

April 24, 1986

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

Dear Mr. Liu:

The Commission has issued the enclosed Amendment No. 132 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 November 9, 1984, as revised January 18, 1985 and January 6, 1986. The revisions clarified your evaluation in accordance with 10 CFR 50.92 and clearly stated the requested changes.

This amendment revises the DAEC Technical Specifications to add action statements and surveillance requirements for the fire protection features of the DAEC.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly Federal Register Notices.

Sincerely,

Mohan Thadani, Project Manager  
BWR Project Directorate #2  
Division of BWR Licensing

Enclosures:

1. Amendment No. 132 to License No. DPR-49
2. Safety Evaluation

cc w/enclosures:  
See next page

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Mr. Lee Liu  
Iowa Electric Light and Power Company

Duane Arnold Energy Center

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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. 132  
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 November 9, 1984, as revised January 18, 1985, and January 6, 1986, 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:

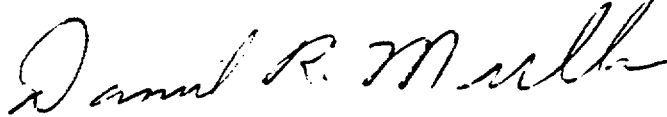
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(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 132, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective after 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Daniel R. Muller, Director  
BWR Project Directorate #2  
Division of BWR Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: 132

ATTACHMENT TO LICENSE AMENDMENT NO. 132

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

iiia

3.13-4

3.13-7

3.13-8

3.13-8a\*

3.13-10

\*New Page

<u>LIMITING CONDITION FOR OPERATION</u>	<u>SURVEILLANCE REQUIREMENTS</u>	<u>PAGE NO.</u>
3.13 Fire Protection Systems	4.13	3.13-1
A. Fire Detection Instrumentation	A	3.13-1
B. Fire Suppression Water System	B	3.13-3
C. Deluge and Sprinkler Systems	C	3.13-5
D. CO <sub>2</sub> System	D	3.13-6
E. Fire Hose Stations	E	3.13-7
F. Fire Rated Assemblies	F	3.13-8

LIMITING CONDITION OR OPERATION

SURVEILLANCE REQUIREMENT

2. When only one pump is OPERABLE, restore the second fire pump to OPERABLE status within 7 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.11 within the next 30 days outlining the plans and procedures to be used to provide for the loss of redundancy in this system.
3. If the Fire Suppression Water System is not OPERABLE:
  - a. Within one hour establish an hourly fire watch patrol in all power block buildings and maintain it until a backup fire suppression water system is established.
  - b. Establish a backup fire suppression water system within 24 hours.
  - c. If neither fire pump is OPERABLE within 24 hours, submit a Special Report to the Commission pursuant to Specification 6.11 within 30 days outlining the cause of the inoperability and the plans for restoring the system to OPERABLE status.
  - d. If Specifications 3.13.B.3.a or 3.13.B.3.b cannot be met, place the reactor in HOT STANDBY within the next six (6) hours and in COLD SHUTDOWN within the following thirty (30) hours.
4. When maintenance on the circulating water/fire pump pit is being performed, the following conditions shall be met:
  - a. The River Water Supply System will be maintained such that the fire water supply can be restored within one hour; and
  - b. An hourly fire watch patrol will be established in all power block buildings.

- h. At least once per 18 months, during shutdown, by verifying the diesel starts from ambient conditions on the auto-start signal and operates for > 30 minutes while loaded with the Fire pump.
- i. At least once per 31 days by verifying that the diesel day tank contains fuel for two hours operation.
- j. At least once per month by verifying that each valve in the flow path is in its correct position.
2. When it is determined that only one pump is OPERABLE, that pump shall be demonstrated OPERABLE immediately and daily thereafter until Specification 3.13.B.1 can be met.

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT

E. Fire Hose Stations

1. The fire hose stations in the following locations shall be operable whenever safety-related equipment in the areas protected by the fire hose stations is required to be operable.

(See Table 3.13-2)

2. With a hose station inoperable, restore the hose station to operable status within 1 hour or, establish a fire watch with portable extinguishing equipment until an additional hose can be routed from an operable hose station to the unprotected area.

E. Fire Hose Stations

1. Each fire hose station shall be verified to be operable:
  - a. At least once every three months by visual inspection of the station to assure all equipment is available and the pressure in the standpipe is within limits, and that all valves in the flowpath to the hose station are open.
  - b. At least once per 12 months by removing the hose for inspection and repacking and replacing all gaskets in the couplings that are degraded.
  - c. At least once per three years partially open hose station valves to verify valve operability and no blockage.
  - d. At least once per three years conduct a hose hydrostatic test at a pressure 50 psig greater than the maximum pressure available at that hose station.



LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT

F. Fire Rated Assemblies

1. All fire barrier penetration seals protecting safety-related areas shall be intact.

2. All fire doors protecting safety related areas shall be functional.

F. Fire Rated Assemblies

1. Fire barrier penetration seals shall be verified to be functional by:

a. A visual inspection of approximately 35% of the fire barrier penetration seals once per operating cycle, with 100% of the fire barrier penetration seals visually inspected within a period of five years.

b. A visual inspection of a fire barrier penetration seal following maintenance to verify that it has been returned to its original condition.

2. Fire doors shall be verified to be functional:

a. At least once per operating cycle via visual inspection to verify integrity and assure no blockage exists.

b. Prior to restoring a fire door to functional status following repairs or maintenance to verify it has been returned to its original condition.

**LIMITING CONDITION FOR OPERATION**

**SURVEILLANCE REQUIREMENT**

3. Fire protection raceway wrap and structural steel fireproofing shall be intact.

3. Fire protection raceway wrap and structural steel fireproofing shall be verified to be functional by:

a. A visual inspection of approximately 35% of the fire protection raceway wrap and structural steel fireproofing at least once per operating cycle with 100% of the fire protection raceway wrap and structural steel fireproofing visually inspected within a period of five years.

b. Returning the fire protection raceway wrap and structural steel fireproofing to its original condition following repairs or maintenance.

4. If Specification 3.13.F.1, 3.13.F.2, or 3.13.F.3 cannot be met:

a. A continuous fire watch shall be established within 1 hour on at least one side of the affected area, or

b. Verify the OPERABILITY of fire detectors on at least one side of the non-functional fire barrier and establish an hourly fire watch patrol or,

c. Verify the OPERABILITY of fire detectors in the affected fire zone and establish an hourly fire watch patrol.

Only hose stations and sprinkler/spray systems protecting safety related systems are required to be operable per the requirements of this Technical Specification. All other hose stations and sprinkler/spray systems are maintained per the regular plant maintenance and inspection procedures.

#### 4.13 BASES

Periodic testing of the Fire Protection System will provide positive indication of its operability. If only one of the pumps supplying the Fire Protection System is operable, the pump that is operable will be checked immediately and daily thereafter to demonstrate operability. If the CO<sub>2</sub> System becomes inoperable in the cable spreading room, a continuous fire watch will be established within an hour.

Wet fire header flushing, spray header inspection for blockage, and nozzle inspection for blockage will prevent, detect, and remove buildup of sludge or other material to ensure continued operability.

Semiannual tests of heat and smoke detectors are in accordance with the NFPA code.

One detector in zones 1 or 3 (control auxiliary panel room) may be inoperable without making that fire detection zone inoperable due to the number of adjacent detectors in these zones providing coverage. All the fire detection equipment in zones 15 to 16 (essential switchgear rooms), zones 13, 14 and 17 (battery rooms), zones 21 and 22 (diesel-generator rooms) and zone 2 (control auxiliary panel room) are considered essential for adequate fire detection in these areas and are therefore all required to be operable. Up to three detectors for each zone in the cable spreading room (zones 5, 6, 7 and 8) can be inoperable without making that zone inoperable, as long as there are no adjacent detectors which are also inoperable. Adjacent detectors will provide coverage.

Smoke detectors will be tested "in-place" using inert gas applied by a pyrotronics type applicator which is accepted throughout the industrial fire protection industry for testing products of combustion detectors or by use of the MSA chemical smoke generators.

Circuits checks by initiation of end of the line or end of the branch detectors will more thoroughly test the parallel circuits than testing on a rotating detector basis. This test is not a detector test, but is a test to simulate the effect of electrical supervision as defined in the NFPA Code 72 A-18, Article 240.

Inspection of fire doors at least once per operating cycle will verify their integrity and thus their ability to maintain the integrity of the associated fire barrier and prevent fire propagation outside of the affected fire zone.

Inspection of fire protection raceway wrap and structural steel fireproofing will verify their ability to perform their intended design function which is to mitigate the effects of a fire in the affected fire zone.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 132 TO 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 November 9, 1984, Iowa Electric Light and Power Company (the licensee) requested changes to the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC) to provide surveillance requirements which ensure the operability and proper maintenance of fire protection systems, to add Limiting Conditions for Operation (LCO) for fire doors, raceway wrap, and structural steel fireproofing; to add fire watch patrol to action statements; and to change the present continuous fire watch requirements to hourly fire watch. By letter dated January 18, 1985, the licensee revised its evaluation of the proposed changes as required by the Commission's regulation 10 CFR 50.92 and incorporated missing evaluation of changing continuous fire watch to an hourly fire watch. By a letter dated January 6, 1986, the licensee further revised the proposed changes by deleting the operability condition from the requirement that fire watches will be instituted in areas when equipment is required to be operable. The TS changes would require fire watch in all fire protected areas.

2.0 EVALUATION

The staff evaluation of the licensee's request is as follows.

Fire Suppression Water System

The licensee has proposed adding an Action Statement and a modification of another Action Statement which will require that in the event of a fire suppression water system being inoperable the licensee will establish an hourly fire watch patrol in all power block buildings (Reactor Building and Turbine Building) within one hour and maintain this patrol until the Fire Suppression Water System is operable, a backup fire suppression water system has been established, or maintenance on the circulating water/fire pump pit has been completed.

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The staff's position for General Electric Boiling Water Reactors (NUREG-0123, Revision 3) requires a continuous fire watch in areas without fire detection capability. The use of hourly fire watch patrols is permitted when the fire area or areas in question have operable fire detectors in place on at least one side of a fire barrier.

The licensee states that since the areas concerned with safety equipment are now protected with fire detection systems, the action statements in the TS concerned with the areas with fire detection system be revised from continuous fire watch requirements to hourly fire patrols.

The staff has reviewed the proposed addition, and some format changes for the Fire Suppression Water System action statements and finds that these changes provide the necessary action guidance in those cases where the LCOs are exceeded, and are in agreement with the staff policy on fire watches. Therefore the proposed hourly fire watches and format change are acceptable.

#### Fire Hose Stations

The licensee has proposed an addition to the Action Statement that permits the establishment of a continuous fire watch with portable fire extinguishing equipment until an additional hose can be routed from an operable hose station. The proposed change would assure that continuous fire watch is maintained until fire hose station is made operable and meets the staff guidance. Therefore the staff finds the change acceptable.

#### Fire Rated Assemblies and Bases

The licensee proposes to change the title of a TS Section from Fire Barrier Penetration Fire Seals to Fire Rated Assemblies. The licensee has expanded the fire rated assemblies in this action to include all fire doors and fire protected raceway wrap in addition to the existing fire barrier penetration fire seals. Fire Doors and Fire Protection Raceway Wrap, have been added along with new action statements and surveillance requirements for each item. The index page has been modified to include the title change.

The action statement for this section has been expanded and is now in agreement with the staff guidance requiring a continuous fire watch within one hour or an hourly fire watch patrol within one hour after the operability of fire detectors on at least one side of the nonfunctional fire barrier has been verified. As presently written, the DAEC TS states that a continuous fire watch must be established within one hour if a fire barrier has been found to be nonfunctional. However, the licensee has installed fire detection systems in most areas containing safety equipment and continuous fire watch is not required if the detectors are operable.

The proposed surveillance of fire barrier penetration seals remains essentially the same as the present TS except the number of seals

inspected each operating cycle has been increased from 20 percent to 35 percent. The licensee proposes to add new surveillance requirements for fire doors, and raceway wrap. The proposed surveillance for raceway wrap is identical to that of the penetration seals, while the surveillance requirement for fire doors requires a visual inspection to verify the door's integrity and to assure no blockage exists. Each of the above surveillance requirements also commit the licensee to verify that the subject fire rated assembly has been returned to its original condition following repairs or maintenance.

The bases section has been revised to include the addition of fire doors and raceway wrap in the DAEC TS.

The staff has reviewed the proposed changes and additions and finds that they increase the safety requirements of the fire rated assemblies, provide acceptable action statements, and generally follow the guidance provided by the staff. Therefore, the staff finds the proposed changes to be acceptable.

#### Special Fire Protection Reporting Requirements

In Amendment No. 105, dated August 24, 1984, the DAEC TS were modified to bring them into agreement with the new reporting requirements of 10 CFR 50, Sections 50.72 and 50.73. This action was implemented by Generic Letter 83-43, Reporting Requirements of 10 CFR 50, Sections 50.72 and 50.73, dated December 30, 1983, which in addition to specific TS reporting changes also requested licensees to review and update other areas of their TS concerning reportability. At this time TS being issued to new operating reactors do not require special reports as they were considered to be redundant requirements with the issuance of 10 CFR 50.73. The licensee was informed by telephone during this review that since 10 CFR 50.73(a)(2)(i)(B) now requires a 30 day written report whenever any operation or condition prohibited by TS is found, these special fire reports are now considered to be obsolete and could be removed from the TS. The licensee chose to retain these special reports requirements and remove them in a later amendment.

### 3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes to action statements and surveillance requirements of fire protection components located within the restricted area as defined in 10 CFR Part 20. 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

#### 4.0 CONCLUSION

We have 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, and  
(2) such activities will be conducted in compliance with the Commission's regulations and 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: K. Ridgway

Dated: April 24, 1986