

November 30, 1988

Docket No. 50-331

DISTRIBUTION:

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

<u>Docket Files</u>	NRC & Local PDRs
PDIII-3 r/f	JHannon
MVirgilio	PKreutzer
RHall	OGC-WF1
DHagan	EJordan
BGrimes	TBarnhart(4)
Wanda Jones	EButcher
ACRS(10)	GPA/PA
ARM/LFMB	PDIII-3 Gray Files

Dear Mr. Liu:

The Commission has issued the enclosed Amendment No. 155 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 September 2, 1988.

The amendment revises the Technical Specifications (TS's) to reflect improvements to accident monitoring instrumentation made as part of your Detailed Control Room Design Review program long-term enhancements. Specifically, Tables 3.2-F, 3.2-H and 4.2-H of the TS's are revised to reflect proper ranges, surveillance requirements and nomenclature of containment water level and pressure, and torus water level and temperature instrumentation.

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

Sincerely,

/s/

James R. Hall, Project Manager
Project Directorate III-3
Division of Reactor Projects - III,
IV, V & Special Projects

Enclosures:

1. Amendment No. 155 to License No. DPR-49
2. Safety Evaluation

cc w/enclosures:
See next page

(TAC 69134 AMD)

Office: LA/PDIII-3
Surname: PKreutzer
Date: 11/16/88

PM/PDIII-3
RHall/tg
11/17/88

PD/PDIII-3
JHannon
11/17/88

OGC-WF1
SETurk
11/18/88

CP-1

DFOI
11

Mr. Lee Liu
Iowa Electric Light and Power Company

Duane Arnold Energy Center

cc:

Jack Newman, Esquire
Kathleen H. Shea, Esquire
Newman and Holtzinger
1615 L Street, 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 and Power Company
ATTN: R. Hannen
Post Office Box 351
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. 155
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 September 2, 1988 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:

8812010213 881130
PDR ADOCK 05000331
P FDC

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 155, 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

for Thomas V. Wimbach
John N. Hannon, Director
Project Directorate III-3
Division of Reactor Projects - III,
IV, V and Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 30, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 155

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
3.2-21
3.2-22
3.2-23a
3.2-23c
3.2-31
3.2-34a

TABLE 3.2-F

SURVEILLANCE INSTRUMENTATION

Total No. Channels Provided	Minimum No. Channels Required	Instrument	Type Indication and Range	Action
3	2	Reactor Water Level	Recorder, Indicator 158"-218"*	(1) (2) (3)
3	2	Reactor Pressure	Recorder, Indicator 0-1200 psig	(1) (2) (3)
2	2	Drywell Pressure	Recorder -10 to +90 psig	(1) (2) (3)
8	2	Drywell Temperature	Recorder 0-350°F	(1) (2) (3)
2	2	Torus Water Temperature	Recorder 20-220°F	(1) (2) (3)
2	2	Torus Water Level	Recorder -10"/0/+10" H ₂ O	(1) (2) (3)
2	1	Control Rod Position	Process Computer, Full Core Display, Four Rod Group Display	
4	3	Neutron Monitoring	SRM** (10 ⁻¹ to 10 ⁶ CPS)	(1) (2) (3) (4)
3 (per Trip System)	2 (per Trip System)	Neutron Monitoring	IRM,** APRM 0 to 125% power	(1) (2) (3) (4)

*Indicator scale is referenced to the Top of Active Fuel (TAF), defined as 344.5 inches above vessel zero.

**Not required when in the Run mode.

3.2-21

Amendment No. 134, 137, 155

TABLE 3.2-H

ACCIDENT MONITORING INSTRUMENTATION

Instrument	Total Number of Channels Provided	Type Indication and Range	Minimum No. Channels Required	Action
Safety/Relief Valve Position Indicator (Primary Detector)	1/Valve(1)	N/A	1/Valve	(2)
Safety/Relief Valve Position Indicator (Backup-Thermocouple)	1/Valve	N/A	0	
Safety Valve Position Indicator (Primary Detector)	1/Valve(1)	N/A	1/Valve	(2)
Safety Valve Position Indicator (Backup-Thermocouple)	1/Valve	N/A	0	
Reactor Coolant, Containment Atmosphere, and Torus Water Post-Accident Sampling	2(each)	N/A	1(each)	(4) (5)
Extended Range Effluent Radiation Monitors:				
a) Reactor Building Exhaust Stack	3	Recorder, Indicator 5×10^{-2} to 10^5 $\mu\text{Ci/cc}$	1	(6)
b) Turbine Building Exhaust Stack	1	Recorder, Indicator 5×10^{-2} to 10^5 $\mu\text{Ci/cc}$	1	(6)
c) Offgas Stack	1	Recorder, Indicator 5×10^{-2} to 10^5 $\mu\text{Ci/cc}$	1	(6)
Drywell/Torus Radiation Monitor	4	Recorder, Indicator 1 to 10^7 R/hr	2	(6)
Drywell Pressure Monitor	2	Recorder, Indicator 0-250 psig	2	(7) (8)
Drywell Pressure Monitor	2	Recorder, Indicator -5 to +5 psig	2	(7) (8)
Torus Water Level Monitor (Primary Detector)	2	Recorder, Indicator 1.5 to 16 feet	2	(9) (10)
Containment Water Level Monitor (Backup level)*	2	Recorder, Indicator 0 to 98 feet	"	"
Containment Hydrogen/Oxygen Concentration (3)	2	Recorder, Indicator 0-10% or 0-25% O_2 0-10% or 0-20% H_2 Volume oxygen/hydrogen	2	(11) (12)

*Containment Water Level is not part of the Accident Monitoring Instrumentation. It is to be used as a backup to torus water level only.

NOTES FOR TABLE 3.2-H (cont.)

- (7) If the number of OPERABLE channels (both indicator and recorder inoperable) is reduced to less than the Minimum Number Channels Required (e.g., reduced to one channel) follow either step (a) or (b) below.
- Operation may continue for the next thirty (30) days provided at least one (1) channel of instrumentation specified in Table 3.2-F for the identical parameter is OPERABLE¹ or follow step (c) below.
 - Restore the inoperable channel to OPERABLE status within 7 days, should neither channel of instrumentation specified in Table 3.2-F for the identical parameter be OPERABLE, or follow step (c) below.
 - Within the following 12 hours be in at least HOT STANDBY and within the next 24 hours be in COLD SHUTDOWN.
- (8) If the number of OPERABLE channels (both indicator and recorder inoperable) is reduced to zero (e.g., no channels available) restore the inoperable channel(s) to OPERABLE status within 48 hours or within the following 12 hours be in at least HOT STANDBY and within the next 24 hours be in COLD SHUTDOWN.
- (9) If the number of OPERABLE channels (both indicator and recorder inoperable) is reduced to less than the Minimum Number Channels Required (e.g., reduced to one channel) follow either step (a) or (b) below.
- Operation may continue for the next thirty (30) days provided at least one torus water level channel and one containment water level channel is available². If these conditions cannot be met, follow step (b) below.
 - Operation may continue for the next 7 days if one torus water level channel is available and there are no other containment water level channels available. If these conditions cannot be met, follow step (c) below.
 - Within the following 12 hours be in at least HOT STANDBY and within the next 24 hours be in COLD SHUTDOWN.
- (10) If the number of OPERABLE channels (both indicator and recorder inoperable) is reduced to zero (e.g., no channels available) restore at least one channel to OPERABLE status within 48 hours or within the following 12 hours be in at least HOT STANDBY and within the next 24 hours be in COLD SHUTDOWN.
- (11) If the number of OPERABLE channels (both indicator and recorder inoperable) is less than the Minimum Number Channels Required (e.g., reduced to one channel) follow either step (a) or (b) below.
- Within 30 days, increase the number of OPERABLE channels to the Minimum Number Channels Required or follow step (c) below.

¹The instruments in Table 3.2-F which measure the identical parameters are the -10 to 90 psig drywell pressure monitors.

²The containment water level monitors provide indication from 0 to +98 feet.

TABLE 4.2-F

MINIMUM TEST AND CALIBRATION FREQUENCY FOR SURVEILLANCE INSTRUMENTATION

<u>Instrument Channel</u>	<u>Calibration Frequency</u>	<u>Instrument Check</u>
1) Reactor Level	Once/6 months	Once Each Shift
2) Reactor Pressure	Once/6 months	Once Each Shift
3) Drywell Pressure	Once/6 months	Once Each Shift
4) Drywell Temperature	Once/6 months	Once Each Shift
5) Torus Water Temperature	Once/6 months	Once Each Shift
6) Torus Water Level	Once/6 months	Once Each Shift
7) Control Rod Position	NA	Once Each Shift
8) Neutron Monitoring	Prior to Reaching 20% Power and once per day when in Run Mode (APRM Gain Adjust when in Run Mode)	Once Each Shift (When in Startup or Run Mode)

3.2-31

Amendment No. 48, 137, 155

TABLE 4.2-H

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>Calibration Frequency</u>	<u>Instrument Check (2)</u>
Safety/Relief Valve Position Indicator (Primary) (1)(2)	Once/operating cycle	Once/month
Safety/Relief Valve Position Indicator (Backup-Thermocouple)	Once/operating cycle	Once/month
Safety Valve Position Indicator (Primary) (1)(2)	Once/operating cycle	Once/month
Safety Valve Position Indicator (Backup-Thermocouple)	Once/operating cycle	Once/month
Drywell/Torus Radiation Monitor	Once/operating cycle (3)	Once/month (
Extended Range Effluent Radiation Monitors		
a) Reactor Building Exhaust Stacks	Annual (4)	Once/week
b) Turbine Building Exhaust Stack	Annual (4)	Once/week
c) Offgas Stack	Annual (4)	Once/week
Reactor Coolant, Containment Atmosphere, and Torus Water Post-Accident Sampling	Annual (5)	N/A
Drywell Pressure Monitors	Annual	Once/month
Torus Water Level Monitor	Once/operating cycle	Once/month
Containment Water Level Monitor	Once/operating cycle	Once/month
Containment Hydrogen/Oxygen Concentration	Once/6 months (6)	Once/month (6)

NOTES FOR TABLE 4.2-H

1. Functional test of the relay is done once/3 months.
2. Instrument check shall consist of the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels (e.g. backup thermocouple) measuring the same parameter.
3. Channel calibration shall consist of an electronic calibration of the channel for ranges above 10 R/hr and a one point calibration check of the detector below 10 R/hr with a portable gamma source.
4. Accident range effluent monitors shall be calibrated by means of a built-in check source or a known radioactive source.
5. Not a calibration, but demonstration of system operability.
6. Monitors shall be tested for operability using standard bottled H₂ and O₂.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 155 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 September 2, 1988 (Reference 1), the Iowa Electric Light and Power Company (IELP), et al., submitted an application to amend the Duane Arnold Energy Center (DAEC) Technical Specifications (TS's). The changes were proposed to support long-term enhancements which are part of the DAEC Detailed Control Room Design Review (DCRDR) program, described in the DCRDR Summary Report submitted by IELP on December 5, 1986 (Reference 2). By letter dated April 6, 1988, (Reference 3) the NRC staff approved IELP's DCRDR program and schedule for implementation of modifications. The specific changes requested by Reference 1 would revise the TS's to reflect new ranges, surveillance requirements and nomenclature for containment and torus water level instrumentation. The changes would also correct existing errors in the TS's to properly reflect the actual functional ranges of plant instrumentation, and make other administrative corrections.

2.0 EVALUATION

In Reference 2, IELP committed to relocate control room indicators for certain accident monitoring instrumentation, and this work was scheduled to be performed during the current Cycle 9/10 refueling outage. These modifications and schedule were approved by the NRC in Reference 3. The specific TS changes associated with these modifications were requested in Reference 1, and are evaluated below.

2.1 Containment Water Level Instrumentation

Containment water level indication is being relocated to a different control room panel, as stated in References 1 and 2. Consequently, Table 3.2-F, SURVEILLANCE INSTRUMENTATION, is being revised to delete "Containment Water Level," which will be added to Table 3.2-H, ACCIDENT MONITORING INSTRUMENTATION. Under the present Technical Specifications, indication of containment water level is used as a back-up to torus water level and is improperly located

in Table 3.2-F. The proposed change relocates the containment water level instrument to Table 3.2-H, ACCIDENT MONITORING INSTRUMENTATION, and clearly identifies it as a back-up to torus water level indication. This change improves the human factors of both Tables through the correct grouping of similar instrumentation. Table 4.2-H, ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS, will be revised to include "Containment Water Level," to assure that the same surveillance requirements are applicable to this instrument as to other accident monitoring instrumentation. In addition, the range of this instrument is being revised from "-20 to 80 ft." to "0 to 98 ft." in Table 3.2-H, and in footnote 2 on page 3.2-23c. This change will reflect the actual indication given to control room operators.

These changes improve the quality and consistency of information provided to the operators and increase the surveillance requirements for containment water level instrumentation; therefore the staff finds them acceptable.

2.2 Torus Water Level Instrumentation

Table 3.2-H is being revised to reflect the actual range available for torus water level indication. The stated range will be corrected from "0-30 ft." to "1.5 to 16 ft.", to correspond to the actual physical configuration of the existing torus level instrumentation. In addition, Table 4.2-F is being revised to specify "Torus Water Level" versus "Suppression Chamber Water Level" for consistency in nomenclature.

The reduced range of torus water level indication meets all criteria of Regulatory Guide 1.97, "Instrumentation to Follow the Course of an Accident," and is consistent with the analysis provided in the DAEC Final Safety Analysis Report, Section 6.2.1.5. This range reflects the actual torus water level indication provided to operators. As these changes will improve the accuracy and clarity of the information provided to operators and are consistent with applicable criteria, the staff finds them acceptable.

2.3 Drywell and Torus Pressure Instrumentation

The drywell and torus pressure local indicators (and their related notes) are being deleted from Tables 3.2-F and 4.2-F. The requirement for a drywell/torus differential pressure system was deleted from the DAEC Technical Specifications as part of Amendment 137 (Reference 4) upon completion of the Mark I Program Long Term Enhancements. The local indicators for drywell and torus pressure listed in Tables 3.2-F and 4.2-F were part of this system. As such, we find the deletion of this instrumentation from the TS to be acceptable. This conclusion is also based on the fact that the criteria of Regulatory Guide 1.97 are met through the use of other dedicated accident monitoring instrumentation.

The drywell pressure instrument range listed in Table 3.2-H is revised to reflect the actual range of the equipment currently installed. The range is revised from "0-225 psig" to "0-250 psig," and is therefore expanded.

The staff finds this change acceptable, as it improves the accuracy and consistency of information provided to control room operators.

2.4 Torus Water Temperature Instrumentation

The torus water temperature instrument range in Table 3.2-F is revised to reflect the range of the currently installed equipment. This range is revised from "0-350°F," to "20-220°F." The revised range is slightly below the range of 40°F to 230°F recommended in Regulatory Guide 1.97. However, based on the fact that the maximum calculated bulk pool temperature following an accident is 197°F, the staff finds that the revised temperature range of 20°F to 220°F is acceptable and meets the intent of Regulatory Guide 1.97. In addition, Table 4.2-F is revised to change "Suppression Chamber Temperature" to "Torus Water Temperature" for consistency of nomenclature. These changes meet the intent of applicable criteria and improve the accuracy of information available to operators, therefore the staff finds them acceptable.

3.0 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. 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.

4.0 CONCLUSION

In Reference 3, the NRC staff approved IELP's DCRDR program for the DAEC, including proposed modifications and schedules. The specific TS changes requested in Reference 1 support previously approved DCRDR improvements. The specific changes requested improve the quality and consistency of information provided to control room operators and otherwise comply with applicable criteria, therefore the staff finds the proposed changes acceptable.

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, 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.

5.0 REFERENCES

1. Letter dated September 2, 1988, from W. Rothert (IELP) to T. Murley (NRC), NG-88-2321.
2. Letter dated December 5, 1986, from R. McGaughy (IELP) to H. Denton (NRC), NG-86-4251 (DCRDR Summary Report).
3. Letter dated April 6, 1988, from J. Hall (NRC) to L. Liu (IELP), Detailed Control Room Design Review for Duane Arnold Energy Center.
4. Letter dated September 19, 1986 from M. Thadani (NRC) to L. Liu (IELP), Amendment No. 137 to Facility Operating License No. DRP-49.

Principal Contributor: James R. Hall

Dated: November 30, 1988