



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

MAY 08 1978

Docket No. 50-331 / 78-06

Iowa Electric Light and Power
Company

ATTN: Mr. Duane Arnold
President

IE Towers
P. O. Box 351
Cedar Rapids, IA 52406

Gentlemen;

This refers to the inspection conducted by Messrs. J. E. Kohler and L. A. Reyes of this office on March 20, 21, April 15-16, 1978, of activities at Duane Arnold Energy Center authorized by NRC Operating License No. DPR-49 and to the discussion of our findings with Mr. Hammond at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

No items of noncompliance with NRC requirements were identified during the course of this inspection.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room, except as follows. If this report contains information that you or your contractors believe to be proprietary, you must apply in writing to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. The application must include a full statement of the reasons for which the information is considered proprietary, and should be prepared so that proprietary information identified in the application is contained in an enclosure to the application.

Iowa Electric Light and
Power Company

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MAY 08 1978

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

Gaston Fiorelli, Chief
Reactor Operations and
Nuclear Support Branch

Enclosure: IE Inspection Rpt
No. 50-331/78-06

cc w/encl:

Mr. E. L. Hammond, Chief
Engineer

✓ Central Files

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SURNAME	Kohler/bk	Reyes	Little	Fiorelli	Shafer	
DATE	5/8/78					

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-331/78-06

Docket No. 50-331

License No. DPR-49

Licensee: Iowa Electric Light and Power Company
IE Towers
P. O. Box 357
Cedar Rapids, IA 52406

Facility: Duane Arnold Energy Center

Inspection at: Duane Arnold Site, Palo, IA

Inspection conducted: March 20-21, April 15 and 16, 1978

Inspectors: *J. E. Kohler*
J. E. Kohler (March 20-21, 1978)

May 8, 1978

L. A. Reyes
L. A. Reyes (April 15-16, 1978)

5/8/78

Accompanying Personnel: W. S. Little (April 15, 1978)

Approved by: *W. S. Little*
W. S. Little, Chief
Nuclear Support Section

5/8/78

Inspection Summary

Inspection on March 20-21, April 15 and 16, 1978 (Report No. 50-331/78-06)

Areas Inspected: Routine unannounced inspection of the 1978 main steam isolation valve tests, local leak rate tests and containment integrated leak rate test. The inspection involved 37 inspector-hours onsite by three NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

*E. Hammond, Chief Engineer
D. Minneck, Assistant Chief Engineer
K. Meyer, Licensing Administrator
G. Larson, Nuclear Services Corporation
*C. Vondra, Shift Supervisor
*J. Gebert, Maintenance Supervisor
G. Cranston, Bechtel Corporation

*Denotes persons present at the exit interview.

2. MSIV Leakage Rate Test Procedure

Following the inspection of February 14-15, 1978, the licensee revised the MSIV leakage test procedure to incorporate the inspector's concerns. The procedure was rewritten and reviewed by the inspector prior to the test. All initial concerns expressed in the previous inspection report (50-331/78-03) were addressed and resolved.

No items of noncompliance or deviations were identified.

3. Results of 1978 MSIV Tests

The following table describes the results of the 1978 MSIV tests.

DAEC MSIV LEAKAGE RATE IN SCCM

<u>Penetration</u>	<u>Inboard</u>	<u>Outboard</u>
7A	4250	1300*
7B	2300	820*
7C	2700	131.2*
7D	2150	360*

*All outboard valves experienced leakage through valve stem leakoff connections which exceeded the Technical Specification limit of 5427 SCCM (11.5 scfh). Values which appear were recorded after stem leakoff was eliminated.

DAEC Technical Specifications require that leakage through each of the eight main steam isolation valves be limited to no more

than 11.5 scfh per valve. The licensee took the position that the 11.5 scfh limit is only applicable to leakage through the valve seat, and therefore did not consider the total outboard valve leakage reportable. However, the 1978 MSIV tests, as well as previous tests, have shown that the majority of the leakage from the valves escapes through the packing and the stem leakoff connections. For inboard isolation valves, packing and stem leakoff leakage is directed to the drywell, however the outboard valve stem leakage is directed to the reactor building equipment drain sump.

A meeting was held in Bethesda on April 4, 1978, between DAEC, ONRR and IE to resolve whether the leakage limit of 11.5 scfh for MSIVs was seat leakage or total valve leakage.

The NRC position given to the licensee was as follows: For inboard valve leakage, the limit applies only to seat leakage, because packing and stem leakoff leakage is directed to the drywell and becomes part of the containment leakage. For outboard MSIVs, the 11.5 scfh limit includes all MSIV leakage, including stem, packing and seat leakage. From the 1978 test on, the licensee should submit a LER if any outboard MSIV total leakage exceeds 11.5 scfh. ONRR is preparing a letter to the licensee confirming this position.

4. Outboard MSIV Modification

The licensee plans to permanently blank off the stem leakoff connection for outboard MSIVs. This item will be followed in a future inspection.

5. Retesting MSIVs Following Maintenance

Should the licensee repack any of the outboard MSIVs after the initial leak test, the packing must be leak tested such that the total valve leakage is less than 11.5 scfh. An acceptable leak test of the packing would be a soap bubble test with a requirement to show no bubbles. This item will be followed in a future inspection.

6. 1978 Type A CILRT

The Type A test was conducted under the technical direction of the Bechtel Corporation representative. Following a 4.5 hour stabilization period, the Duane Arnold CILRT was performed during a ten-hour period during April 15-16, 1978. Data was recorded every fifteen minutes. At the conclusion of the test

the licensee measured a leak rate at the upper 95% confidence level of 0.366 w/o/day. The test was performed at a full pressure of 54 psig. Technical Specifications and 10 CFR 50, Appendix J require the containment leakage rate to be less than 1.50 w/o/day at 54 psig.

No items of noncompliance or deviations were identified.

7. Type A Error Analysis

The licensee performed an error analysis using criteria set forth in the latest draft of ANSI N274 describing the figure of merit. The licensee's calculation showed that the instrumentation has a FOM less than 25% L_A which was specified as the acceptance criteria.

8. Type A Verification Test

At the conclusion of the CILRT a verification test was performed for five hours in which an induced leakage rate equivalent to approximately 1.91 w/o/day was superimposed. The licensee measured approximately 2.042 w/o/day. This measurement is within the 25% L_A criteria specified in 10 CFR 50, Appendix J and is confirmatory of the 10 hour measured CILRT value.

No items of noncompliance or deviations were identified.

9. Type A CILRT Isolation Valve Lineup

The inspector reviewed the valve lineup by checking the tags in the control room and by touring the outside of the containment and witnessing valve positions after completion of the test but with the containment still at test pressure.

No items of noncompliance or deviations were identified.

10. Type A CILRT Test Procedure

The inspector reviewed the test procedure during the test. It was noted that the procedure was well organized and signoffs indicating review by plant management were completed prior to the test commencement.

No items of noncompliance or deviations were identified.

11. Type A Data Output

Data management was well coordinated and presented no obstacles even though the raw data was recorded by hand by control room

operators who had to average some of the temperatures because of noisy signals.

12. Inspector's Type A Leak Rate Calculation

There was agreement between the licensee's mass point leak rate calculations and the inspectors. This is shown in the following summary of leakage rates in w/o/day.

	10 hours test 95% upper confidence level	Supplementary Test calculated leakrate
Licensee	0.366	2.042
Inspector	0.3638	2.034

13. Exit Interview

The inspector met with the licensee and his representatives identified in Paragraph 1 at the conclusion of the inspection and summarized the results of the inspection. Since all of the instrument calibration records were not available to the inspector during the weekend, the inspector stated that these records would be reviewed during the next inspection.