

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8706180046 DOC. DATE: 87/06/16 NOTARIZED: NO DOCKET #  
 FACIL: 50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331  
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 HANNEN, R. L. Iowa Electric Light & Power Co.  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-014-00: on 870514, Groups II, III & IV isolations & standby gas treatment initiation occurred. Caused by inadequate premainenance review. Piping & instrument diagram will be revised. Personnel counseled. W/870616 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5pp  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

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	NRR/DREP/RPB	2 2	NRR/PMAS/ILRB	1 1
	NRR/PMAS/PTSB	1 1	REG FILE 02	1 1
	RES DEPY GI	1 1	REG3 FILE 01	1 1
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	1 1	NRC PDR	1 1
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TOTAL NUMBER OF COPIES REQUIRED: LTR 42 ENCL 40

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Duane Arnold Energy Center (DAEC)</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 3 3 1</b>	PAGE (3) <b>1 OF 0 4</b>
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TITLE (4)  
**Groups II, III, and IV Isolations Due to Inadequate Pre-Maintenance Review**

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		
<b>0 5</b>	<b>1 4</b>	<b>8 7</b>	<b>8 7</b>	<b>0 1 4</b>	<b>0 0</b>	<b>0 6</b>	<b>1 6</b>	<b>8 7</b>	DOCKET NUMBER(S) <b>0 5 0 0 0</b>		

OPERATING MODE (9) <b>N</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) <b>0 1 0 0</b>	20.402(b)	20.406(c)	<input checked="" type="checkbox"/>	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)(iii)	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)	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)(ix)							

LICENSEE CONTACT FOR THIS LER (12)									
NAME <b>Bradford N. Thomas, Technical Support Engineer</b>							TELEPHONE NUMBER		
							AREA CODE		
							<b>3 1 1 9 8 5 1 1 - 7 3 0 9</b>		

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>A</b>	<b>JIB</b>			<b>NO</b>							

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

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

On May 14, 1987 at 2254 hours with the plant shutdown for the Cycle 8/9 refuel outage, and approximately 20% of the core reloaded, Groups II, III, and IV isolations, and Standby Gas Treatment (SBGT) initiation occurred during planned maintenance on the Feedwater Control GEMAC level transmitters. A low reactor water level signal was received when operations personnel attempted to valve out and drain the high side of the reference leg to the GEMAC level transmitters. The low side of YARWAY and BARTON level switches share the same instrument line as the highside of the GEMAC level transmitters. This is not readily apparent on the Piping and Instrument Drawing.

The Operations Shift Supervisor immediately stopped work until further review was completed and jumpers installed to alleviate any further system trips. Maintenance activities were completed on May 22, 1987.

The root cause of the event was personnel error. This was due to a lack of understanding of the relative configuration of the level transmitters. At 2302 hours the isolations were reset, SBGT was secured, and shutdown cooling was returned to service. As corrective actions, the Piping and Instrument Diagram will be revised in order to alert personnel to this unique level transmitter and level switch configuration, and the GEMAC high and low pressure isolation valves will be labeled in the field. In addition, Maintenance and Operations personnel will also be required to read this LER to stress the importance of accurate pre-work reviews.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv). *DE 22*

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2)  0   5   0   0   0   3   3   1	LER NUMBER (6)			PAGE (3)		
		YEAR 8   7	SEQUENTIAL NUMBER -   0   1   4	REVISION NUMBER -   0   0			

TEXT (if more space is required, use additional NRC Form 308A's) (17)

On May 14, 1987 at 2254 hours with the plant shut down for the cycle 8/9 refuel outage and approximately 20% of the core reloaded, Groups II, III, and IV isolations, and Standby Gas Treatment (SBGT) (EIS System Code Identifier BH) initiation occurred during planned maintenance work on the high side rack shutoff valve for the Feedwater Control (JB) GEMAC level transmitters (JB-LT-4559, & JB-LT-4561). The intention was to drain off the high side of the reference leg to the GEMAC transmitters. The draining of the high side of the transmitters has no effect on any system trips. The Reactor Protection System (RPS, JC) received a low reactor water level signal (170 inches above top of active fuel (TAF)) when operations personnel attempted to drain the high side reference leg of the GEMAC level transmitters. GEMAC level transmitters (LT-4559 and LT-4561), Narrow Range YARWAY level switch (LIS-4561), and Narrow Range BARTON level switches (LIS-4592A, & LIS-4592B) share a common instrument line (see figure 1). Isolation and draining of the high side of the narrow range GEMAC level transmitters also effects the low side of the YARWAY and BARTON level switches. LT-4559 and LT-4561 are installed in a transposed configuration in comparison with LIS-4592A, LIS-4592B, and LIS-4561, i.e., the high and low pressure taps are reversed. This unique equipment configuration is not readily apparent on the applicable Piping and Instrument Diagram (P&ID, M-115), and upon draining of the intended high side of the GEMAC transmitter, the low side of the BARTON and YARWAY switches were also drained. Hence, this caused a low reactor water level (170 inches above TAF) signal to be received, and Group II through IV isolations, and SBGT system initiation. Group V valves were tagged out at the time of the event so isolation of these valves did not take place.

The Operations Shift Supervisor immediately stopped work until adequate review was completed and jumpers installed to prevent any further inadvertent RPS trips.

At 2302 hours all Group isolations were reset, SGBT was secured, and the Shutdown Cooling mode of the Residual Heat Removal (RHR) system was returned to service.

The intermediate cause of the event was the uniqueness of the equipment installation and lack of detail on P&ID M-115.

The root cause of the event was determined to be personnel error. Utility licensed operations personnel and contract maintenance personnel did not fully understand the relative configuration of the level transmitters. The effects of the isolation and draining the low pressure side of the YARWAY and BARTON level switches were known but not identified since the P&ID did not identify the unique installation of the GEMAC Transmitters.

On May 15, 1987 after installation of the jumpers, maintenance activities were completed on the GEMAC level transmitters. Following maintenance on May 22, 1987, all effected instruments were returned to service per the applicable operating instruction.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2)  0   5   0   0   0   3   3   1	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8   7	-   0   1   4	-   0   0	0   3	OF	0   4

TEXT (If more space is required, use additional NRC Form 388A's) (17)

As immediate corrective actions, the Operations Supervisor alerted operations personnel and the training department to this unique equipment configuration (GEMAC high-low vs YARWAY & BARTON low-high). As additional corrective actions, P&ID M-115 is being revised to include a high and low insignia to be placed next to the transmitters and level switches in question, also the GEMAC transmitters high pressure and low pressure isolation valves will be labeled in the field during the on-going equipment labeling project. In addition, maintenance and operations personnel will be required to read this LER to stress the importance of accurate Corrective Maintenance Action Request (CMAR) pre-work reviews.

As all systems responded as designed during this event, the safe operation of the plant was not compromised.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2)  05000331	LER NUMBER (8)			PAGE (3)	
		YEAR 87	SEQUENTIAL NUMBER 014	REVISION NUMBER 00	04	OF 04

TEXT IF more space is required, use additional NRC Form 388A-1 (17)

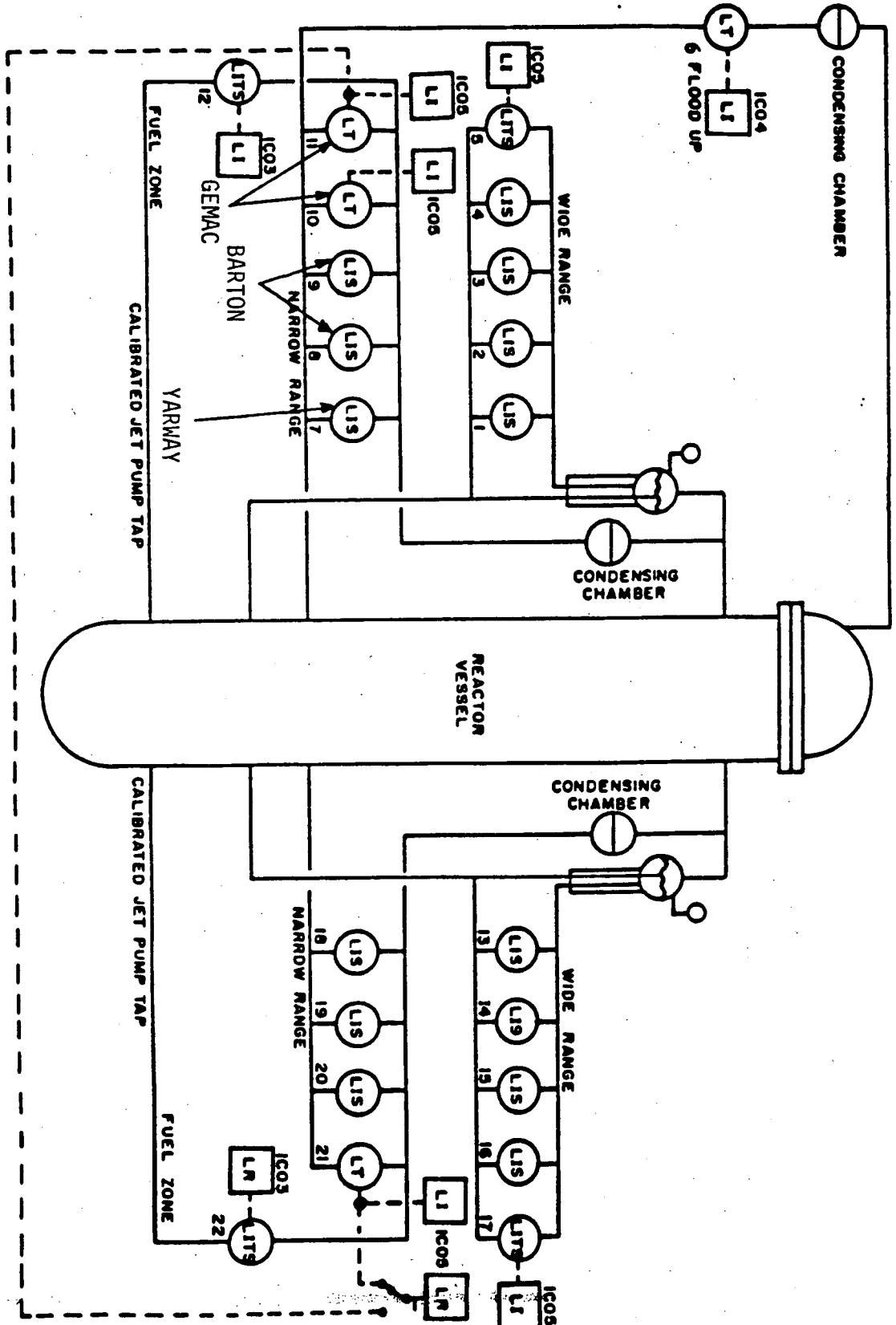


FIGURE 1  
Level Instrumentation Simplified Diagram

Iowa Electric Light and Power Company

June 16, 1987  
DAEC-87-0713

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

Subject: Duane Arnold Energy Center  
Docket No. 50-331  
Op. License DPR-49  
Licensee Event Report No. 87-014

Gentlemen:

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

Very truly yours,

  
Rick L. Hannen  
Plant Superintendent - Nuclear

RLH/JCT/go

Attachment - LER 87-014

cc: Mr. A. Bert Davis  
Regional Administrator  
Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, IL 60137

NRC Resident Inspector - DAEC

File A-118a

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