

September 4, 1991

Docket No. 50-331

Mr. Lee Liu  
Chairman of the Board and  
Chief Executive Officer  
Iowa Electric Light and Power Company  
Post Office Box 351  
Cedar Rapids, Iowa 52406

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CGrimes	DRP, Region III

Dear Mr. Liu:

SUBJECT: AMENDMENT NO. 175 TO FACILITY OPERATING LICENSE NO. DPR-49  
(TAC NOS. 79021 AND 80091)

The Commission has issued the enclosed Amendment No. 175 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications in response to your application dated February 22, 1991, as supplemented June 14, 1991.

The amendment revises the surveillance requirements for the fire pumps.

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

Sincerely,

Original Signed By:

Clyde Y. Shiraki, Sr. Project Manager  
Project Directorate III-3  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 175 to License No. DPR-49
2. Safety Evaluation

cc w/enclosures:  
See next page

LA:PDIII-3:DRPW  
PKreutzer  
8/10/91

PM:PDIII-3:DRPW  
CShiraki:rcg  
8/12/91

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DOCUMENT NAME: 79021/80091 AMD

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Mr. Lee Liu  
Iowa Electric Light and Power Company

Duane Arnold Energy Center

cc:

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Kathleen H. Shea, Esquire  
Newman and Holtzinger  
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Washington, D.C. 20036

Chairman, Linn County  
Board of Supervisors  
Cedar Rapids, Iowa 52406

Iowa Electric Light and Power Company  
ATTN: R. Hannen  
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Cedar Rapids, Iowa 52406

U.S. Nuclear Regulatory Commission  
Resident Inspector's Office  
Rural Route #1  
Palo, Iowa 52324

Regional Administrator, Region III  
U.S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Mr. John A. Eure  
Assistant to the Division Director  
for Environmental Health  
Iowa Department of Public Health  
Lucas State Office Building  
Des Moines, Iowa 50319



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. 175  
License No. DPR-49

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Iowa Electric Light and Power Company, et al., dated February 22, 1991, as supplemented June 14, 1991, 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:

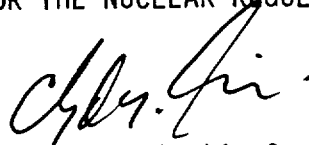
9109120188 910904  
PDR ADOCK 05000331  
P PDR

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 175, 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



Clyde Y. Shiraki, Sr. Project Manager  
Project Directorate III-3  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of issuance: September 4, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 175

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 marginal lines.

Pages

3.13-3

3.13-9

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
<p>B. <u>Fire Suppression Water System</u></p> <p>1. The Fire Suppression Water System shall be OPERABLE with:</p> <p>a. The river water supply system OPERABLE.</p> <p>b. Two (2) fire pumps OPERABLE and aligned to the fire suppression yard header.</p> <p>c. Automatic initiation logic for each fire pump.</p>	<p>B. <u>Fire Suppression Water System</u></p> <p>1. The Fire Suppression Water System shall be demonstrated OPERABLE:</p> <p>a. By verifying that the river water supply system is OPERABLE per Specification 3.5.J.</p> <p>b. Once every week by starting the diesel-driven fire pump and operating it for at least 30 minutes.</p> <p>c. Once per month by starting the motor-driven fire pump and operating it for at least 15 minutes on recirculation flow.</p> <p>d. Once per six months by a flush of the yard header.</p> <p>e. Annually by verifying that each pump develops at least 3115 gpm with a discharge pressure of at least 96 psig.</p> <p>f. Once per three years by verifying the hydraulic performance of the system by starting the motor-driven fire pump and directing flow around the yard header. Under this condition the flow and pressure requirements described in Specification 4.13.B.1.e shall be met.</p> <p>g. Once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM-D270-65, is within the acceptable limits specified in Table 1 of ASTM-D975-74 with respect to viscosity, water content and sediment.</p>

### 3.13 BASES

The Fire Protection specifications are provided in order to meet the pre-established levels of operability during a fire. Requiring a patrolling fire watch with portable fire equipment if the automatic initiation is lost will provide (as does the automatic system) for early reporting and immediate fire fighting capability in the event of a fire occurrence. The Fire Protection System is supplied by two pumps aligned to the fire header.

The fire pumps take suction from the circulating water pump pit, which is supplied water from the river via the River Water Supply (RWS) pumps. The capacity of one RWS pump will meet the maximum requirement of the Fire Suppression Water System. However, the Technical Specification for the RWS System does not allow the plant to operate with less than two RWS pumps operable (Specification 3.5.J). Therefore, the limiting conditions for operation for the water supply to the Fire Suppression Water system will be dictated by the limiting conditions for operation of the River Water Supply System.

The fire pump size is based on the largest automatic system demand for the protection of safety-related equipment plus 1000 gpm for hose streams with the shortest portion of the fire loop out of service.

The CO<sub>2</sub> Fire Protection System is considered operable with a minimum of 9 tons (0.9 tank) CO<sub>2</sub> in storage. Within an hour, a continuous fire watch in the cable spreading room will be established if CO<sub>2</sub> fire protection is lost in this room and will continue until CO<sub>2</sub> fire protection is restored.

Early reporting and immediate fire fighting capability in the event of a fire occurrence will be provided (as with the automatic system) by requiring a patrolling fire watch if the number of detectors for a given protected zone is below the minimum operable required.





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 175 TO FACILITY OPERATING LICENSE NO. DPR-49

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

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter dated February 22, 1991, the Iowa Electric Light and Power Company (the licensee) requested changes in the Technical Specification surveillance for the fire pumps installed at the Duane Arnold Energy Center (DAEC).

The staff's evaluation of the requested changes is based on review of supporting justification furnished by the licensee in its February 22, 1991 letter and its letter response dated June 14, 1991, to questions posed verbally to the licensee in March and again on May 29, 1991.

2.0 EVALUATION

Two fire pumps, one electric-motor driven and the other diesel-engine driven, supply all fire protection water at the DAEC. Either one of the pumps is designed to provide 100% of the maximum expected fire flow requirements for the plant. The DAEC Technical Specification 4.13.B.1.e requires that each fire pump develop a flow of at least 3100 gallons per minute (gpm) with a discharge pressure of 112-pounds-per-square-inch gage (psig). During Inspection No. 90-015, the NRC Region III fire protection inspector noted that both fire pumps failed those flow requirements during the annual test on September 13, 1990. This failure was cited in the inspection report as a Severity Level IV violation.

The licensee's initial response was to deny the violation. Its position was that:

- Automatic sprinkler system No. 4 was the limiting factor in originally establishing the large flow and pressure requirements for the fire pump.
- Water flow for the entire area protected by sprinkler system No. 4 had improperly been assumed in the original calculations. The licensee intended to recalculate system water flow demands using a smaller and more realistic area so as to show that the existing fire pumps were adequate.

- ° Sprinkler system No. 4 protects the Turbine Building Heater Bay. While it contains safety-related components, the licensee believed (and intended to verify) that no safe shutdown components were located in the protected area and loss by fire of any of the components in this area would have no effect on safe shutdown.

The results of that recalculation indicated that actual fire pump requirements were approximately 3100 gpm at 140 psig rather than the 112 psig requirement of Technical Specification 4.13.B.1.e.

The licensee then proposed using its service water pumps as the backup to the fire pumps. After considerable discussion, the licensee and staff agreed that:

- ° since the service water pumps cannot meet the identified water flow requirements, they cannot be considered an acceptable backup system;
- ° if the licensee can demonstrate that both fire pumps together can deliver the identified water flow requirements, they will be considered an acceptable backup system; and
- ° the licensee will perform a detailed study of the entire fire protection water supply system to determine realistic maximum flow demands, and modifications which might improve flow characteristics.
- ° In addition, the licensee was to implement a continuous fire watch throughout areas with safe shutdown equipment that are protected with automatic sprinklers, including the area protected by sprinkler system No. 4, except for high radiation areas where remote surveillance cameras would be installed. These fire watches were to be maintained until the licensee was able to place acceptable backup fire pump(s) in service.

On May 29, 1991, the licensee called to say that the shaft seal on the electric motor driven fire pump was leaking during the regular monthly surveillance test. It was concerned that if it attempted to repair the fire pump shaft seal packing and something should go wrong, it would not be able to complete the repair within the required 4 hours. It would then have to initiate a plant trip and shut down in accordance with its Technical Specification requirements of Section 3.13.B.3.d. It discussed with the staff the possibility of expediting this review so as to relieve DAEC from continuing to consider both fire pumps running as being necessary to qualify as a backup system. A favorable conclusion is necessary as a result of this review in order to find the existing pumps acceptable.

Most of the underground fire main is 6-inch-diameter pipe. However, the two fire pumps were connected to the main by three short sections of 4-inch pipe. During the reevaluation mentioned above, the licensee determined that replacing those three sections of 4-inch pipe with 6-inch would substantially reduce friction losses and, therefore, the discharge pressure requirements for

the fire pumps. The licensee has made those piping changes. With all 6-inch piping installed, the licensee has determined the minimum required flow for each pump to be at least 3115 gpm with a pump discharge pressure of at least 96 psig.

The staff reviewed the material submitted by the licensee with its letter of February 22, 1991, and in March asked the licensee by telecon for clarification of its modifications to the Fire Protection System. The staff also asked for clarification of its notation "that the existing values for Sprinkler System #4 did not accurately reflect the current piping configuration." During a telecon on May 30, 1991, the same questions were again asked of the licensee. Its letter of June 14, 1991, responds to those questions. The staff has reviewed the licensee's June 14, 1991 letter and finds the responses to its questions acceptable.

Based on the above evaluation, the staff concludes that the licensee's proposed Technical Specification surveillance requirements for acceptable minimum flow of DAEC fire pumps of at least 3115 gpm with a discharge pressure of at least 96 psig are 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 effluents 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 (56 FR 33958). 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: D. P. Notley

Date: September 4, 1991