



UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

A. RO Inspection Report No. 050-331/74-02

Transmittal Date : February 28, 1974

Distribution:
RO Chief, FS&EB
RO:HQ (5)
DR Central Files
Regulatory Standards (3)
Licensing (13)
RO Files

Distribution:
RO Chief, FS&EB
RO:HQ (4)
L:D/D for Fuels & Materials
DR Central Files
RO Files

B. RO Inquiry Report No. _____

Transmittal Date : _____

Distribution:
RO Chief, FS&EB
RO:HQ (5)
DR Central Files
Regulatory Standards (3)
Licensing (13)
RO Files

Distribution:
RO Chief, FS&EB
RO:HQ
DR Central Files
RO Files

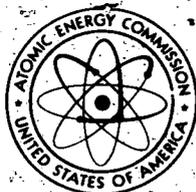
C. Incident Notification From: _____
(Licensee & Docket No. (or License No.))

Transmittal Date : _____

Distribution:
RO Chief, FS&EB
RO:HQ (4)
Licensing (4)
DR Central Files
RO Files

Distribution:
RO Chief, FS&EB
RO:HQ (4)
L:D/D for Fuels & Materials
DR Central Files
RO Files

APR Central Files



UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

FEB 28 1974

Iowa Electric Light and Power Company
ATTN: Mr. Charles W. Sandford
Executive Vice President
Security Building
P. O. Box 351
Cedar Rapids, Iowa 52405

Docket No. 50-331

Gentlemen:

This refers to the inspection conducted by Mr. D. C. Boyd of this office on February 7-8, 1974, of activities at Duane Arnold authorized by License No. CPPR-70 and to the discussion of our findings with Messrs. Sandford, Hune and others of your staff at the conclusion of the inspection.

A copy of our report of this inspection is enclosed and identifies the areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspectors.

No violations of AEC requirements were identified within the scope of this inspection.

In accordance with Section 2.790 of the AEC'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 AEC's Public Document Room. If this report contains any information that you or your contractors believe to be proprietary, it is necessary that you make a written application to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. Any such application must include a full statement of the reasons for which it is claimed that the information is proprietary, and should be prepared so the proprietary information identified in the application is contained in a separate part of the document. Unless we receive an application to withhold information or are otherwise contacted within the specified time period, the written material identified in this paragraph will be placed in the Public Document Room.

Iowa Electric Light and
Power Company

- 2 -

FEB 28 1974

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

James G. Keppler
Regional Director

Enclosure:
RO Inspection Rpt No. 050-331/74-02

bcc: RO Chief, FS&EB
RO:HQ (4)
Licensing (4)
DR Central Files
RO Files
PDR
Local PDR
NSIC
DTIE
OGC, Beth, P-506A

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

Report of Test and Startup

RO Inspection Report No. 050-331/74-02

Licensee: Iowa Electric Light and Power Company
Security Building
P. O. Box 351
Cedar Rapids, Iowa 52405

Duane Arnold Energy Center
Palo, Iowa

License No. CPPR-70
Category: B

Type of Licensee: BWR - 538 Mwe

Type of Inspection: Special, Announced

Dates of Inspection: February 7-8, 1974

Dates of Previous Inspection: January 24 and 25, 1974 (Construction)

Principal Inspector: *D. C. Boyd*
D. C. Boyd

2-28-74
(Date)

Accompanying Inspectors: None

Other Accompanying Personnel: None

Reviewed By: *D. M. Hunnicutt*
D. M. Hunnicutt, Chief
Reactor Testing and Startup Branch

2/28/74
(Date)

SUMMARY OF FINDINGS

Enforcement Actions

There were no enforcement actions as a result of this inspection.

Licensee Action on Previously Identified Enforcement Matters

All previously identified enforcement matters have been satisfactorily resolved.

Design Changes

Not examined during this inspection.

Unusual Occurrences

No unusual occurrences were determined or reported during this inspection.

Other Significant Findings

A. Current Findings

Status Report

1. Construction completion - 98%
2. Fuel load target date - February 20-28, 1974
3. Preoperational/acceptance testing - 43%

B. Status of Previously Reported Unresolved Items

1. Testing of Facility Communications Systems

Approved Preoperational Test procedures exist for five of the facility communication systems. Three of the five tests have been completed and the other two will be completed prior to initial fuel loading.

2. Loss of Instrument Air test

This test procedure is currently in draft form. All instruments, valves, and other components dependent upon instrument air for operation have been identified and their expected failure mode upon the loss of instrument air have been tabulated. The testing

will include all plant systems (both safety related and non-safety related) thus resolving the regulatory concerns identified in previous reports.

Management Interview

Persons Present.

Iowa Electric Light and Power (IELP)
Duane Arnold Energy Center (DAEC)

C. Sandford, Executive Vice President, IELP
G. Ward, Licensing Coordinating, IELP
G. Cook, Quality Assurance Manager, IELP
G. Hunt, Chief Engineer, DAEC
E. Hammond, Assistant Chief Engineer, DAEC
L. Root, Assistant Project Engineer, DAEC
G. Engle, DAEC Technical Staff (On loan from NSC)
R. Rinderman, Quality Supervisor, DAEC

Directorate of Regulatory Operations, Region III

D. Boyd, Principal Inspector

Subjects Discussed

1. Preoperational/Acceptance Testing Performance, Data Review and Evaluation. (Paragraph 1)
2. Resolution of Outstanding Inspection Items. (Paragraph 2)

REPORT DETAILS

Persons Contacted

Iowa Electric Light and Power (IELP) Duane Arnold Energy Center (DAEC)

C. Sandford, Executive Vice President, IELP
G. Ward, Licensing Coordinator, IELP
G. Cook, Quality Assurance Manager, IELP
H. Rehrauer, Project Engineer, Supervisor, IELP
L. Root, Assistant Project Manager, DAEC
G. Hunt, Chief Engineer, DAEC
E. Hammond, Assistant Chief Engineer, DAEC
J. Gebert, Elect. Maint. Supervisor, DAEC
G. Engle, Technical Staff DAEC (On loan from NSC)
R. Rinderman, Quality Supervisor, DAEC
D. Wilson, Results Engineer, DAEC
J. Weeds, Technical Staff, DAEC

Bechtel Corporation

W. Balodis, Chairman, Test Review Committee
Vander Meer, Startup

General Electric Company

F. Frisch, Startup

1. Preoperational/Acceptance Testing Performance, Review and Evaluation

The inspector met with members of the Preoperational Test Review Board (PTRB) to determine the current status of the Preoperational Testing program. It was determined that the testing is being conducted in accordance with a pre-determined priority arrangement of systems, such that those systems which must be verified as operable prior to fuel loading are being tested first. The licensee's records indicate that, as of February 8, 1974, 43 percent of the total pre-operational testing program has been completed.

The inspector reviewed the PTRB charter and observed that the charter identifies the responsibilities of the board members and establishes the interface with the system start up engineers. The charter also identifies the acceptable review process, acceptance standards, board evaluation, system status reports, and establishes the interface with the Operations Review Committee.

The inspector reviewed the preoperational test packages and system status reports for the following systems;

- No. 2 - - - 125 volt D. C. System
- No. 11-A - - General Service Water
- No. 14 - - - Reactor Building Closed Cooling Water
- No. 17 - - - Instrument A. C. Control
- No. 19 - - - Service Air
- No. 23 - - - Diesel Oil System
- No. 35 - - - Fuel Pool Cooling and Cleanup
- No. 53 - - - Standby Liquid Control
- No. 79.6 - - Area Radiation Monitoring
- No. 79.9 - - Control Building Area
Radiation Monitoring
- No. 99G - - Radio Communications
- No. 99N - - Chem. Labs. and Equipment
- No. 99Q - - Instrument Shop and Equipment
- No. 99V - - Smoke Detectors

It was observed that a number of test packages were declared to be unacceptable by the PTRB for reasons which included the following:

- a. Failure to establish that the FSAR commitments were verified.
- b. Lack of proper times, dates, and signatures.
- c. Failure to meet acceptance criteria.
- d. Failure to properly clear all outstanding discrepancy reports, Equipment Malfunction Reports (EMR's), and Maintenance Action Requests (MAR's).
- e. Inadequate housekeeping or inadequate access control.

The licensee's projected schedule indicates that the preoperational/ acceptance testing of those systems required for initial fuel loading will be completed by mid-February 1974.

2. Resolution or Status of Outstanding Inspection Items

a. ILRT Type B and C Test Deviations

A previous report^{1/} identified several items requiring Type B or Type C testing for resolution. The inspector determined that corrective actions are in progress on these items and that the verification testing is scheduled prior to the time that primary containment is required.

b. Drywell to Torus Vacuum Relief Valves

A previous report^{2/} identified a problem with sticking position indicator switches. All of these switches (two per valve) have been replaced. Verification testing is schedule for completion prior to the time that primary containment is required.

c. Administrative Control Procedures

A previous report^{3/} identified that a number of the operating organization administrative control procedures had not been issued. During this inspection the inspector verified that all but three of these procedures have now been issued. The remaining three procedures are in final draft form and are scheduled for issuance in the near future. This item is considered closed.

A previous report^{4/} also identified that a number of the Corporate Office Quality Assurance program administrative procedures had not been issued. During this inspection the inspector verified that all but one of these procedures have been issued. The remaining procedure is in draft form and is scheduled for issuance in the near future. This item is considered closed.

- 1/ RO Inspection Report No. 050-331/73-18.
2/ Ibid.
3/ RO Inspection Report No. 050-331/73-17.
4/ Ibid.

d. Frequency of Instrument Calibrations

A previous report^{5/} identified an area of concern that the frequency of instrument calibrations had not been established. During this inspection the inspector verified that the frequency of calibration and surveillance testing of all safety related instrumentation has been established. This item is considered closed.

e. Initial Fuel Loading Procedures

A previous report^{6/} identified several areas of concern regarding the draft of the initial fuel loading procedure. During this inspection the inspector was provided with a final approved copy of the initial fuel loading procedure (STI No. 3) which adequately resolved all of these concerns. This item is considered closed.

f. Limitorque Valve Program

Previous reports^{7/} have established that the licensee has been engaged in a comprehensive limitorque valve study program. This program which includes all limitorque valves, (safety and non-safety related) provides records and documentation to assure that each valve is installed and set up to operate in accordance with the engineered recommendations. During this inspection the inspector reviewed the final documentation of this effort and found that the records provide the engineered recommendations for the maximum and minimum torque switch settings and the recommended sizing of the thermal overload protective devices. These settings are being compared to the verified actual settings to assure that all safety related valves are set to operate properly. Verification of the operability of these valves is being attained during the preoperational testing, the cold functional testing, the hot functional testing, and the start-up testing programs identified for this facility.

Administrative controls have been established by the licensee to assure that a "design change authorization" must be issued (hence, a review by the safety committee) to change these settings to some valve outside of the engineered recommendations. This item is considered closed.

5/ Ibid.

6/ RO Inspection Report No. 050-331/73-16.

7/ RO Inspection Reports No. 050-331/73-13, -17, -06.

g. Flood Potential Corrective Items

The one remaining corrective action to prevent the loss of safety related components in the event of a circulating water line break was identified in a previous report^{8/}. The inspector reviewed records and test data which verify that the two submersible diesel fuel pumps have been relocated (inside the diesel fuel supply tank) and now have the permanent electrical supply completed. The total system has been tested and verified to be operational, per pre-operational test No. 23. This item is considered closed.

h. Installation and Testing of Earthquake Detectors

The inspector inquired regarding the status of the facilities installation and testing of Earthquake Detectors. According to the licensee; all the conduits and cables for these detectors are installed; all of the detectors are on site and calibrated; and the preoperational test procedure is approved for implementation.

The inspector's review of the preoperational test procedure (99R) and a comparison against appendix G of the facility FSAR and Safety Guide No. 12 disclosed no areas of concern.

The licensee provided the inspector with the integrated plant operating instructions (IPOI) which pertain to the operation of the earthquake detection system and to the operator response to the several annunciated levels of seismic disturbances. A review of these procedures indicates that the licensee has adequately addressed all related areas.

Testing of this system is scheduled for completion prior to the start of the power ascension program.

i. Start-up Test Instructions

The inspector commented on a number of the drafts of the start up test instructions with the licensee. Many of the areas of RO:III concern were resolved when the inspector was provided with the latest figure 1 of the start up test program (revision 0, January 19, 1974). This chart identifies all of the start up tests and the reactor conditions under which the various tests will be conducted. The inspectors final review of this program is in progress.

^{8/} RO Inspection Report No. 050-331/73-06.

The inspector expressed a concern that start up test instruction No. 28, shutdown from outside the control room, was too brief to be effectively and safely executed. The licensee provided the inspector with the approved IPOI, VII-J, shutdown from outside the control room, which adequately resolved all of the regulatory concerns in this area. (IPOI, VII-J, is referenced in the start-up test instruction)

During this inspection the inspector verified that all start-up test instructions are in draft form and are in the review and approval process. Approximately 14 percent have been approved as of February 8, 1974.

j. Penetrations Between the Cable Spreading Room and the Control Room

The inspector inquired regarding the status of the sealing of all penetrations between the cable spreading room and the control room. The licensee stated that CO₂ testing indicates that some minor leakage still exists and that additional sealing, and a retest will be required. The licensee agrees that verification of sealing is required to assure that the control room will remain habitable in the event of a fire in the cable spreading room. This verification will be provided prior to fuel loading.

k. Water Tight Doors for Rooms Housing Safety Related Equipment Adjacent to the Torus

A previous report^{9/} indicated a concern regarding clarification of the intent to provide water tight closure doors for all rooms, housing safety related equipment, that are adjacent to the torus. During this inspection the inspector observed that all doorways connected to the torus area have water-tight doors and in addition, all rooms housing safety related equipment in this area are also provided with water tight closure doors. This item is considered closed.

l. Housekeeping

The inspector toured portions of the facility, primarily in the reactor building, and observed that the housekeeping has improved markedly as the construction activities diminish. Of particular interest was the observation that the refueling

^{9/} RO Inspection Report No. 050-331/72-04.

area was in an excellent housekeeping status. One area, requiring resolution, still remains regarding the licensee's intent for final cleaning of fuel assemblies prior to fuel loading. The need for additional cleaning was identified by one of the licensee's internal audits and by a subsequent regulatory inspection. The licensee is currently evaluating various cleaning options.