

May 18, 1995

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Mr. Lee Liu  
 Chairman of the Board and  
 Chief Executive Officer  
 IES Utilities Inc.  
 Post Office Box 351  
 Cedar Rapids, IA 52406

SUBJECT: AMENDMENT NO. 210 TO FACILITY OPERATING LICENSE NO. DPR-49 - DUANE  
 ARNOLD ENERGY CENTER (TAC NO. M91723)

Dear Mr. Liu:

The Commission has issued the enclosed Amendment No. 210 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center (DAEC). This amendment consists of changes to the Technical Specifications in response to your application dated March 1, 1995.

The amendment revises the surveillance criteria from every three months to the testing frequency specified by the DAEC Inservice Testing (IST) program for the testing of certain pumps and valves in the Low Pressure Coolant Injection (LPCI) subsystem; the Core Spray subsystems; and the Residual Heat Removal (RHR) Service Water, High Pressure Coolant Injection (HPCI), Emergency Service Water (ESW), and River Water Supply systems.

A copy of the related Safety Evaluation is also enclosed. Notice of issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

Glenn B. Kelly, Project Manager  
 Project Directorate III-3  
 Division of Reactor Projects III/IV  
 Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures: 1. Amendment No. 210 to License No. DPR-49  
 2. Safety Evaluation  
 cc w/encls: See next page

DOCUMENT NAME: G:\DUANEARN\DUA91723.AMD

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NAME	DFoster-Curseen		GKelly		RWessman		EBolton	GMancus	
DATE	4/27/95		4/27/95		5/15/95		5/13/95	5/18/95	

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 18, 1995

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Chairman of the Board and  
Chief Executive Officer  
IES Utilities Inc.  
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A copy of the Safety Evaluation is also enclosed. Notice of issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

A handwritten signature in cursive script that reads "Glenn B. Kelly".

Glenn B. Kelly, Project Manager  
Project Directorate III-3  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures: 1. Amendment No. 210 to  
License No. DPR-49  
2. Safety Evaluation

cc w/encls: See next page

Mr. Lee Liu  
IES Utilities Inc.

Duane Arnold Energy Center

cc:

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

IES UTILITIES INC.

CENTRAL IOWA POWER COOPERATIVE

CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 210  
License No. DPR-49

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by IES Utilities Inc., et al., dated March 1, 1995, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-49 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 210, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of the date of issuance and shall be implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*for Jon B. Toplis*

Gail H. Marcus, Project Director  
Project Directorate III-3  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of issuance: May 18, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 210

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by vertical lines.

Remove

3.5-1  
3.5-3  
3.5-5  
3.5-6  
3.5-12  
3.5-23  
3.8-6

Insert

3.5-1  
3.5-3  
3.5-5  
3.5-6  
3.5-12  
3.5-23  
3.8-6

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT								
<p>3.5 CORE AND CONTAINMENT COOLING SYSTEMS</p> <p><u>Applicability:</u></p> <p>Applies to the operational status of the core and suppression pool cooling subsystems.</p> <p><u>Objective:</u></p> <p>To assure the operability of the core and suppression pool cooling subsystems under all conditions for which this cooling capability is an essential response.</p> <p><u>Specification:</u></p> <p>A. <u>Core Spray and LPCI Subsystems</u></p> <p>1. Both core spray subsystems shall be OPERABLE whenever irradiated fuel is in the vessel and prior to reactor startup from a COLD CONDITION, except as specified in 3.5.A.2 and 3.5.G.3 below.</p>	<p>4.5 CORE AND CONTAINMENT COOLING SYSTEMS</p> <p><u>Applicability:</u></p> <p>Applies to the Surveillance Requirements of the core and suppression pool cooling subsystems which are required when the corresponding Limiting Condition for Operation is in effect.</p> <p><u>Objective:</u></p> <p>To verify the operability of the core and suppression pool cooling subsystems under all conditions for which this cooling capability is an essential response to station abnormalities.</p> <p><u>Specification:</u></p> <p>A. <u>Core Spray and LPCI Subsystems</u></p> <p>1. Core Spray Subsystem Testing.</p> <table border="1" data-bbox="932 1134 1567 1575"> <thead> <tr> <th data-bbox="1024 1136 1094 1167"><u>Item</u></th> <th data-bbox="1317 1136 1468 1167"><u>Frequency</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="932 1199 1170 1325">a. Simulated Automatic Actuation test.</td> <td data-bbox="1317 1199 1414 1230">Annual</td> </tr> <tr> <td data-bbox="932 1356 1203 1419">b. Pump Operability</td> <td data-bbox="1317 1356 1567 1419">As specified in the IST Program</td> </tr> <tr> <td data-bbox="932 1451 1203 1577">c. Motor-Operated Valve Operability</td> <td data-bbox="1317 1451 1567 1514">As specified in the IST Program</td> </tr> </tbody> </table>	<u>Item</u>	<u>Frequency</u>	a. Simulated Automatic Actuation test.	Annual	b. Pump Operability	As specified in the IST Program	c. Motor-Operated Valve Operability	As specified in the IST Program
<u>Item</u>	<u>Frequency</u>								
a. Simulated Automatic Actuation test.	Annual								
b. Pump Operability	As specified in the IST Program								
c. Motor-Operated Valve Operability	As specified in the IST Program								

## LIMITING CONDITIONS FOR OPERATION

## SURVEILLANCE REQUIREMENTS

3. The LPCI Subsystem shall be OPERABLE whenever irradiated fuel is in the reactor vessel, and prior to reactor startup from a COLD CONDITION, except as specified in 3.5.A.4, 3.5.A.5 and 3.5.G.3 below.

3. LPCI Subsystem Testing shall be as follows:

<u>Item</u>	<u>Frequency</u>
a. Simulated Automatic Actuation Test	Annual
b. Pump Operability	As specified in the IST Program
c. Motor Operated Valve Operability	As specified in the IST Program
d. Pump Flow Rate	Once/3 months

Three LPCI pumps shall deliver 14,400 gpm against a system head corresponding to a vessel pressure of 20 psig based on individual pump tests.

e. Once per shift visually inspect and verify that RHR valve panel lights and instrumentation are functioning normally.

4. With one RHR (LPCI) pump inoperable, provided the remaining RHR (LPCI) active components, both Core Spray subsystems, the containment spray subsystem, and the diesel generators are verified to be OPERABLE, restore the inoperable RHR (LPCI) pump to OPERABLE status within 30 days.



## LIMITING CONDITIONS FOR OPERATION

## SURVEILLANCE REQUIREMENTS

C. Residual Heat Removal (RHR) Service Water System

1. Except as specified in 3.5.C.2, 3.5.C.3, 3.5.C.4, and 3.5.G.3 below, both RHR service water subsystem loops shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.
2. With one RHRSW pump inoperable, provided the remaining active components of both RHRSW subsystems are verified to be OPERABLE, restore the inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
3. With one RHRSW pump in each subsystem inoperable, provided the remaining active components of both RHRSW subsystems and the diesel generators are verified to be OPERABLE, restore at least one inoperable pump to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

C. Surveillance of the RHR Service Water System

1. Surveillance of the RHR service water system shall be as follows:

## RHR Service Water Subsystem Testing:

<u>Item</u>	<u>Frequency</u>
a. Pump and Motor operated valve operability.	As specified in the IST Program
b. Flow Rate Test-Each RHR service water pump shall deliver at least 2040 gpm at a TDH of 610 ft. or more.	after major pump maintenance and every 3 months

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

4. With one RHRSW subsystem inoperable, provided the remaining RHRSW subsystem and its associated diesel generator are verified to be OPERABLE, restore the inoperable system to OPERABLE status with at least one OPERABLE pump within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

D. HPCI Subsystem

1. The HPCI Subsystem shall be OPERABLE whenever there is irradiated fuel in the reactor vessel, reactor pressure is greater than 150 psig, and prior to reactor startup from a COLD CONDITION, except as specified in 3.5.D.2 below.

D. HPCI Subsystem

1. HPCI Subsystem testing shall be performed as follows:

<u>Item</u>	<u>Frequency</u>
a. Simulated Automatic Actuation Test	Annual
b. Pump Operability	As specified in the IST Program
c. Motor Operated Valve Operability	As specified in the IST Program
d. At rated reactor pressure demonstrate ability to deliver rated flow at a discharge pressure greater than or equal to that pressure required to accomplish vessel injection if vessel pressure were as high as 1040 psig.	Once/3 Months

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT

J. River Water Supply System

1. Except as specified in 3.5.J.2 below, at least one pump in each river water supply system loop shall be OPERABLE whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.

2. With one river water supply loop inoperable, provided the other river water supply loop and its associated diesel generator are verified to be OPERABLE, restore at least one pump in the inoperable loop to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

J. River Water Supply System

1. River Water Supply System Testing:

<u>Item</u>	<u>frequency</u>
-------------	------------------

a. Simulated automatic actuation test.	Once/operating cycle
--	----------------------

b. Pump and motor operated valve operability.	As specified in the IST Program
---	---------------------------------

c. Flow Rate Test

Each river water supply system pump shall deliver at least	After major pump maintenance and once per 3 months
--	--

6000 gpm at TDH of 46 ft. or more.	Daily when river elevation is less than 727 feet.
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d. Operating Pump Flow Rate Demonstration

Each Operating River Water Supply System Pump shall deliver at least 6000 gpm.	Daily
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#### 4.5 BASES

##### Core and Containment Cooling Systems Surveillance Frequencies

The testing interval for the core and containment cooling systems is based on industry practice, quantitative reliability analysis, judgement and practicality. The core cooling systems have not been designed to be fully testable during operation. For example, in the case of the HPCI, automatic initiation during power operation would result in pumping cold water into the reactor water vessel which is not desirable. Complete ADS testing during power operation causes an undesirable loss-of-coolant inventory. To increase the availability of the core and containment cooling systems, the components which make up the system, i.e., instrumentation, pumps, valves, etc., are tested frequently. The test intervals are based upon Section XI of the ASME Code. A simulated automatic actuation test once per year combined with frequent tests of the pumps and injection valves is deemed to be adequate testing of these systems.

When components and subsystems are out-of-service, overall core and containment cooling reliability is maintained by evaluating the operability of the remaining equipment. The degree of evaluation depends on the nature of the reason for the out-of-service equipment. For routine out-of-service periods caused by preventative maintenance, etc., the evaluation may consist of verifying the redundant equipment is not known to be inoperable and applicable surveillance intervals have been satisfied. However, if a failure due to a design deficiency caused the outage, then the evaluation of operability should be thorough enough to assure that a generic problem does not exist.

The RHR valve power bus is not instrumented. For this reason surveillance requirements require once per shift observation and verification of lights and instrumentation operability.

## LIMITING CONDITIONS FOR OPERATION

## SURVEILLANCE REQUIREMENTS

E. Emergency Service Water System

1. Except as required in Specification 3.8.E.2 below, both Emergency Service Water System loops shall be OPERABLE whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.

2. With one of the Emergency Service Water System pumps or loops inoperable, REACTOR POWER OPERATION must be limited to seven days unless OPERABILITY of that system is restored within this period. During such seven days all active components of the other Emergency Service Water System shall be OPERABLE, provided the requirements of Specification 3.5.G are met.

3. If the requirements of Specification 3.8.E cannot be met, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

E. Emergency Service Water System

1. Emergency Service Water System surveillance shall be as follows:

- a. Simulated auto- once/  
matic actuation OPERATING CYCLE  
test.

- b. Pump and motor As specified in  
operated valve the IST Program  
OPERABILITY.

- c. Flow Rate Test

Each Emergency After major pump  
Service Water maintenance and  
pump shall once per 3 months,  
deliver at except weekly  
least that flow during periods of  
determined from time the river  
Figure 4.8.E-1 water temperature  
for the exceeds 80°F.  
existing river  
water temperature.

2. With one Emergency Service Water System pump or loop inoperable, the OPERABLE pump and loop shall be verified to be OPERABLE. In addition, the requirements of Specification 4.5.G.1 shall be met.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 210 TO FACILITY OPERATING LICENSE NO. DPR-49

IES UTILITIES INC.

CENTRAL IOWA POWER COOPERATIVE

CORN BELT POWER COOPERATIVE

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter dated March 1, 1995, IES Utilities Inc. submitted a request for revision of the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC). Prior to the granting of this TS modification, Sections 4.5 and 4.8 of the DAEC TS require that various pumps and valves be tested once per three months. The TS Bases for Sections 4.5 and 4.8 state that the test intervals for this equipment "...are based upon Section XI of the ASME code." If IES Utilities Inc. wished to alter the testing frequencies for any of the affected pumps and valves, it was required to seek a revision to the TS.

The change to the TS revises the surveillance criteria for testing certain pumps and valves in the Low Pressure Coolant Injection (LPCI) subsystem; the Core Spray subsystems; and the Residual Heat Removal (RHR) Service Water, Emergency Service Water (ESW), High Pressure Coolant Injection (HPCI), and River Water Supply systems from every three months to the testing frequency specified by the DAEC Inservice Testing (IST) program. The change follows the guidance in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4," that generally defers to the IST program for determining the applicable testing frequencies for pumps and valves.

2.0 EVALUATION

The three month frequency for the testing of the subject pumps and motor operated valves is based on Section XI of the ASME Boiler and Pressure Vessel Code. DAEC has committed to follow and perform all required pump and valve testing in accordance with ASME Section XI (OM-6 and OM-10 respectively). Only those changes to the testing frequencies of pumps and valves allowed under OM-6 and OM-10 can be made without requesting NRC approval via a relief request. Further, the proposed change is consistent with the BWR14 Standard Technical Specifications, NUREG-1433.

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The staff finds the proposed changes to the DAEC TS to be acceptable.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Iowa State official was notified of the proposed issuance of the amendment. The State official had no comments.

### 4.0 ENVIRONMENTAL CONSIDERATIONS

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (60 FR 18626). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

### 5.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Glenn B. Kelly

Date: May 18, 1995