

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Duane Arnold Energy Center										DOCKET NUMBER (2) 0 5 0 0 0 3 3 1 1					PAGE (3) 1 OF 0 5								
TITLE (4) Indication of Weld Defects in Recirculation Piping																							
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 None				DOCKET NUMBER(S) 0 5 0 0 0										
0	3	1	0	8	5	8	5	0	1	0	0	1	0	5	2	0	8	5	0	5	0	0	0
OPERATING MODE (9) N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8: (Check one or more of the following) (11)																					
POWER LEVEL (10) 0 0 0		20.402(b)				20.405(e)				50.73(a)(2)(iv)				73.71(b)									
		20.405(a)(1)(i)				50.36(e)(1)				50.73(a)(2)(v)				73.71(c)									
		20.405(a)(1)(ii)				50.36(e)(2)				50.73(a)(2)(vi)				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)				50.73(a)(2)(ii)				50.73(a)(2)(vii)(B)													
		20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)													
LICENSEE CONTACT FOR THIS LER (12)																							
NAME Kenneth S. Putnam, Technical Support Engineer										TELEPHONE NUMBER 3 1 9 8 5 1 - 7 4 5 6													
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													
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)			MONTH	DAY	YEAR								
YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO <input type="checkbox"/>																							

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

During performance of In-Service Inspection and Induction Heat Stress Improvement of the Reactor Coolant Pressure Boundary Recirculation System (AD) piping at Duane Arnold Energy Center ultrasonic inspections revealed several welds in the Recirculation piping with circumferential and/or axial indications.

A total of eleven weld areas have been identified as containing indications of defects. All affected welds are being repaired with weld overlays.

8506050059 850520
PDR ADOCK 05000331
S PDR

IE22
1/1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1) Duane Arnold Energy Center	DOCKET NUMBER (2) 0 5 0 0 0 3 3 1 8 5	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		0 1 0	0 1	0 2	0 5		

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

In the scope of the Cycle 8 refuel outage, the Duane Arnold Energy Center is inspecting recirculation system primary piping welds. The process involves ultrasonic testing (UT) of 107 primary welds followed by Induction Heat Stress Improvement (IHSI). The welds are then reinspected visually and with ultrasonics.

On March 10, 1985 Duane Arnold Energy Center personnel were notified by the contracted inspectors that their evaluation of the initial test results for a weld on the upper end of the "D" riser of "B" Loop of Recirculation Piping had two axially oriented indications connected by a circumferentially oriented indication of a maximum length of 7/8 inch. The maximum through-wall depth was estimated to be approximately 60% and 13% respectively for the axial and circumferential indications.

Initial inspections also identified an indication of problems at the lower end of the "D" riser. After IHSI treatment, several other welds, predominately those near the o of the Recirculation piping risers, have exhibited indications that are now readily detectable as a result of the heat stress improvement process. o welds were visually detected to be weeping following IHSI treatment.

The evaluation of test results is continuing and specific plans for repair work are under development. This report will be updated with a supplemental report that will document the full extent of the problem and the repair work that is done.

(Supplemental Information Attached)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 9/31/95

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Duane Arnold Energy Center	0500033185	—	010	—	01	03 OF 05

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

The following supplemental information details specific information for the general problems identified in LER 85-010, Rev. 0. Ultrasonic testing of primary welds at the Duane Arnold Energy Center has been completed including appropriate Induction Heat Stress Improvement (IHSI) treatment and a second inspection with ultrasonics. The results of these inspections identify eleven weld areas with detectable defects. The specific locations and extent of these defects are detailed in the attached drawings.

A series of repair options were evaluated including immediate full replacement of affected piping, partial replacement, and weld overlay repair of all welds. The use of weld overlays on all eleven affected welds was chosen as it permits greatest flexibility in project planning times, permits greater material acquisition lead time, and is most efficient with regard to current personnel exposure and operation considerations.

Weld overlay repairs are currently in progress and are scheduled to be completed around the first of June.

With the exception of a previously undetected lamination in the lower portion of the 'D' riser piping (assumed to be an original manufacturing defect) the defects detected in this inspection are believed to be predominately the result of Intergranular Stress Corrosion Cracking (IGSCC). It is anticipated that the treatment of remaining primary piping welds with IHSI will prevent similar development of IGSCC in other areas of the primary system. With regard to the eleven (11) welds which currently are being repaired with the weld overlay process, all work is being done to optimize long-term quality of the repair. The long-term/permanent repair plans for the affected recirculation piping welds will be extensively analyzed during Cycle 8 of DAEC operation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

YEAR

SEQUENTIAL
NUMBERREVISION
NUMBER

Duane Arnold Energy Center

0 5 0 0 0 3 3 1 8 5 - 0 1 0 - 0 1 0 4 OF 0 5

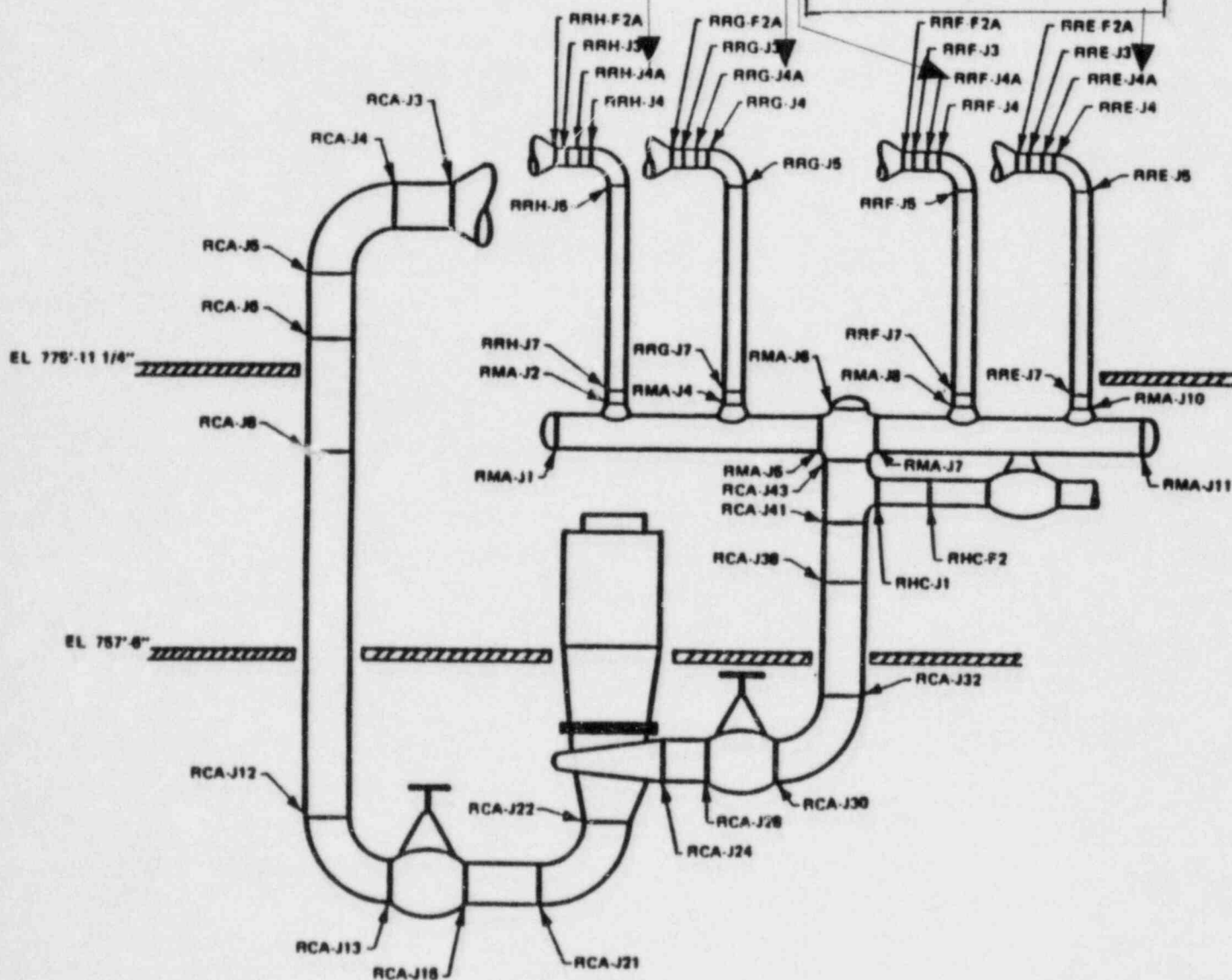
TEXT (If more space is required, use additional NRC Form 365A's) (17)

Two linear circumferential indications
74% and 70.6% through wall approximately
8" and 3" long respectively.

Linear indication maximum
depth 82.5% through wall
approximately 2" long.

Linear circumferential indication
67.9% through wall 2-1/8 inches long

Linear circumferential
indication with maximum
throughwall depth 57%
3-1/8" long.



REACTOR RECIRCULATION SYSTEM
LOOP A - DUANE ARNOLD ENERGY CENTER

PAGE (3)

0	5	0	0	0	3	3	1	8	5	-	0	1	0	-	0	1	0	5	OF	0	5
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	---	---

NHC FORM 386A
(9-83)

Iowa Electric Light and Power Company

May 21, 1985
DAEC-85- 0421

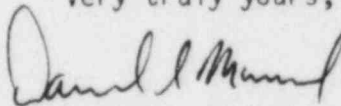
U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Subject: Duane Arnold Energy Center
Docket No. 50-331
Op. License DPR-49
Licensee Event Report No. 85-010, Rev. 1

Gentlemen:

In accordance with 10 CFR 50.73 please find attached a copy of the
subject Licensee Event Report.

Very truly yours,



Daniel L. Mineck
Plant Superintendent - Nuclear
Duane Arnold Energy Center

DLM/KSP/kp

attachment

cc: Mr. James G. Keppler
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

NRC Resident Inspector - DAEC

File A-118a

LE22
1/1

May 21, 1985

TO:	L. Liu	K. Howard
	S. Tuthill	Operations Shift Supervisors
	R. McGaughy	DAEC Supervision - Routing Slip
	E. Root (Safety Committee)	STA Coordinator
	E. Matthews	INPO
	P. Ward	R. Salmon
	H. Rehrauer	T. Dalton
	D. Wilson	R. Lessly
	R. Hannen	P. Seckman
	K. Young	DAEC Commitment Control
	G. VanMiddlesworth	

FROM: D. Mineck
Plant Superintendent - Nuclear

FILE: A-118a

Please find attached one copy of a Licensee Event Report
that has been transmitted to the NRC.

Unique Report No.

Reportable Occurrence Report No. 85-010, Rev. 1

Notification Letter No. DAEC-85-0421

kp*