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FACIL: 50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow      05000331  
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RECIP. NAME      RECIPIENT AFFILIATION  
Office of Nuclear Reactor Regulation, Director (Post 870411)

SUBJECT: Forwards Relief Request VR-017 re testing of fail-safe  
actuators in solenoid & air-operated valves by observing  
operation of valves upon loss of actuator power, per NRC SER  
re util response to Generic Ltr 89-04.

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Iowa Electric Light and Power Company

June 30, 1992  
NG-92-2967

JOHN F. FRANZ, JR.  
VICE PRESIDENT, NUCLEAR

Dr. Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, DC 20555

Subject: Duane Arnold Energy Center  
Docket No: 50-331  
Op. License No: DPR-49  
Response to NRC Generic Letter 89-04,  
"Guidance on Developing Acceptable  
Inservice Testing Programs"

Reference: 1) Letter from D. Mineck (Iowa  
Electric) to T. Murley (NRC) dated  
October 15, 1990 (NG-90-2454)  
2) Letter from J. Hannon (NRC) to  
L. Liu (Iowa Electric) dated  
March 11, 1992;  
Subject: Duane Arnold Energy  
Center - Second 10-Year Inservice  
Testing (IST) Program, Revision 9  
(TAC No. M76095)

File: A-101b, A-286e

Dear Dr. Murley:

Revision 9 of the Duane Arnold Energy Center (DAEC) Inservice Testing (IST) Program was submitted on January 5, 1990, in response to NRC Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs." Relief Request VR-017 was subsequently revised and resubmitted in response to NRC comments (Reference 1).

In the Safety Evaluation (SE) for the DAEC IST Program, the NRC granted partial relief with regard to VR-017 (Reference 2). Relief was granted for all valves with the exception of the Main Steam Isolation Valves (MSIVs), Control Rod Drive (CRD) valves, and service water valves. The SE requested that Iowa Electric review its testing methods for these valves. We have reviewed our testing and have revised Relief Request VR-017 accordingly (Attachment). The changes to VR-017 are denoted by revision bars. River water valves CV-4909, CV-4914 and CV-4915 are excluded from this relief request as these valves are tested on a quarterly basis.

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Dr. Thomas E. Murley  
June 30, 1992  
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Should you have any questions regarding this matter, please  
contact this office.

Very truly yours,



John F. Franz, Jr.  
Vice President, Nuclear

JFF/CJR/pjv~

Attachment: Relief Request No. VR-017

cc: C. Rushworth  
L. Liu  
L. Root  
R. McGaughy  
C. Shiraki (NRC-NRR)  
A. Bert Davis (Region III)  
NRC Resident Office  
Commitment Control No. 920056  
DCRC

RELIEF REQUEST NO. VR-017

SYSTEM:

All Systems

COMPONENTS:

All solenoid and air operated valves equipped to fail open or closed.

Note: There are no other valve operator types with fail safe requirements.

CATEGORY:

A and B

FUNCTION:

Upon loss of actuator power (electrical or pneumatic), the valve must stroke to its fail-safe position.

TEST REQUIREMENTS:

When practical, valves with fail-safe actuators shall be tested by observing the operation of the valves upon loss of actuator power. (IWV-3415)

BASIS FOR RELIEF:

Solenoid valves which control the air supply to air-operated valves and direct solenoid-operated valves must stroke to their fail-safe position upon interruption of their electric power or air supply. (FST)

De-energizing the solenoid valve has the same effect as loss of electrical power or loss of control air. Therefore, stroking the valve from the Control Room (BTO, BTC) to its fail-safe position constitutes a fail-safe test for most valves.

ALTERNATE TESTING:

For most configurations, normal stroking (BTO, BTC), to the fail-safe position of valves equipped to fail open or closed constitutes an FST. No additional testing of these valves is necessary.

RELIEF REQUEST NO. VR-017 (Continued)

Where complicated fail safe configurations exist, or where test solenoids are provided, a separate fail safe test, utilizing the proper solenoids and/or methods are used to verify true fail safe operation. The following valves are tested to their fail safe position by means other than normal stroking.

MSIVs - CV-4412, CV-4413, CV-4415, CV-4416, CV-4418, CV-4419, CV-4420, CV-4421

These valves have two fail-safe modes. The first is loss of electrical supply. This mode can be tested on line by normal closure of the MSIVs. The closure signal deenergizes the solenoid valves which control the actuator air-valves. This fail-safe mode is tested on a quarterly basis and during startup from an outage/shutdown.

The second fail-safe is on loss of nitrogen supply to the actuator. In this case the nitrogen being supplied to the underside of the actuator piston, which keeps the valve open, is exhausted to atmosphere upon a failure of the supply system. The rate of closure will be in 3 to 5 seconds, after the nitrogen pressure has decayed to the point at which the air-valves will reposition (internal spring force has overcome the pneumatic force). A test which closes the valve 10% is performed monthly and a test which closes the valve full close is performed every refuel outage.

CRD - CV-1849, CV-1850

These valves are tested for its fail-safe position on a full SCRAM signal during the SCRAM insertion time test every refuel outage. The appropriate solenoids SV-1855(CRD #) and SV-1856(CRD #) are energized which will allow CV-1849 and CV-1850 to fail open.