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

FEB 24 1978

Docket No. 50-331/78-3

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 Mr. J. E. Kohler of this office on February 14-15, 1978, of activities at Duane Arnold Energy Center authorized by 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.

GD

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

Sincerely,

Gaston Fiorelli, Chief
Reactor Operations and
Nuclear Support Section

Enclosure: IE Inspection
Report No. 50-331/78-03

cc w/encl:
Mr. E. L. Hammond, Chief
Engineer
Central Files
Reproduction Unit NRC 20b
PDR
Local PDR
NSIC
TIC

OFFICE	RIII	RIII	RIII	RIII		
SURNAME	Kohler/bk	Litzel	Fiorelli	Kister		
DATE	2/23/78					

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

REGION III

Report No. 50-331/78-03

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 name: Duane Arnold Energy Center

Inspection at: Duane Arnold Site, Palo, IA

Inspection conducted: February 14-15, 1978

Inspector: J. E. Kohler 2/23/78

Approved by: W. S. Little, Chief 2/23/78
Nuclear Support Section

Inspection Summary

Inspection on February 14-15, 1978 (Report No. 50-331/78-03)
Areas Inspected: Routine, announced inspection of draft procedure for CILRT, procedure for testing MSIV, and inspector completed requirements of DAEC RAD Training. The inspection involved 6 inspector-hours onsite by one NRC inspector.
Results: No items of noncompliance were identified during this inspection.

DETAILS

1. Persons Contacted

E. Hammond, Chief Engineer

2. Draft Procedure for CILRT

The licensee plans to perform a containment integrated leak rate test in April, 1978. The inspector reviewed a draft CILRT procedure prepared by Bechtel dated December 15, 1977, and made the following comments to the licensee.

a. Acceptance Criteria

The NRC has taken the position that the acceptance criteria for the containment integrated leak rate shall be that the upper 95% confidence level of the measured leakage shall be less than 75% La. The NRC acceptance criteria is more stringent than 10 CFR 50 AJ or the licensee's technical specifications, and takes into account both systematic and instrument errors.

b. Drywell Fan Coolers

The draft procedure stated that drywell fan coolers will be operating during the CILRT to maintain the drywell atmosphere between 40° and 100°F. The inspector stated that the fans may be operated during the test for atmospheric circulation, however, cooling water to the fan coils must be valved out and should be drained and vented. This requirement is stated in 10 CFR 50, Appendix J, Section III.A.d. If the system is operated during the test, a penalty equivalent to the local leakage rate through the cooling water penetration must be added into the final measured containment leakage rate.

c. Temporary Valve Operator on Purge Valves

The licensee plans to install temporary valve operators on the purge exhaust valves (CV4310, CV4309) to control the depressurization rate to the standby gas treatment system after the test is completed. The inspector stated that temporary closure devices could not be installed during the test where the closure devices affect valve seating.

d. 14 PSIG Local Leak Rate Tests

The licensee plans to perform local leak rate tests at a pressurization plateau of 14 PSIG during the pump up of the containment. After leakage repairs are made, containment pressurization is continued.

The inspector stated that repairs or adjustments that may affect the outcome of the CILRT are not permitted after the test has begun. This is stated in 10 CFR AJ section III.A.1, which states that "during the period between initiation of the containment inspection and the performance of the Type A test no repairs or adjustment shall be made so that the containment can be tested as close to as-is condition as possible." Furthermore, all local leakage rate test must be done at "Pa."

If leakage is discovered in an isolatable line, the line may be isolated during the CILRT and repaired after the CILRT. However, the as-left leakage rate must be added into the final CILRT measurement.

Leakage discovered through a non-isolatable line, (e.g., ball valve in the TIP system) cannot be repaired without first making a determination of the leakage rate and the effect that leakage rate would have have on meeting the acceptance criteria.

e. Test Duration

The licensee is planning a CILRT that will be greater than or equal to eight hours in length. The inspector stated that all NRC acceptance criteria must be met and the leakage rate must be stable at the time of test termination. In addition, since the only topical report written and approved by NRC for a short duration CILRT (less than 24 hours) is BN-TOP-1, February, 1972, the acceptance criteria in this document must be met also.

f. Instrumentation Loss

The inspector stated that the licensee's instrumentation system was weak because only one precision pressure gauge was being relied on for system operation. Failure of the pressure gauge would render the data collection system inoperable.

The procedure stated that a minimum of 8 RTDs, 4 dewcells and 1 pressure gauge must be available at test completion. The inspector stated that the minimum case should be analysed in the instrumentation error analysis. In addition, the analysis contained in the draft procedure was based on 18 RTDs when the procedure stated only 12 RTDs were actually in the system.

f. RHR System Operation

There were no statements in the procedure pertaining to the RHR system operation during the test. The inspector stated that RHR should not be cycled as it puts a heat transient into the containment.

The comments above will for the most part be incorporated in a revision to the procedure. Resolution of possible outstanding items, such as the NRC CILRT acceptance criteria, will be done before the April, 1978 test date.

3. MSIV Leakage Rate Test

The inspector reviewed the licensee's procedure which was written to test the leakage of the main steam isolation valves. The procedure had been rewritten after the most recent test (1977) to incorporate areas of concern identified in our previous inspection (Report No. 50-331/77-13). The modified procedure was reviewed at the site and was found to have the following deficiencies:

a. No time limit was specified for taking data. The inspector stated a time limit of several minutes should be required for taking leak rate data. For large volumes a stabilization period of several minutes should be observed before any data is taken.

b. Procedure had no requirement for measuring excessive leakage rates before initiating repair work. 10 CFR 50 Appendix J requires as-found leakage rates to be recorded.

c. The procedure specified that packings on the MSIVs will be tightened before any leakage testing is initiated. However, the procedure did not specify that a test of the MSIV closure time was necessary whenever packings on MSIVs are adjusted, as required by technical specifications.

d. The licensee is measuring the leakage through the leakage control system valves and subtracting this leakage from the outboard MSIV leakage. The inspector stated that the procedure needed a caution statement that the outboard MSIV leakage rate could not be negative.

e. The licensee is measuring the outboard valve leakage first. Upstream of the inboard isolation valve will be at a higher pressure than the volume between the two MSIVs. The inspector stated that it was possible for the inboard valve to leak through, making up to the MSIV volume and masking leakage from the outboard valve.

The licensee acknowledged that the procedure was deficient in the above areas and plans to re-think the logic of testing the outboard valve first. The procedure will be modified to incorporate the inspector's latest comments and will be transmitted to the inspector for review prior to performing the test.

4. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on February 15, 1978. The inspector summarized the scope and findings of the inspection.

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