June 25, 1984

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. 102 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 August 26, 1983.

The amendment revises the Duane Arnold Energy Center (DAEC) Technical Specifications to satisfy staff requested surveillance requirements related to the Low-Low Setpoint (LLS) function and main steam isolation valves (MSIV) isolation water level setpoint lowering. Please note that the changes relating to relief valve settings have been correctly made to page 3.6-28 rather than to 3.6-26 which was incorrectly referenced in the Federal Register (48 FR 56506).

A copy of the related Safety Evaluation is also enclosed.

Sincerely,

Original signed by/

Mohan C. Thadani, Project Manager
Operating Reactors Branch #2
Division of Licensing

Enclosures:
1. Amendment No. 102 to
License No. DPR-49
2. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION	DEisenhut	ELJordan	ACRS (10)
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*Please see previous concurrence page.

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05/09/84	05/11/84	05/11/84	06/12/84	06/12/84
6/10/84				

Mr. Lee Liu
Iowa Electric Light and Power Company
Duane Arnold Energy Center

cc:

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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. 102
License No. DPR-49

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Iowa Electric Light & Power Company, et al, dated August 26, 1983, 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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 102, 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 its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the
Technical Specifications

Date of Issuance: June 25, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 102

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Revise the Appendix A Technical Specifications by removing the current pages and inserting the revised pages listed below. The revised areas are identified by vertical lines.

LIST OF AFFECTED PAGES

1.1-4

1.2-2

3.2-26

3.2-27

3.6-6

3.6-28

3.6-29

3.6-41

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENT	
	E. Scram - main steam line isolation valve	≤ 10 percent valve closure
	F. Main steam isolation valve closure nuclear system low pressure	≥ 850 psig
	G. Core spray & LPCI actuation - reactor low level .	≥ 363 inches above vessel zero (+18.5 inches water indicated level)
	H. HPCI & RCIC actuation - reactor low water level	≥ 464 inches above vessel zero (+119.5 inches indicated level)
	I. Main steam isolation valve closure- reactor low water level	≥ 363 inches above vessel zero (+18.5 inches indicated level.)
	J. Main steam isolation valve closure- loss of main condenser vacuum	≤ 10 inches Hg vacuum

SAFETY LIMIT	LIMITING SAFETY SYSTEM SETTING
	C. Relief Valve Settings - Low-Low Set Function Valve Group / Open / Close Low (1 valve) 1020 psig 900 psig High (1 valve) 1025 psig 905 psig. All settings are ± 25 psi. D. Safety Valve settings 1240 psig ± 12 psi (2 valves)
	2. The shutdown cooling isolation valves shall be closed whenever the reactor vessel dome pressure is ≥ 135 psig.
2. The reactor vessel dome presure shall not exceed 135 psig at any time when operating the Residual Heat Removal pump in the shutdown cooling mode.	

TABLE 4.2-B

MINIMUM TEST AND CALIBRATION FREQUENCY FOR CSCS

Instrument Channel	Instrument Functional Test(9)	Calibration Frequency (9)	Instrument Check
1) Reactor Water Level	(1)	Once/3 months	Once/day
2) Drywell Pressure	(1)	Once/3 months	None
3) Reactor Pressure	(1)	Once/3 months	None
4) Auto Sequencing Timers	N/A	Once/operating cycle	None
5) ADS - LPIC or CS Pump Discharge Pressure Interlock	(1)	Once/3 months	None
6) Trip System Bus Power Monitors	(1)	Not Applicable	None
7) Recirculation System d/p	(1)	Once/3 months	Once/day
8) Core Spray Sparger d/p	(1)	Once/3 months	Once/day
9) Steam Line High Flow (HPIC & RCIC)	(1)	Once/3 months	None
10) Steam Line High Temp. (HPIC & RCIC)	(1)	Once/operating cycle	Once/day
11) HPCI and RCIC Steam Line Low Pressure	(1)	Once/3 months	None
12) HPCI Suction Source Levels	(1)	Once/3 months	None
13) a. 4KV Emergency Power System Voltage Relays	Once/operating cycle	Once/operating cycle	None
b. 4KV Emergency Power System Voltage Relays (Degraded Voltage)	Once/month	Once/operating cycle	None
14) Instrument A.C. and battery bus undervoltage relays	(1)	Once/operating cycle	None
15) Low-Low Set Function	(1)	Once/6 months	Once/day

TABLE 4.2-B (Continued)

MINIMUM TEST AND CALIBRATION FREQUENCY FOR CSCS

Logic System Functional Test (4) (6)	Calibration Frequency(9)
1) Core Spray Subsystem	Once/6 months
2) Low Pressure Coolant Injection Subsystem	Once/6 months
3) Containment Spray Subsystem	Once/6 months
4) HPCI Subsystem	Once/6 months
5) HPCI Subsystem Auto Isolation	Once/6 months
6) ADS Subsystem	Once/6 months
7) RCIC Subsystem Auto Isolation	Once/6 months
8) Area Cooling for Safeguard System	Once/6 months
9) Low-Low Set Function	Once/6 months

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
2.	2. At least one of the relief valves shall be disassembled and inspected each refueling outage.
a. From and after the date that the safety valve function of one relief valve is made or found to be inoperable, continued reactor operation is permissible only during the succeeding thirty days unless such valve function is sooner made operable.	
b. From and after the date that the safety valve function of two relief valves is made or found to be inoperable, continued reactor operation is permissible only during the succeeding seven days unless such valve function is sooner made operable.	
3. If Specification 3.6.D.1 is not met, an orderly shutdown shall be initiated and the reactor coolant pressure shall be reduced to atmospheric within 24 hours.	3. With the reactor pressure $\geq$ 100 psig and turbine bypass flow to the main condenser, each relief valve shall be manually opened and verified open by turbine bypass valve position decrease and pressure switches and thermocouple readings downstream of the relief valve to indicate steam flow from the valve once per operating cycle.
	4. The relief valve setpoints for the Low-Low Set function shall be as specified in Section 2.2.1.C. Instrumentation and system logic shall be functionally tested, calibrated, and checked as indicated in Table 4.2-8.
E. Jet Pumps	E. Jet Pumps
1. Whenever the reactor is in the startup or run modes, all jet pumps shall be operable. If it is determined that a jet pump is inoperable, an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown Condition within 24 hours.	1. Whenever there is recirculation flow with the reactor in the startup or run modes, jet pump operability shall be checked daily by verifying that the following conditions do not occur simultaneously:
	a. The two recirculation loops have a flow imbalance of 15% or more when the pumps are operated at the same speed.

the direct scram (valve position scram) results in a peak vessel pressure less than the Code allowable overpressure limit of 1375 psig if a flux scram is assumed.

The analyses of the plant isolation transients are evaluatd in each reload analyses. These analyses show that the six relief valves assure margin below the setting of the safety valves such that the safety valves would not be expected to open during any anticipated normal transient. These analyses verify that peak system pressure is limited to greater than a 125 psi margin to the allowed vessel overpressure of 1375 psig.

Experience in relief and safety valve operation shows that a testing of 50 percent of the valves per year is adequate to detect failures or deteriorations. The relief and safety valves are benchtested every second operating cycle to ensure that their setpoints are within the ± 1 percent tolerance. Additionally, once per operating cycle, each relief valve is tested manually with reactor pressure above 100 psig and with turbine bypass flow to the main condenser to demonstrate its ability to pass steam. By observation of the change in position of the turbine bypass valve, the relief valve operation is verified.

The requirements established above apply when the nuclear system can be pressurized above ambient conditions. These requirements are applicable at nuclear system pressures below normal operating pressures because abnormal operational transients could possibly start at these conditions such that eventual overpressure relief would be needed. However, these transients are much less severe, in terms of pressure, than those starting at rated conditions. The valves need not be functional when the vessel head is removed, since the nuclear system cannot be pressurized.

The low-low set (LLS) function provides automatic relief mode setpoints on the two non-ADS safety/relief valves (S/RV's). The LLS function lowers the opening and closing setpoints after any S/RV has opened at its normal steam pilot setpoint when a concurrent high reactor vessel steam dome pressure scram signal is present. The purpose of the LLS is to mitigate the induced high frequency loads on the containment and thrust loads on the S/RV discharge lines. The LLS function increases the amount of reactor depressurization during an S/RV blowdown because the lowered LLS setpoints keep the two LLS S/RV's open for a longer time. In this way, the frequency and magnitude of the containment blowdown duty cycle is substantially reduced. Sufficient redundancy is provided for the LLS function such that failure of any one LLS valve to open or close at its reduced setpoint does not violate the design basis. (1)

The records will be developed from engineering data available. If actual installation data is not available, the service life will be assumed to commence with the initial criticality of the plant. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review are not intended to affect plant operation.

3.6 and 4.6 References

1) General Electric Company, Low-Low Set Relief Logic System and Lower MSIV Water Level Trip for the Duane Arnold Energy Center, NEDE-30021-P, January, 1983.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 102 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 April 29, 1983, the Commission issued to Iowa Electric Light and Power Company (the licensee) Amendment No. 89 to the Duane Arnold Energy Center (DAEC) Technical Specifications. Amendment No. 89 was related to the approval of Mark I containment modifications. In the Safety Evaluation for Amendment No. 89, the staff required the licensee to incorporate in the DAEC Technical Specifications the Low-Low Setpoint (LLS) logic test frequency committed to by the licensee in a letter dated April 21, 1983. In the Safety Evaluation for Amendment No. 89, the staff also found that the lowering of the MSIV isolation water level setpoint was acceptable. The licensee, in a letter dated August 26, 1983, submitted the proposed changes to the Technical Specifications arising from its commitments in connection with the LLS relief logic modifications noted in the Safety Evaluation for Amendment No. 89.

2.0 Evaluation

The licensee in its August 26, 1983 letter in connection with LLS relief logic modifications, proposed changes to the Technical Specifications to incorporate the LLS logic surveillance requirements, and to lower the MSIV water level trip from low-low water level to low-low-low water level. These changes were previously approved in the Safety Evaluation for Amendment No. 89, and were submitted by the licensee in its August 26, 1983 letter for the purpose of implementation. We find that the proposed changes are consistent with our requirements and are, therefore, acceptable for incorporation in the Technical Specifications.

3.0 Environmental Considerations

This amendment involves a change in the use of a facility component located within the restricted area. The staff has determined that the amendment involves no significant increase in the amounts of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupation 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 Sec. 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: M. Thadani

Dated: June 25, 1984