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)
Duane Arnold Energy Center	0 5 0 0 0 3 3 1	1 OF 0 2

TITLE (4)
H & V Damper Actuators Documentation 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 NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
0 1	2 6	8 4	8 4	0 0 6	0 1	0 5	1 5	8 4		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)		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)	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
	AREA CODE
Wendell Keith - Technical Support Engineer	3 1 9 — 8 5 1 - 7 3 3 9

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)		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)

By letters dated January 27, 1984 (NG-84-0436) and January 30, 1984 (NG-84-0451), Iowa Electric provided written notification to the NRC that certain ventilation damper actuators were potentially deficient in meeting our purchase specifications. Specifically, actuators manufactured by Hills McCanna procured thru our original damper vendor, and replacement actuators procured directly from Hills McCanna appear to have been manufactured without the manufacturer having an acceptable quality assurance program. These actuators are used in various secondary containment and control room habitability ventilation systems at DAEC. Past actuator performance and redundant damper actuators in all applications provide reasonable assurance of acceptable actuator performance pending resolution of documentation decrepancies. Engineering activities are continuing.

As of April 30, 1984, the engineering evaluations concerning these actuators have been completed. Seismic calculations have been performed which have qualified the actuators for service in safety related systems. This concludes the work on the deficiencies described above.

IE22

NRC Form 366
(9-83)

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

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

As noted in the above abstract, Iowa Electric provided written notification to the NRC on January 27 and 30, 1984 of quality assurance documentation deficiencies for ventilation damper actuators manufactured by Hills McCanna. The lack of adequate documentation was identified during a quality assurance audit of Hills McCanna. A subsequent audit of the primary vendor from which we procured original plant dampers, and who in turn used Hills McCanna as a sub vendor for actuators, was unable to demonstrate original actuators were manufactored under an acceptable quality assurance program.

The actuators in question are used in secondary containment and control room habitability ventilation systems (EIIS Systems VA and VI). There are 28 damper actuators at DAEC for which quality assurance documentation may be inadequate. By May 1, 1984 we intend to complete our evaluation and resolution of our concerns regarding adaquacy of qualification. It is our further intent to either demonstrate adaquate qualification of these actuators or to provide replacement prior to startup from our cycle 8 refueling outage, currently scheduled for the Fall of 1984.

Our engineering evaluations are continuing. The subject actuators are in all cases installed in redundant pairs along with their respective dampers. Failure of any one damper or several dampers is of no safety consequence as long as one of the two series dampers function. Further, engineering calculations performed to date have demonstrated substantial structual margin. Additional calculations are continuing in an attempt to fully qualify the installed actuators.

An updated LER on the status of these efforts will be provided by May 15, 1984.

As of April 30, 1984, our engineering evaluations have been completed as follows. The specific documentation in question was the seismic qualification of the actuators. The dampers had been seismically qualified to handle the weight of the actuators. However, insufficient documentation existed to demonstrate that the actuators were qualified to be operable after a seismic event. It was decided to first perform calculations to determine whether the existing actuators meet acceptable seismic criteria. If so, the actuators could be upgraded to quality Level I in accordance with Iowa Electric Quality Assurance Manual and would not require replacement.

Five models of the Hills-McCanna actuators were identified as being installed as secondary containment isolation dampers at the Duane Arnold Energy Center. The critical components of the actuators were identified. The static seismic coefficients were determined at the highest installed elevation for each of the five actuator models. The horizontal coefficient, which is always the largest, was then applied to all three axes of each actuator model to be conservative. The maximum seismic stresses were calculated for each critical component and for any component interfacing with a critical component. It was required that the sum of the maximum seismic stresses plus normal operating stresses not exceed 90% of the material yield stress. The highest stress calculated by this method was approximately 70% of the material allowable stress. All five actuator models in use meet this seismic criteria and are now seismically qualified. The engineering calculations described above are available for review at Iowa Electric.

The actuators have now been qualified by the calculations described above as acceptable for use in a safety related system. This concludes our action on these actuators.

DMB

Iowa Electric Light and Power Company
May 15, 1984
DAEC-84-300

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. 84-006-01

Gentlemen:

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

Very truly yours,

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

DLM/WRK/pv

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

MAY 17 1984

IE22