

June 4, 1993

Docket No. 50-331

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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

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Dear Mr. Liu:

SUBJECT: EXEMPTION TO 10 CFR PART 50, APPENDIX J, SECTION III.D.2 (b)
(TAC NO ~~1~~86313)

The Commission has issued the enclosed Exemption from certain requirements of Appendix J to 10 CFR Part 50 for the Duane Arnold Energy Center, in response to your letter dated April 29, 1993. The subject regulation requires that, "Air locks shall be tested at six month intervals..." and, "Air locks opened during periods when containment integrity is required by the plant's Technical Specifications shall be tested within 3 days after being opened." This Exemption grants relief from these Appendix J requirements until the end of the next shutdown, but no later than the plant startup from your scheduled refueling outage on July 29, 1993, whichever comes first.

The Exemption is enclosed.

A copy of the Exemption is being filed with the Office of the Federal Register for publication.

Sincerely,

Jon B. Hopkins/for
Robert M. Pulsifer, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure:
Exemption

cc w/enclosure:

See next page
PD3-3:LA
MRushbrook
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PD3-3:PM
RMPulsifer/rmp/bj
6/13/93 *JBH*

PD3-3:PD
JHannon
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OGC
E. HOLLER
6/14/93
See comments on Exemptions
Comments inserted
JBH 6-4-93

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

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Iowa Electric Light and Power Company
Post Office Box 351
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(TAC NO. 86313)

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for Jon B. Hopkins

Robert M. Pulsifer, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure:
Exemption

cc w/enclosure:
See next page

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

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

Iowa Electric Light and Power Company
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, Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

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

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
Iowa Electric Light and Power Company) Docket No. 50-331
(Duane Arnold Energy Center))

EXEMPTION

I.

The Iowa Electric Light and Power Company (the licensee), is the holder of Facility Operating License No. DPR-49 (the license) which authorizes operation of the Duane Arnold Energy Center. The license provides, among other things, that it is subject to all rules, regulations and Orders of the Nuclear Regulatory Commission (the Commission) now and hereafter in effect.

The facility consists of a boiling water reactor located at the licensee's site in Linn County, Iowa.

II.

By letter dated April 29, 1993, the licensee requested a one-time, temporary exemption from certain requirements of Appendix J to 10 CFR Part 50 regarding Type B (local leak rate) testing of the containment air lock.

In part, Appendix J requires the air lock to be leak rate tested within 3 days after being opened, if it is opened during periods when containment integrity is required by the plant's Technical Specifications (TS). This requirement is repeated in TS Section 4.7.A.2.d.2.

During the most recent plant startup at Duane Arnold, the air lock was leak rate tested on January 28, 1993; however, the air lock was used to make a drywell inspection entry the next day, with the plant in a mode requiring containment integrity, and yet no further leak rate testing was performed.

The Licensee explained that it had misinterpreted the requirement, believing that, as long as a test had been performed within 3 days of the air lock opening (including 3 days before the opening), the testing requirements were satisfied. When this problem was discovered, the licensee requested, and received from the staff, an oral Notice of Enforcement Discretion (NOED) on April 28, 1993, followed the next day by a written request for NOED, which the staff subsequently granted in writing on April 30, 1993. Due to difficulties associated with testing the air lock at power (described in detail below), and the relatively small safety benefit to be derived from such testing, the licensee has requested relief, via the NOED and the subject exemption, from testing the air lock until the next plant shutdown. At the latest, that would be the next refueling outage, scheduled to begin July 29, 1993.

The licensee has requested a one-time, temporary exemption from 10 CFR Part 50, Appendix J, Sections III.D.2.(b)(i) and (b)(iii). Section III.D.2.(b)(i) requires that:

Air locks shall be tested prior to initial fuel loading and at 6-month intervals thereafter at an internal pressure not less than P_a .

Section III.D.2.(b)(iii) also states,

Air locks opened during periods when containment integrity is required by the plant's Technical Specifications shall be tested within 3 days after being opened. For air lock doors opened more frequently than once every 3 days, the air lock shall be tested at

least once every 3 days during the period of frequent openings. For air lock doors having testable seals, testing the seals fulfills the 3-day test requirements. In the event that the testing for this 3-day interval cannot be at P_a , the test pressure shall be as stated in the Technical Specifications. Air lock door seal testing shall not be substituted for the 6-month test of the entire air lock at not less than P_a .

Exemption from Section III.D.2.(b)(i) is needed because the last air lock test was conducted on January 28, 1993, and the next test may not be conducted until July 29 or later, during the next refueling outage. Although the refueling outage is currently scheduled to begin July 29, a delay of even a few days would cause the 6-month interval to be exceeded.

Exemption from Section III.D.2.(b)(iii) is needed because the licensee did not performed a leak rate test after opening the air lock on January 29, 1993, when containment integrity was required, and has proposed to delay testing until startup from the next plant shutdown.

There are several difficulties associated with testing the air lock at power rather than during shutdown:

1. Unlike most plants, Duane Arnold does not have dual, testable seals on its airlock doors. To perform a leak rate test, the entire volume between the two doors of the air lock must be pressurized. Furthermore, the plant's TS and procedures require the testing to be performed at a pressure of P_a (54 psig), which requires a temporary structural brace

(strongback) to be installed on the inner door so that it is not unseated or damaged by the force exerted by the test pressure. Although the regulation allows a lower test pressure to be used to avoid the use of a strongback, at this plant the pressure would have to be reduced so low to avoid strongback use that it would be difficult to obtain meaningful results. Additionally, the licensee has no experience or procedures for reduced-pressure testing and has not established an appropriate acceptance criterion for such a test.

2. As indicated above, in order to allow for pressurizing the air lock in support of the test, a strongback device is required to be installed on the inner air lock door to protect the door against reverse pressurization and possible structural damage during the test. The licensee estimates that installation of this strongback device requires entry into the air lock for approximately two hours by two personnel (4 man-hours). This entry would expose the personnel to the radiation dose levels that exist within the air lock. Evaluation of the dose expected at 100 percent reactor power during the strongback installation process has been performed by the licensee with a total dose estimate for this activity of 1.6 man-rem. The above estimated dose could be reduced via a reactor power reduction. However, in order to reduce dose to a more acceptable level, reactor recirculation pump flow would have to be adjusted downward by reducing pump speed. This disturbance could

jeopardize the near-term leakage characteristics of the "B" recirculation pump seal, which is exhibiting slightly increased leakage. The licensee has also provided information regarding compensating factors that supports its request for temporary exemption:

1. The licensee provided the results of the last 20 air lock tests which have been performed since June 1988. All of the tests passed, with none of the measured leak rates exceeding 80 percent of the allowable value and all but two of the leak rates less than 65 percent of the allowable value. Considering this historical performance, and the fact that the air lock has only been used for one containment entry (and subsequent exit) since the last test, it is highly likely that the air lock seals are performing as required.
2. The licensee considers the historical performance to be representative of the current situation because of the strict controls applied to operation of the air lock. Plant procedures require that an operator open and close the air lock during periods when containment integrity is required. In addition to the procedural controls, the startup from the outage in January 1993 included inerting the drywell, which was completed normally.

Based on the air lock performance history and the procedural controls on air lock operation, the licensee considers the air lock to be closed properly and performing its function as designed.

3. As a further compensatory measure, the licensee will prohibit opening the air lock before the next plant shutdown (as part of a normal plant shutdown sequence). Either of the two air lock doors is designed to fulfill the containment function of the air lock, which is to maintain containment integrity and leak-tightness. Thus, the assurance of containment integrity is increased by keeping both doors closed until the next plant shutdown.

4. The potential consequence of the air lock exceeding its leakage limits is minimized by the fact that it is located within the secondary containment. The design intent of the primary containment is to retain any radioactive fission products which might be released from the reactor coolant pressure boundary during an accident. The primary containment is located within the secondary containment, so that any leakage through the air lock would be retained and subsequently filtered through the standby gas treatment system. This system is designed to filter out radioactive products prior to external release and to provide an elevated and monitored release point for the effluent. Thus, even if the air lock is not closed and sealed properly, any leakage which might occur will still be appropriately treated by existing plant systems which are designed to perform that function.

5. The safety significance of not performing a test on the air lock before the next outage is further minimized by the short period of time (no more than 3 months) during which the plant would be operated with

the air lock untested. The likelihood of an accident occurring during that period is small. The licensee has calculated the core damage probability from all initiators during that period to be approximately 2×10^{-6} .

Considering the compensatory factors described above, the licensee has determined that performing an air lock leak rate test at power is not prudent when faced with the difficulties of such testing, discussed above. In addition, the licensee believes that the risks associated with challenging reactor systems for a forced shutdown to perform the test at acceptable dose rates are significantly higher than those associated with continued power operation, and therefore, that shutting down the plant to perform the air lock test is also not prudent.

Section 50.12(a)(2) of 10 CFR states that the Commission may grant exemptions if special circumstances are present. The purpose of the primary containment leak rate testing requirements is to ensure that the leakage rates are maintained within the Technical Specification requirements and to assure that proper maintenance and repair is performed throughout the service life of the containment boundary components. The licensee asserts and the staff agrees that the requested exemption is consistent with this intent in that it represents a one time only schedular extension of short duration. The required leak tests will be performed prior to startup from the next plant shutdown. This will ensure compliance with Technical Specification requirements and that any required maintenance or repair is performed. The air lock

was last tested on January 28, 1993, and met the leakage limits with significant margin. Considering the past performance of the air lock and the licensee's compensatory measures, we find that the special circumstances of 10 CFR 50.12(a)(2)(ii) are present in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule.

Considering the foregoing, the staff finds that the safety benefit to be gained by requiring an air lock test now, rather than at the next plant outage, is small. There is reasonable assurance that the air lock currently has an acceptable leak rate and is properly closed and capable of performing its safety function of containing radioactive material during an accident. Further, the staff finds that there is reasonable assurance that this capability will be maintained during the relatively short period until a leak rate test is performed during the next plant outage. The staff further finds that the granting of the requested exemption will not present an undue risk to the public health and safety.

On this basis, the NRC staff finds the licensee's requested one-time temporary exemption from Appendix J to 10 CFR Part 50, which will allow delay of the air lock Type B local leak rate testing until the end of the next scheduled refueling outage, scheduled to begin July 29, 1993, to be acceptable.

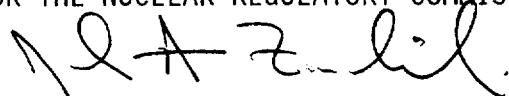
III.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest and hereby grants an exemption from the requirements of 10 CFR Part 50, Appendix J, Section III.D.2.(b)(i) and (b)(iii) until startup from the next plant shutdown, or startup from the refueling outage scheduled to begin July 29, 1993, whichever occurs first.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of the Exemption will have no significant impact on the environment.
(58 FR 28422)

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John A. Zwolinski, Acting Director
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 4th day of June 1993

III.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest and hereby grants an exemption from the requirements of 10 CFR Part 50, Appendix J, Section III.D.2.(b)(i) and (b)(iii) until startup from the next plant shutdown, or startup from the refueling outage scheduled to begin July 29, 1993, whichever occurs first.

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FOR THE NUCLEAR REGULATORY COMMISSION
/s/
John A. Zwolinski, Acting Director
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this day of June 1993 *See Previous Concurrence

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