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 MINECK,D.L. Iowa Electric Light & Power Co.
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 MURLEY,T.E. Office of Nuclear Reactor Regulation, Director (Post 870411

SUBJECT: Submits revised ASME IST relief requests PR-013,VR-007 &
 VR-051 re response to Generic Ltr 89-04, "Guidance on
 Development Acceptable Inservice Testing Programs."

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Iowa Electric Light and Power Company

December 31, 1990
NG-90-3061

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: Letter from D. Mineck (Iowa Electric) to
T. Murley (NRC) dated October 15, 1990
(NG-90-2454)
File: A-101b, A-286e

Dear Dr. Murley:

The referenced letter transmitted revised relief requests for the Duane Arnold Energy Center (DAEC) Inservice Testing (IST) Program. In the letter we also agreed to revise and resubmit ASME IST Relief Requests PR-013, VR-007, and VR-051. The attachment contains these revised relief requests.

Should you have any additional questions or concerns regarding this submittal, please contact this office.

Very truly yours,



for Daniel L. Mineck
Manager, Nuclear Division

DLM/CJR/pjv+

Attachment: Duane Arnold Energy Center IST Program Relief Requests

cc: C. Rushworth
L. Liu
L. Root
R. McGaughy
S. Sands (NRC-NRR)
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NRC Resident Office
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9101090256 901231
PDR ADOCK 05000331
P FDR

**DUANE ARNOLD ENERGY CENTER
IST PROGRAM RELIEF REQUESTS**

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RELIEF REQUEST NO. PR-013

PUMP NUMBER:

<u>System</u>	<u>Pump number</u>
Reactor Core Isolation Cooling	1P-226
River Water Supply	1P-117A, 1P-117B, 1P-117C, 1P-117D
Diesel Fuel Oil Transfer	1P-44A, 1P-44B
Standby Liquid Control	1P-230A, 1P-230B

SECTION XI REQUIREMENT:

The allowable ranges of inservice test quantities in relation to the reference values are tabulated in Table IWP-3100-2 (IWP-3210). This table limits the acceptable performance of each pump dependent variable (flowrate or differential pressure) to a percentage of the respective reference value. Specifically, 102 percent for alert status requiring increased frequency of testing and to a maximum of 103 percent for pump operability. If the test parameter should exceed this limit, it shall be declared inoperative and removed from service. (IWP-3200)

BASIS FOR RELIEF:

An analysis of the dependent variable for each of the systems is provided in the following paragraphs. The limits identified under "Alternate Testing" will provide adequate detection of pump degradation without unnecessarily causing safety systems to be declared inoperable.

Reactor Core Isolation Cooling

For test results spanning the last four years, over one third of the tests would have been in either the alert status or required action range if the tests had been evaluated using the Code tolerances. Based on a comprehensive review of the test results, the variation in test results is due to data scatter. Detailed evaluations have determined that the pump has always been capable of performing its safety function.

River Water Supply, Diesel Fuel Oil, Standby Liquid Control

Due to the small values of the dependent variable for these pumps, the Code allowed ranges are a fractional value of 1 psi or 1 gpm. Deviation from the reference value of 2 percent (alert range) or 3 percent (pump inoperability) is not necessarily indicative of pump degradation.

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RELIEF REQUEST NO. PR-013 (cont.)

From a review of pump performance test results spanning the last four years, normal data scatter, while less than two whole units of measure, has frequently exceeded or nearly exceeded the Code tolerances.

Note: The test instrumentation used exceeds the code required accuracy so that small changes can be detected. Use of instrumentation of the Code specified accuracy would not be capable of reliably detecting these small changes.

River Water Supply

These pumps are the most erratic performers in terms of IST results. Some of the significant data scatter problems associated with the River Water pumps are caused by the manner in which they were previously tested. Specifically, these pumps are not operated continuously and are subject to silt buildup around the base of the pump. When started for surveillance testing, the silt buildup is picked up by the pump and may cause performance anomalies if the pump is not allowed to run for a reasonable time period before test data is recorded.

Two actions are currently underway to mitigate the effects of silt buildup on the pump surveillance test results. The first action is a revision to the STP to require that the pump be run for at least 30 minutes prior to recording test data. This will allow the silt buildup to be dispersed and the pump performance to stabilize. The second action involves the installation of vanes in the river bed to reduce the silt problems in front of and within the intake structure. When sufficient performance test data has been obtained, these pumps and their acceptance criteria will be re-evaluated.

Additionally, due to their harsh operating environment, these pumps are in a preventative maintenance program which will require each pump to be pulled, inspected and refurbished/rebuilt or replaced approximately every four years. Therefore, on the average, one pump will be inspected each year.

ALTERNATE TESTING:

These pumps will be tested in accordance with Subsection IWP with the following exceptions:

- a) The upper alert range will be represented by values greater than 103 percent and less than 105 percent of the reference value for the test parameters of flow rate and differential pressure.
- b) The upper required action range will be represented by values greater than 105 percent of the reference value for the test parameters of flow rate and differential pressure.

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RELIEF REQUEST NO. VR-007

SYSTEM:

DIESEL GENERATOR

COMPONENTS:

SV-3261A, SV-3261B
SV-3262A, SV-3262B

CATEGORY:

B

FUNCTION:

These valves are the air start solenoid valves for the A and B Standby Diesel Generators. When the start sequence for the diesel generators is initiated, these valves open to allow pressurized air stored in air receivers to charge the diesel generator air start headers.

TEST REQUIREMENT:

Measure power operated valve stroke times and take corrective action. IWV-3413, IWV-3417

BASIS FOR RELIEF:

Relief is requested from the stroke time requirements of Section XI. It is impractical to measure the stroke time of the air start valves directly, since there is no visible stem movement and the valves have no position indicators.

ALTERNATE TESTING:

Starting the Standby Emergency Diesel Generators using the air start system will be considered demonstration of proper operation of the air start solenoids. Therefore, the air start solenoids will be tested when the diesel generators are tested in accordance with Technical Specification 4.8.A.1.a.1. Technical Specification section 4.8.A.1.a.1 states that the diesel generators shall be manually started once each month. During monthly testing, the DC air start train is isolated and the diesel is started using the AC train only. However, no stroke time measurement is taken during this test. Quarterly testing exercises the DC train in a similar manner. Once every six months, the diesel generator is "cold-fast" started, during which time the DC train valve stroke time is indirectly measured by ensuring that the diesel starts within Technical Specification limits. Because the stroke time is indirectly measured, the corrective action requirements of IWV-3417 will not be implemented.

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RELIEF REQUEST NO. VR-007 (Continued)

Additionally, efforts are being made to procure replacement valves and spare parts by the end of 1991. When spares are available the solenoid valves will be periodically replaced or refurbished under DAEC's Maintenance Program for Solenoid Valves.

DUANE ARNOLD ENERGY CENTER
IST PROGRAM RELIEF REQUESTS

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RELIEF REQUEST NO. VR-051

SYSTEM:

Various

COMPONENTS AND FUNCTION:

* V-22-0064, V-22-0063, V-24-0046, V-24-0047
These HPCI/RCIC Vacuum Breaker Check Valves open to prevent syphoning of torus water into the HPCI/RCIC exhaust lines.

V-22-0021, V-22-0028, V-22-0029, V-24-0012
The first valve of this group routes HPCI exhaust drainpot drain condensate to the torus. The other three provide a path for HPCI/RCIC lube oil cooling.

V-22-0022 HPCI exhaust drainpot drain check valve supports normal operation of HPCI.

V-24-0009 RCIC Barometric Condenser check valve supports normal operation of RCIC.

V-24-0010 RCIC Barometric Condenser check valve supports normal operation of RCIC.

V-25-0006 RCIC Minimum flow line check valve.

* V-23-0014 HPCI Minimum flow line check valve.

V-20-0006, V-20-0008, V-19-0014, V-19-0016
These minimum flow check valves are on the RHR pump discharge bypass lines and must open to provide adequate minimum flow to prevent pump overheating.

V-21-0009, V-21-0012 Core Spray minimum flow line check valves.

CATEGORY:

C

TEST REQUIREMENT:

Check valves shall be exercised to the positions in which they perform their safety functions at least every 3 months. (IWV-3521, IWV-3522(a), IWV-3522(b))

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RELIEF REQUEST NO. VR-051 (Continued)

BASIS FOR RELIEF:

Verification of maximum accident required flow to verify stroke-open position is not possible without extensive equipment modification. Disassembly and inspection of these valves, either quarterly during operation or during cold shutdown, would require major system operating restrictions.

ALTERNATE TESTING:

All valves, except those indicated by an asterisk (*), will be partial stroke tested by performance of the respective quarterly system surveillance. The asterisked (*) valves have no means to verify partial stroking during performance of quarterly system surveillance testing.

The group of valves, indicated by an asterisk, are sized for maintaining a specific differential pressure rather than a specified flow so that full flow testing is not possible. For valve V-23-014, the HPCI system response time to attain 3000 gpm is less than 25 seconds and thus does not provide sufficient time to verify operation of this minimum flow check valve before MO-2318, minimum flow line isolation, closes.

During refuel outages each of the individually listed valves will be disassembled and inspected in accordance with the requirements of USNRC Generic Letter 89-04 for full stroke operability. One valve of each group of identical valves in similar applications will be disassembled and inspected (in rotation) each refueling outage. With eighteen month refueling cycles, all valves in a group of four would be tested approximately every six years. Disassembled valves will be part-stroke exercised and/or reverse flow tested prior to returning them to service following reassembly as indicated in Table 1, which is a summary of the program requirements and the testing that will be performed on each valve.

The use of non-intrusive testing equipment commercially available has been evaluated and a system was found that promises acceptable results. Procurement efforts are under way and implementation of a program using this system will begin by the end of 1991. Upon satisfactory implementation of the program, the current disassembly and inspection program may be phased out.

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RELIEF REQUEST NO. VR-051 (Continued)

TABLE 1

VALVE NO.	CODE REQUIRED	POSSIBLE TESTING QUARTERLY	TESTING COLD SHTDN	TESTING AFTER DISASSEMBLY & INSP.
V-19-014	CT-CC, CT-CO	CT-CC, CT-PO	N/A	CT-CC, CT-PO (2)
V-19-016	CT-CC, CT-CO	CT-CC, CT-PO	N/A	CT-CC, CT-PO (2)
V-20-006	CT-CC, CT-CO	CT-CC, CT-PO	N/A	CT-CC, CT-PO (1,2)
V-20-008	CT-CC, CT-CO	CT-CC, CT-PO	N/A	CT-CC, CT-PO (2)
V-21-009	CT-CO	CT-PO	N/A	CT-PO (2)
V-21-012	CT-CO	CT-PO	N/A	CT-PO (2)
V-22-021	CT-CC, CT-CO AT-03	CT-PO	CT-CC	AT-03, CT-PO (1)
V-22-022	CT-CC, CT-CO AT-03	CT-PO	CT-CC	AT-03, CT-PO (1)
V-22-028	CT-CO	CT-PO	N/A	CT-PO
V-22-029	CT-CO	CT-PO	N/A	CT-PO
V-22-063	CT-CC, CT-CO AT-03	N/A	CT-CC, CT-PO	AT-03, CT-PO (1)
V-22-064	CT-CC, CT-CO AT-03	N/A	CT-CC, CT-PO	AT-03, CT-PO (1)
V-23-014	CT-CO	N/A	N/A	NONE
V-24-009	CT-CC, CT-CO	CT-PO	N/A	CT-PO (1)
V-24-010	CT-CC, CT-CO	CT-PO	N/A	CT-PO (1)
V-24-012	CT-CC, CT-CO	CT-PO	N/A	CT-PO
V-24-046	CT-CC, CT-CO AT-03	N/A	CT-CC, CT-PO	AT-03, CT-PO (1)
V-24-047	CT-CC, CT-CO AT-03	N/A	CT-CC, CT-PO	AT-03, CT-PO (1)
V-25-006	CT-CO	N/A	N/A	NONE (1,2)

LEGEND: CT-CC Full exercise closed
CT-CO Full exercise open
CT-PO Partial exercise open
AT-03 Seat leakage test performed during refuel outages

NOTES: 1) These valves were disassembled and inspected during the 1990 refuel outage under the check valve maintenance program. All were found to be in good condition.

2) The use of ultrasonic flowmeters to determine flow is being evaluated and if flow measurements are acceptable, disassembly and inspection of these valves may be discontinued.