

April 25, 1995

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Mr. Lee Liu
 Chairman of the Board and
 Chief Executive Officer
 IES Utilities Inc.
 Post Office Box 351
 Cedar Rapids, Iowa 52406

SUBJECT: AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-49 - DUANE
 ARNOLD ENERGY CENTER (TAC NO. M90946)

Dear Mr. Liu:

The Commission has issued the enclosed Amendment No. 209 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 November 10, 1994, and supplemented on March 1, 1995.

The amendment revises Technical Specification Section 3.2.A to refer to the Offsite Dose Assessment Manual for the setpoint of the Offgas Stack Radiation Monitor and makes the "Applicable Operating Mode" and the "Action" statements for these instruments consistent with the required function. The Action statement for the other instruments which initiate Secondary Containment isolation is also revised to be consistent with the current practice and with the function of those instruments. The Basis is also revised to add further description of the function and requirements.

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:

Glenn B. Kelly, Project Manager
 Project Directorate III-3
 Division of Reactor Projects III/IV
 Office of Nuclear Reactor Regulation

Docket No. 331

Enclosures: 1. Amendment No. 209 to
 License No. DPR-49
 2. Safety Evaluation
 cc w/encls: See next page

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NAME	CMiller*		GMarcus GHM							
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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

April 25, 1995

Mr. Lee Liu
Chairman of the Board and
Chief Executive Officer
IES Utilities Inc.
Post Office Box 351
Cedar Rapids, IA 52406

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Sincerely,

A handwritten signature in cursive script that reads "Glenn B. Kelly".

Glenn B. Kelly, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures: 1. Amendment No. 209 to
License No. DPR-49
2. Safety Evaluation

cc w/encls: See next page

Mr. Lee Liu
IES Utilities Inc.

Duane Arnold Energy Center

cc:

Jack Newman, Esquire
Kathleen H. Shea, Esquire
Morgan, Lewis, & Bockius
1800 M Street, N. W.
Washington, D. C. 20036-5869

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

IES Utilities Inc.
ATTN: David L. Wilson
Plant Superintendent, Nuclear
3277 DAEC Road
Palo, Iowa 52324

Mr. John F. Franz, Jr.
Vice President, Nuclear
Duane Arnold Energy Center
3277 DAEC Road
Palo, Iowa 52324

Mr. Keith Young
Manager, Nuclear Licensing
Duane Arnold Energy Center
3277 DAEC Road
Palo, Iowa 52324

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

Regional Administrator, RIII
U. S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, Illinois 60532-4531

Mr. Stephen N. Brown
Utilities Division
Iowa Department of Commerce
Lucas Office Building, 5th floor
Des Moines, Iowa 50319



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

IES UTILITIES INC.

CENTRAL IOWA POWER COOPERATIVE

CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 209
License No. DPR-49

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

- A. ~~The application~~ for amendment by IES Utilities Inc., et al., dated November 10, 1994, and supplemented March 1, 1995, 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 Appendix A, as revised through Amendment No. 209, 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 90 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for Jon B. Hopkins

Gail H. Marcus, Director
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of issuance: April 25, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 209

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 vertical lines.

Remove

iii
3.2-4
3.2-7
3.2-46

Insert

iii
3.2-4
3.2-7
3.2-46

	<u>LIMITING CONDITIONS FOR OPERATIONS</u>	<u>SURVEILLANCE REQUIREMENTS</u>	<u>PAGE NO.</u>
3.7	Plant Containment Systems	4.7	3.7-1
A.	Primary Containment Integrity	A	3.7-1
B.	Primary Containment Power Operated Isolation Valves	B	3.7-7
C.	Drywell Average Air Temperature	C	3.7-9
D.	Pressure Suppression Chamber - Reactor Building Vacuum Breakers	D	3.7-10
E.	Drywell - Pressure Suppression Chamber Vacuum Breakers	E	3.7-11
F.	Main Steam Isolation Valve Leakage Control System (MSIV-LCS)	F	3.7-12
G.	Suppression Pool Level and Temperature	G	3.7-13
H.	Containment Atmospheric Dilution	H	3.7-15
I.	Oxygen Concentration	I	3.7-16
J.	Secondary Containment	J	3.7-17
K.	Secondary Containment Automatic Isolation Dampers	K	3.7-18
L.	Standby Gas Treatment System	L	3.7-19
M.	Mechanical Vacuum Pump	M	3.7-21
3.8	Auxiliary Electrical Systems	4.8	3.8-1
A.	AC Power Systems	A	3.8-1
B.	DC Power Systems	B	3.8-3
C.	Onsite Power Distribution Systems	C	3.8-5
D.	Auxiliary Electrical Equipment - CORE ALTERATIONS	D	3.8-5
E.	Emergency Service Water System	E	3.8-6
3.9	Core Alterations	4.9	3.9-1
A.	Refueling Interlocks	A	3.9-1
B.	Core Monitoring	B	3.9-5
C.	Spent Fuel Pool Water Level	C	3.9-6
D.	Auxiliary Electrical Equipment - CORE ALTERATIONS	D	3.9-6
3.10	Additional Safety Related Plant Capabilities	4.10	3.10-1
A.	Main Control Room Ventilation	A	3.10-1
B.	Remote Shutdown Panels	B	3.10-2a
C.	Control Building Chillers	C	3.10-2a
3.11	River Level Specification	4.11	3.11-1

Table 3.2-A (Continued)
ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION	TRIP LEVEL SETTING	APPLICABLE OPERATING MODE	MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM^(a)	VALVE GROUPS ISOLATED BY SIGNAL	ACTION
<u>Secondary Containment</u>					
Refuel Floor Exhaust Duct - High Radiation	≤ 9 mr/hr	1,2,3 and *	1	3 ^(c)	26
Reactor Building Exhaust Shaft - High Radiation	≤ 11 mr/hr	1,2,3 and *	1	3 ^(c)	26
Offgas Vent Stack - High Radiation	Note k	Note m	1	3 ^(c)	27
<u>RHR System Shutdown Cooling</u>					
Reactor Vessel Pressure - High	≤ 135 psig	1,2,3	1	4	23
<u>Reactor Water Cleanup</u>					
RWCU Differential Flow - High	≤ 40 gpm/d	1,2,3	1	5	23
RWCU Area Temperature - High	≤ 130°F	1,2,3	1	5	23
RWCU Area Ventilation Differential Temperature - High	Δ14°F ^(d)	1,2,3	1	5	23
Standby Liquid Control System Initiation	NA	Note i	1	5 ^(e)	23
RWCU Area Near Tip Room Ambient Temperature - High	≤ 111.5°F	1,2,3	1	5	23

DAEC-1

Table 3.2-A (Continued)
ISOLATION ACTUATION INSTRUMENTATION
ACTION

ACTION 20 -	Be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
ACTION 21 -	Be in at least STARTUP with the associated isolation valves closed within 6 hours or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
ACTION 22 -	Be in at least STARTUP within 6 hours.
ACTION 23 -	Close the affected system isolation valves within one hour and declare the affected system inoperable.
ACTION 24 -	Not used.
ACTION 25 -	Restore the manual initiation function to OPERABLE status within 8 hours or close the affected system isolation valves within the next hour and declare the affected system inoperable.
ACTION 26 -	Isolate Secondary Containment with the Standby Gas Treatment System operating within one hour.
ACTION 27 -	Within one hour, close the primary containment vent and purge valves, or establish administrative control of those valves with continuous monitoring of alternate instrumentation.

NOTES

- * When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.
- ** When any turbine stop valve is greater than 90% open and/or when the key-locked bypass switch is in the NORM position.
- (a) When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions for Operation and required Actions may be delayed as follows: (1) for up to 6 hours for RWCU Differential Flow-High, RCIC Manual Initiation, HPCI Manual Initiation; and (2) for up to 6 hours for the remaining Trip Functions provided the associated Trip Function maintains isolation capability.
- (b) Operates Group 1 valves except Main Steam Isolation Valves. Also trips Mechanical Vacuum Pump which results in a subsequent isolation of the Mechanical Vacuum Pump Suction valves.
- (c) Also starts the Standby Gas Treatment System.
- (d) Actual setpoint shall be 14°F above the 100% operation ambient temperature conditions as determined by DAEC plant test procedure.
- (e) Closes MO-2701 and MO-2740 only.
- (f) Requires system steam supply pressure-low coincident with drywell pressure-high to close HPCI/RCIC exhaust vacuum breaker valves.
- (g) Manual isolation closes MO-2401 only, if RCIC initiation signal present.
- (h) Manual isolation closes MO-2239 only, if HPCI initiation signal present.
- (i) When the Standby Liquid Control System is required to be OPERABLE per Specification 3.4.A.
- (j) Within 24 hours prior to the planned start of the hydrogen injection test with the reactor power at greater than 20% rated power, the normal full-power radiation background level and associated trip setpoints may be changed based on a calculated value of the radiation level expected during the test. The background radiation level and associated trip setpoints may be adjusted during the test program based on either calculations or measurements of actual radiation levels resulting from hydrogen injection. The background radiation level shall be determined and associated trip setpoints shall be set within 24 hours of reestablishing normal radiation levels after completion of the hydrogen injection test or within 12 hours of establishing reactor power levels below 20% rated power, while these functions are required to be operable.
- (k) The monitors shall be set to initiate isolation at a setting equivalent to or below the dose rate limits in ODAM section 6.2.2.1.
- (m) During VENTING or PURGING of primary containment at any time when PRIMARY CONTAINMENT INTEGRITY is required.

Both of the scram discharge volume high level channels provide input to the "B" logic.

The refueling interlocks operate one logic channel, and are required for safety only when the mode switch is in the refueling position.

For effective emergency core cooling for small pipe breaks, the HPCI system must function since reactor pressure does not decrease rapidly enough to allow either core spray or LPCI to operate in time. The Automatic Depressurization System (ADS) is provided as a backup to HPCI. The arrangement of the ADS logic is such as to provide this function when necessary and minimize spurious operation. The trip settings given in the specification are adequate to assure the above criteria are met. The specification preserves the effectiveness of the system during periods of maintenance, testing, or calibration, and also minimizes the risk of inadvertent operation; i.e., only one instrument channel out of service.

Two air ejector offgas post-treatment monitors are provided. They are designed so that an instrument failure gives a downscale trip or an inoperative trip. When both instruments reach an upscale trip point, or when one reaches an upscale trip point and the other reaches a downscale trip point or an inoperative trip, a trip is actuated. ~~The post-treatment monitors have three upscale trip setpoints, one (Hi) to initiate charcoal bed bypass valve closure (CV-4134A open and CV-4134B closing to route offgas through the charcoal) and another (Hi-Hi-Hi) to initiate offgas system isolation valve (CV-4108) closure. The third trip point (Hi-Hi) is for alarm initiation, and will initiate prior to the offgas isolation trip.~~

Two sets of two radiation monitors are provided which initiate the Reactor Building Isolation function and operation of the standby gas treatment system. Two instrument channels monitor the radiation from the refueling area ventilation exhaust ducts and two instrument channels monitor the building ventilation below the refueling floor.

A third set of two radiation monitors is included in the Offgas Vent Stack. The Offgas Vent Stack radiation monitors initiate a Group III isolation as a convenient means to terminate primary containment VENTING or PURGING upon detection of high radiation in the effluent. This isolation signal was added in response to NUREG 0737, Item II.E.4.2(7). When these instruments are not OPERABLE, the activity for which the isolation was intended must be terminated or administrative control must be implemented. The VENTING or PURGING of Primary Containment may proceed under administrative control providing the following conditions are met: (1) an operator is stationed at the valve controls, and (2) that operator is instructed to terminate VENTING or PURGING when procedures direct valve closure.

Trip settings of < 9 mr/hr for the monitors in the refueling area ventilation exhaust ducts are based upon initiating normal ventilation isolation and standby gas treatment operation so that none of the activity released during the refueling accident leaves the Reactor Building via the normal ventilation path but rather all the activity is processed by the standby gas treatment system.

High radiation monitors in the main steam line tunnel have been provided to detect gross fuel failure. In the event of a gross fuel failure, the established setting of 3 times normal full power background radiation levels (accounting for the N-16 carryover due to Hydrogen Water Chemistry) will trip the Mechanical Vacuum Pump, which in turn isolates the suction of the Mechanical Vacuum Pump from the high and low pressure condensers. This prevents the release of untreated fission products to the environment via the Mechanical Vacuum Pump.

Flow integrators are used to record the integrated flow of liquid from the drywell sumps. The alarm unit in each timer is set to annunciate before the values specified in Specification 3.6.C are exceeded. An air sampling system is also provided, as a backup to the sump system, to detect leakage inside the primary containment.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-49

IES UTILITIES INC.

CENTRAL IOWA POWER COOPERATIVE

CORN BELT POWER COOPERATIVE

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letters dated November 10, 1994, and March 1, 1995, IES Utilities Inc. requested changes to the Duane Arnold Energy Center (DAEC) Technical Specification (TS) Section 3.2.A. The requested change would revise the "Applicable Operating Mode" and "Action" for the Offgas Vent Stack radiation monitors. The revision would make the requirements for instrument operability match the assumption for when the isolation would occur and provide allowance for reasonable, preplanned compensatory measures for the times when these instruments are not operable, but there is a need to continue venting. The change to the isolation setpoint provides a reference to the appropriate offsite dose limit in the Offsite Dose Assessment Manual (ODAM). The required Action for the other two isolation functions initiating secondary containment **isolation is a correction.** The licensee's current practice is to isolate secondary containment when either of these isolation functions are out-of-service. The March 1, 1995, letter from IES Utilities Inc., requested that an **editorial change be made to bring the TS table of contents into conformance with the TS and did not change the initial proposed no significant hazards consideration determination.**

2.0 EVALUATION

The Offgas Stack radiation monitors provide an isolation signal to the secondary containment isolation valves based upon an indication of increased activity in the gaseous effluent during normal and post-accident venting or purging of primary containment. The isolation signal was added to satisfy the requirement of NUREG-0737, Item II.E.4.2(7), to provide automatic termination of radioactive releases during containment venting in the event that those releases exceed a predetermined setpoint.

The revised TS would add Action Statement 27 which allows provision for opening the containment vent and purge valves with the trip function inoperable, provided that administrative control is established for these valves. This is consistent with the actions specified in DAEC's TS for Primary Containment Power Operated Isolation Valves. The revised TS Action Statement 27 will assure that containment venting is terminated upon detection of increased gaseous effluent radioactivity beyond acceptable limits. The staff, therefore, finds the addition of TS Action Statement 27 acceptable.

In 1993, a revision to TS 3.2.A became effective, which required the Offgas Vent Stack Radiation monitors to be operable in Modes 1, 2 or 3. This requirement is unnecessarily restrictive, since the necessity for the isolation is only postulated during containment venting or purging. The revised TS would change the "Applicable Operating Mode" to venting or purging of primary containment, at any time when primary containment integrity is required. When the containment vent and purge valves are closed, there is no need for an automatic isolation. The staff therefore, finds the revised TS "Applicable Operating Mode" for the Offgas Vent Stack radiation monitors acceptable.

The proposed revision would also allow the Offgas Vent Stack high radiation setpoint to be derived from the ODAM. The staff finds this methodology of deriving the setpoint acceptable. Consequently, the staff finds the proposed changes to the TS requirements and Basis for the Offgas Vent Stack High Radiation monitors acceptable.

Action Statement 26 currently requires that secondary containment integrity be established and the Standby Gas Treatment System be operated, whenever the Refuel Floor Exhaust Duct or Reactor Building Exhaust Shaft High Radiation monitors are out-of-service. The appropriate and more conservative action is to isolate Secondary Containment and operate the Standby Gas Treatment System. The revised TS Action will assure that no unmonitored releases take place by requiring secondary containment isolation, in the event that the isolation function monitoring the Refuel Floor Duct or the Reactor Building Exhaust Shaft are inoperable. Consequently, the staff finds the proposed change to this Action statement acceptable. In addition, the staff finds the proposed editorial change to the TS table of contents 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 and changes surveillance requirements. 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 (59 FR 65815). 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: J. Sebrosky

Date: April 25, 1995