Station

EDE/ER:rmt

Enclosure

cc: J. Martin, Regional Administrator, Region III  
NRC Resident Inspector's Office  
File/  
File/Numerical

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**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 INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 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.

<b>FACILITY NAME (1)</b> Dresden Nuclear Power Station, Unit 2	<b>DOCKET NUMBER (2)</b> 05000237	<b>PAGE (3)</b> 1 OF 4
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**TITLE (4)**  
Main Steam Line Drain Piping Exceeding Code Allowable Stress Limits

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
09	19	94	94	-- 026 --	00	09	19	94	None	
									FACILITY NAME	DOCKET NUMBER

<b>OPERATING MODE (9)</b> N	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b>									
	20.2201(b)	20.2203(a)(3)(i)	50.73(a)(2)(iii)	73.71(b)						
	20.2203(a)(1)	20.2203(a)(3)(ii)	50.73(a)(2)(iv)	73.71(c)						
<b>POWER LEVEL (10)</b> 000	20.2203(a)(2)(i)	20.2203(a)(4)	X 50.73(a)(2)(v)	OTHER						
	20.2203(a)(2)(ii)	50.36(c)(1)	50.73(a)(2)(vii)	(Specify in Abstract below and in Text, NRC Form 366A)						
	20.2203(a)(2)(iii)	50.36(c)(2)	50.73(a)(2)(viii)(A)							
	20.2203(a)(2)(iv)	50.73(a)(2)(i)	50.73(a)(2)(viii)(B)							
	20.2203(a)(2)(v)	50.73(a)(2)(ii)	50.73(a)(2)(x)							

<b>LICENSEE CONTACT FOR THIS LER (12)</b>										
<b>NAME</b> Ed Rowley, Site Engineering & Construction Ext. 3287								<b>TELEPHONE NUMBER (Include Area Code)</b> (815) 942-2920		

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>SUPPLEMENTAL REPORT EXPECTED (14)</b>					<b>EXPECTED SUBMISSION DATE (15)</b>		<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO								

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

On September 19, 1994, during a Dresden Unit 2 maintenance outage, isometric drawings of the small bore, main steam drain lines were being developed as part of a design change to replace the main steam drain line containment isolation valves (2-220-1&2). This walk down identified that the four main steam drain lines inside the drywell did not contain thermal flexible loops. An analysis identified that the piping stresses exceeded allowable limits. This piping was field routed and supported in accordance with "Blume Curve" span criteria. This discrepant piping configuration is the result of an original design/construction error.

The immediate corrective action was to design thermal flexible loops for the four main steam drain lines in the drywell (P12-2-94-268). This design change, which includes changes to the support configuration, will be implemented before Unit 2 start up.

The Unit 3 main steam drain line piping contains thermal flexible loops. The stresses on this piping system were determined to be within code allowable limits.

The Quad Cities Station main steam drain line were reviewed as a result of this concern. It was determined that the existing configuration of the Quad Cities main steam line drains is adequate.

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

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Dresden Nuclear Power Station, Unit 2		05000237		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
				94	-- 026 --	00	

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

**EVENT IDENTIFICATION:**

Main Steam Line Drain Piping Exceeding Code Allowable Stress Limits.

**A. PLANT CONDITIONS PRIOR TO EVENT:**

Unit: 2                                      Event Date: 09/19/94      Event Time: 11:30  
 Reactor Mode: Shutdown      Mode Name: N/A                      Power Level: 0%  
 Reactor Coolant System Pressure: 0 psig

**B. DESCRIPTION OF EVENT:**

The Unit 2 main steam line drain containment isolation valves are being replaced as part of a Generic Letter 89-10 Program upgrade. This work is scheduled for the next Unit 2 refueling outage (D2R14). In order to develop the isometrics required for the piping analysis, a drywell walk down was scheduled during the Unit 2 maintenance outage to upgrade the Reactor Water Level Instrumentation System (RWLIS). On Friday, September 16th, the walk down identified that none of the four in-board main steam drain lines had thermal flexible loops. The piping analysis was completed on September 19th which showed the piping thermal and seismic stresses exceed UFSAR code allowable limits. A four hour NRC notification was made in accordance with 10CFR 50.72(b)(i).

Thermal flexible loops are needed to address the large thermal movements of the main steam lines. These flexible piping loops will be added to the main steam line drains to restore the piping system flexibility in such a way that it meets the original design criteria.

**C. CAUSE OF EVENT:**

Dresden piping systems were built to USAS B.31.1 Code 1967 Edition. Safety related large bore piping (greater than 4") was uniquely analyzed. The small bore safety related piping was field routed using "Blume Curve" span criteria. There was no unique piping analysis performed for the Unit 2 main steam drain line piping system.

The missing thermal flexible loops is an original plant construction problem resulting from a failure to follow the requirements of the Blume Curve span criteria.

**D. SAFETY ANALYSIS:**

Under worst case design basis conditions the Unit 2 main steam drain line piping would be over stressed. However, calculations show that it would not have failed. Therefore, the safety significance of this event is minimal.

Had the main steam line drain piping system failed, it would have created high drywell pressure which inputs to the reactor Protection System (RPS) as a LOCA signal. This small break LOCA event is bounded by the UFSAR analysis of Section 15.6.5 "Loss-of-Coolant Accidents Resulting from Piping Breaks Inside

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

Containment" and well within the capability of the Emergency Core Cooling Systems.

E. CORRECTIVE ACTIONS:

The immediate corrective action was to design thermal flexible loops for the four Unit 2 drywell main steam drain lines restoring the piping system flexibility in such a way that it meets the original design criteria (P12-2-94-268). This design includes changes to the support configuration as necessary and will be implemented prior to Unit 2 start up.

The Unit 3 main steam drain line piping contains thermal flexible loops. The Unit 3 main steam drain line containment isolation valves were replaced during the last refueling outage (D3R13). The unique piping analysis performed as a result of this design change shows piping and support stresses to be within code allowable limits.

Quad Cities Station was contacted to evaluate this concern. An assessment of the design has concluded that their existing configuration is adequate.

F. PREVIOUS OCCURRENCES:

<u>LER NUMBER</u>	<u>DOCKET NUMBER</u>	<u>TITLE</u>
Generic Letter 79-14		This program assured the adequacy of large bore safety related piping systems.
DVR-12-2-87-033		Pipe stresses on an Core Spray "A Loop" tee with piping stresses that exceed UFSAR allowable limits due to design and construction error.
DVR-12-2-88-034		Pipe stresses on the Diesel Generator air start piping with piping stresses that exceed UFSAR allowable limits due to design and construction error.
DVR-12-2-89-081		Pipe stresses on HPCI piping with stresses that exceed UFSAR allowable limits due to design and construction error.
DVR-12-2-90-064		Pipe stresses on an drywell sampling line with piping stresses that exceed UFSAR allowable limits due to design and construction error.
LER 2-92-29		Inaccurate technique for analyzing containment bellows
LER 94-2		Instrument penetration with piping stresses that exceed UFSAR allowable limits.

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

G. COMPONENT FAILURE DATA:

N/A