

2/17/76

Docket No. 50-331

Iowa Electric Light & Power Company  
ATTN: Mr. Duane Arnold, President  
Security Building  
P. O. Box 351  
Cedar Rapids, Iowa 52406

Gentlemen:

The Commission has issued the enclosed Amendment No. 16 to Facility License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications and is based on our letters to you dated September 23, 1975 and December 29, 1975.

This amendment revises the Technical Specifications to (1) add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod drive mechanism collet housing failures and (2) require increased control rod surveillance when the possibility of a control rod drive mechanism collet housing failure exists.

We have evaluated the potential for environmental impact of plant operation in accordance with the enclosed amendments and have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level, and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with the issuance of these amendments. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

A copy of the related Federal Register Notice is also enclosed. Our Safety Evaluation relating to this action was forwarded to you with our letter dated September 23, 1975.

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Please note that we have discontinued the use of separate identifying numbers for changes to technical specifications. Sequential amendment numbers will be continued as in the past.

Sincerely,

George Lear, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Enclosures:

- 1. Amendment No. 16 to License DPR-49
- 2. Federal Register Notice

cc w/enclosures:  
See next page

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cc:

Jack R. Newman, Esquire  
Harold F. Reis, Esquire  
Lowenstein, Newman, Reis and Axelrad  
1025 Connecticut Avenue, N. W.  
Washington, D. C. 20036

Cedar Rapids Public Library  
426 Third Avenue, S. E.  
Cedar Rapids, Iowa 52401

Office for Planning and Programming  
523 East 12th Street  
Des Moines, Iowa . 50319

Mr. Dudley Henderson  
Chairman, Linn County  
Board of Supervisors  
Cedar Rapids, Iowa 52406



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

IOWA ELECTRIC LIGHT AND POWER COMPANY  
CENTRAL IOWA POWER COOPERATIVE  
CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 16  
License No. DPR-49

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. 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;
  - B. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
  - C. The facility will operate in conformity with the provisions of the Act, and the rules and regulations of the Commission; and
  - D. An environmental statement or negative declaration need not be prepared in connection with the issuance of this amendment.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility License No. DPR-49 is hereby amended to read as follows:

"2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*Karl R. Goller*

Karl R. Goller, Assistant Director  
for Operating Reactors  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance:

ATTACHMENT TO PROPOSED LICENSE AMENDMENT

PROPOSED CHANGE TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Delete existing pages 3.3-1, 3.3-2 and 3.3-12 of the Technical Specifications and insert the attached revised pages. The changed areas on the revised pages are shown by marginal lines.

### 3 REACTIVITY CONTROL

#### Applicability:

Applies to the operational status of the control rod system.

#### Objective:

To assure the ability of the control rod system to control reactivity.

#### Specification:

##### Reactivity Limitations

##### Reactivity margin - core loading

A sufficient number of control rods shall be operable so that the core could be made subcritical in the most reactive condition during the operating cycle with the strongest control rod fully withdrawn and all other operable control rods fully inserted.

#### 2. Control Rod Exercise

- a. Control rods which cannot be moved with control rod drive pressure shall be considered inoperable. If a partially or fully withdrawn control rod drive cannot be moved with drive or scram pressure the reactor shall be brought to a shutdown condition within 48 hours unless investigation demonstrates that the cause of the failure is not due to a failed control rod drive mechanism collet housing.

### 4.3 REACTIVITY CONTROL

#### Applicability:

Applies to the surveillance requirements of the control rod system.

#### Objective:

To verify the ability of the control rod system to control reactivity.

#### Specification:

##### A. Reactivity Limitations

##### 1. Reactivity margin - core loading

Sufficient control rods shall be withdrawn following a refueling outage when core alterations were performed to demonstrate with a margin of 0.35  $\Delta k/k$  that the core can be made subcritical at any time in the subsequent fuel cycle with the analytically determined strongest operable control rod fully withdrawn and all other operable rods fully inserted.

##### 2. Control Rod Exercise

- a. Each partially or fully withdrawn operable control rod shall be exercised one notch at least once each week when operating above 30% power. This test shall be performed at least once per 24 hours in the event power operation is continuing above 30% power with two or more inoperable control rods or in the event power operation is continuing above 30% power with one fully or partially withdrawn rod which cannot be moved and for which control rod drive mechanism damage has not been ruled out. The surveillance need not be completed within 24 hours if the number of inoperable rods has been reduced to less than two and if it has been demonstrated that control rod drive mechanism collet housing failure is not the cause of an immovable control rod.

- |  |  |
|--|--|
| <p>b. The control rod directional control valves for inoperable control rods shall be disarmed electrically and the control rods shall be in such positions that Specification 3.3.A.1 is met.</p>   | <p>b. A second licensed operator shall verify the conformance to Specification 3.3.A.2d before a rod may be bypassed in the Rod Sequence Control System.</p> |
| <p>c. Control rods with inoperable accumulators or those whose position cannot be positively determined shall be considered inoperable.</p>  | <p>c. Once per week when the plant is in operation, check status of pressure and level alarms for each CRD accumulator.</p>                                  |
| <p>d. Control rods with a failed "Full-in" or "Full-out" position switch may be bypassed in the Rod Sequence Control System and considered operable if the actual rod position is known. These rods must be moved in sequence to their correct positions (full-in on insertion or full-out on withdrawal).</p> |  |
| <p>e. Control rods with scram times greater than those permitted by Specification 3.3.C.3 are inoperable, but if they can be inserted with control rod drive pressure they need not be disarmed electrically.</p>  |  |
| <p>f. Inoperable control rods shall be positioned such that Specification 3.3.A.1 is met. In addition,</p>   |  |

maximum contribution to shutdown reactivity. If it is disarmed electrically in a non-fully inserted position, that position shall be consistent with the shutdown reactivity limitation stated in Specification 3.3.A.1. This assures that the core can be shut down at all times with the remaining control rods assuming the strongest operable control rod does not insert. Inoperable bypassed rods will be limited within any group to not more than one control rod of a (5 x 5) twenty-five control rod array. If damage within the control rod drive mechanism and in particular, cracks in drive internal housings, cannot be ruled out, then a generic problem affecting a number of drives cannot be ruled out. Circumferential cracks resulting from stress assisted intergranular corrosion have occurred in the collet housing of drives at several BWRs. This type of cracking could occur in a number of drives and if the cracks propagated until severance of the collet housing occurred, scram could be prevented in the affected rods. Limiting the period of operation with a potentially severed collet housing and requiring increased surveillance after detecting one stuck rod will assure that the reactor will not be operated with a large number of rods with failed collet housings. The use of the individual rod bypass switches in the Rod Sequence Control System to substitute for a failed "full in" or "full out" position switch will not be limited as long as the actual position of the control rod is known.

## 2. Control Rod Withdrawal

- a. Control rod drop accidents as discussed in the FSAR can lead to significant core damage. If coupling integrity is maintained, the possibility of a rod drop accident is eliminated. The overtravel position feature provides a positive check as only uncoupled

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-331

IOWA ELECTRIC LIGHT AND POWER COMPANY  
CENTRAL IOWA POWER COOPERATIVE  
CORN BELT POWER COOPERATIVE

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 16 to Facility Operating License NO. DPR-49 issued to Iowa Electric Light and Power Company, Central Iowa Power Cooperative, and Corn Belt Power Cooperative, which revised Technical Specifications for operation of the Duane Arnold Energy Center, located in Linn County, Iowa. The amendment is effective as of its date of issuance.

This amendment revises the Technical Specifications to (1) add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod drive mechanism collet housing failures and (2) require increased control rod surveillance when the possibility of a control rod drive mechanism collet housing failure exists.

The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Notice of the Proposed Issuance of Amendments to Facility Operating License in connection with this action was published in the FEDERAL REGISTER on January 8, 1976 (41 F.R. 1547). No request for a hearing or petition for leave to intervene was filed following notice of the proposed action.

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The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the Commission's letters to Iowa Electric Light & Power Company dated September 23, 1975, and December 29, 1975, (2) Amendment No. 16 to License No. DPR-49 and (3) the Commission's related Safety Evaluation issued on September 23, 1975. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W. Washington, D.C. and at the Cedar Rapids Public Library, 426 Third Avenue, S.E., Cedar Rapids, Iowa 52401.

A single copy of items (1) through (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C., 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland this            day of

FOR THE NUCLEAR REGULATORY COMMISSION

George Lear, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

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DATE >	1/ /76	1/ /76	2/ /76	2/ 6 /76	2/ 17 /76