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JRBuchanan

Docket No. 50-331

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

Gentlemen:

The Commission has issued the enclosed Amendment No. 26 to Facility License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications and is in response to your application dated December 17, 1976.

This amendment modifies the Technical Specifications by lowering the trip level setpoints for the differential pressure instruments associated with the HPCI Turbine Steam Line High Flow trip.

Copies of the related Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

Original signed by

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

Enclosures:

1. Amendment No. 26
2. Safety Evaluation
3. Federal Register Notice

cc w/enclosures:
See next page

OFFICE>	ORB #3	ORB #3	OELD	ORB #3		
SURNAME>	CParrish <i>cp</i>	DVerrelli <i>fm</i>	<i>W.D. Paton</i>	GLear <i>GL</i>		
DATE>	1/6/77	1/6/77	1/7/77	1/14/77		

Iowa Electric Light & Power Company - 2 -

cc:

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

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

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

Iowa Electric Light & Power Company
ATTN: Ellery L. Hammond
P. O. Box 351
Cedar Rapids, Iowa 52406

Chief, Energy Systems Analysis Branch (AW-459)
Office of Radiation Programs
U. S. Environmental Protection Agency
Room 645, East Tower
401 M Street, S. W.
Washington, D. C. 20460

U. S. Environmental Protection Agency
Region VII
ATTN: EIS COORDINATOR
1735 Baltimore Avenue
Kansas City, Missouri 64108

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



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

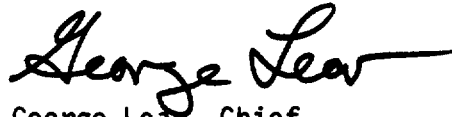
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 26
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, Central Iowa Power Cooperative, and Corn Belt Power Cooperative (the licensees) dated December 17, 1976, 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 a change to the Technical Specifications as indicated in the attachment to this license amendment.

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

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "George Lear", with a long horizontal flourish extending to the right.

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 17, 1977

ATTACHMENT TO LICENSE AMENDMENT NO. 26

TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace pages 3.2-13 and 3.2-40 with the attached revised pages.

TABLE 3.2-B (Continued)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Minimum No. of Operable Instrument Channels Per Trip System (1)	Trip Function	Trip Level Setting	Number of Instrument Channels Provided by Design	Remarks
2	Suppression Chamber High Level	$\leq 5"$ above normal water level	2 Inst. Channels	Transfers HPCI pump suction to suppression chamber
1	RCIC Turbine High Flow	$\pm 180" \text{ H}_2\text{O}$ (2)	2 Inst. Channels	
2	RCIC Turbine Equip- ment Room High Ambient Temperature	$\leq 175 \text{ deg. F}$ (2)	4 Inst.	
2	RCIC Vent High Dif- ferential Temperature	$\leq \Delta 50 \text{ deg. F}$ (2)	4 Inst.	
2	RCIC Steam Line Low Pressure	$100 > P > 50 \text{ psig}$ (2)	4 Inst.	
1	HPCI Turbine Steam Line High Flow	$+53" \text{ H}_2\text{O}$ (Outboard Instr.) $+99" \text{ H}_2\text{O}$ (Inboard Instr.) (3)	2 Inst. Channels	
2	Suppression Pool Area High Ambient Temp- erature	150°F	4 Inst. Channels	
2	Suppression Pool Area High Diff. Temperature	50°F	4 Inst. Channels	
1	HPCI Leak Detection Time Delay	15 min.	2 Inst.	

The HPCI high flow and temperature instrumentation are provided to detect a break in the HPCI steam piping. Tripping of this instrumentation results in actuation of HPCI isolation valves. Tripping logic for the high flow is a 1 out of 2 logic.

Temperature is monitored at two (2) locations with four (4) temperature sensors at each location. Two (2) sensors at each location are powered by "A" direct current control bus and two (2) by "B" direct current control bus. Each pair of sensors, e.g., "A" or "B", at each location are physically separated and the tripping of either "A" or "B" bus sensor will actuate HPCI isolation valves.

The trip settings of +53" H₂O (outboard instrument) and +99" H₂O (inboard instrument) correspond to 300% of design flow for high flow and 175°F and Δ45° for high temperature are such that core uncover is prevented and fission product release is within limits.

The RCIC high flow and temperature instrumentation are arranged the same as that for the HPCI. The trip setting of ± 180" H₂O for high flow and 175° and Δ 45° for temperature are based on the same criteria as the HPCI.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 26 TO FACILITY OPERATING LICENSE DPR-49

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

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

Introduction

By letter dated December 17, 1976, Iowa Electric Light and Power Company proposed an amendment to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. The amendment involves modification to the Technical Specifications by lowering the trip level setpoints for the differential pressure instruments associated with the HPCI Turbine Steam Line High Flow Trip. The proposed change resulted from: (1) the licensee's review and identification of errors in the initial calculations of the setpoint, and (2) the results of verification tests on instrument response conducted during startup testing.

Evaluation

The HPCI Turbine Steam Line High Flow Trip is provided to affect HPCI isolation in the event of a HPCI steam line break upstream of the HPCI turbine. The criterion for the setpoint is to provide isolation should the differential pressure instrumentation indicate 300% flow. The initial setpoint for each of two elbow taps was determined by calculation, to be 225" H₂O differential pressure. A formula supplied by the elbow tap manufacturer (Ref FSAR, Amendment No. 7, October 1972) was used for this calculation. Verification of the appropriateness of the setpoint was contingent upon startup testing under full steam flow conditions.

The licensee's reevaluation of the +225" H₂O setpoint indicates that an incorrect HPCI steam line pipe diameter was used in the initial calculation. In addition, since the two differential pressure instruments are not located in a horizontal plane, one line of each instrument will fill with steam condensate to a higher level than the other line, resulting in instrumentation offsets. Further, instruments readings can be affected by the "B" main steam line flow. In view of the foregoing, the licensee has concluded and the staff agrees, that the +225" H₂O setpoint is not consistent with the criterion of 300% steam flow trip and should be reduced.

The results of the verification tests indicate that the setpoints should be +99" H₂O for the inboard differential pressure instrument and +53" H₂O for the outboard instrument. These setpoints incorporate the most conservative offsets for each instrument and the most conservative effect of main steam line flow on instrument readings.

Environmental Consideration

We have determined that the amendment does 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 amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: January 17, 1977

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

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 26 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 modifies the Technical Specifications by lowering the trip level setpoints for the differential pressure instruments associated with the HPCI Turbine Steam Line High Flow trip.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. 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 amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

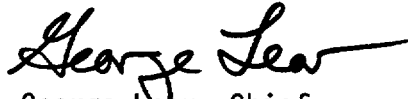
The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance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

For further details with respect to this action, see (1) the application for amendment dated December 17, 1976, (2) Amendment No. 26 to License No. DPR-49, and (3) the Commission's related Safety Evaluation. 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 copy of items (2) and (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 17th day of January 1977.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script, appearing to read "George Lear", with a long horizontal flourish extending to the right.

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