



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. 050-331/74-08

Transmittal Date : April 2, 1974

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

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B. RO Inquiry Report No. _____

Transmittal Date : _____

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

Transmittal Date : _____

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LB

DR Central File



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APR 2 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. Boyd of this office on February 24-27, 1974, of activities at Duane Arnold Energy Center authorized by Operating License No. DPR-49 and to the discussion of our findings with Messrs. Sandford, Hunt 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 -

APR 2 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. 050-331/74-08

bcc: RO Chief, FS&EB
RO:HQ (4)
Licensing (4)
~~DR Central Files~~
RO Files
PDR
Local PDR
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U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

Report of Test and Startup

RO Inspection Report No. 050-331/74-08

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. DPR-49
Category: B

Type of Licensee: BWR - 538 Mwe

Type of Inspection: Special, announced

Dates of Inspection: February 24-27, 1974

Dates of Previous Inspection: February 15-19, 1974 (Test and Startup)

Principal Inspector:

D. C. Boyd
D. C. Boyd

4-1-74
(Date)

Accompanying Inspectors: D. M. Hunnicutt

Other Accompanying Personnel: None

Reviewed By:

for D. M. Hunnicutt
D. M. Hunnicutt
Reactor Testing and Startup Branch

4-1-74
(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

Two Unusual Occurrences were reported by the licensee:

1. Dropping of Blade Guide into reactor pressure vessel (Paragraph 12 B)
2. Blade guide handle defect (Paragraph 12 C)

These will be reported under 10 CFR 50.55(e), reporting requirements.

Other Significant Findings

A. Current Findings

Status Report

1. Operating license DPR-49 was issued on February 22, 1974.
2. Initial fuel loading was started on February 27, 1974.
3. Completion of fuel loading is scheduled for March 8, 1974.

B. Status of Previously Reported Unresolved Items

None

Management Interview

Persons Present

Iowa Electric Light and Power (IELP)

Duane Arnold Energy Center (DAEC)

D. Arnold - Chairman of the Board and President, IELP

C. Sandford - Executive Vice President, IELP
J. A. Wallace - General Production Manager, IELP
G. G. Hunt - DAEC Chief Engineer, DAEC
E. L. Hammond - Assistant Chief Engineer and
Chairman, DAEC Operations Committee
B. York - Operations Supervisor, DAEC
R. Graybeal - Radiation Protection Engineer, DAEC
L. Root - Assistant Project Manager, IELP
H. Rehrauer - Nuclear Group Leader & Chairman,
Safety Committee, IELP
G. Cook - Manager, Quality Assurance, IELP
J. Ward - Nuclear Group Leader, IELP
D. Moen - Reactor & Plant Performance Engineer, DAEC
J. Weeda - Nuclear Results Engineer, DAEC
R. Lehman - Mechanical Maintenance Supervisor, DAEC
J. Gebert - Electrical Maintenance Supervisor, DAEC
R. Rinderman - Quality Supervisor, DAEC

General Electric Company

J. H. M. Miller - Site Manager
J. L. Nickle - Startup Supervisor

Bechtel

M. Muir - Project Manager
D. Vander Meer - Startup Supervisor
W. Balodis - Startup Supervisor

Directorate of Regulatory Operations - Region III

D. Hunnicutt - Chief, Reactor Testing & Startup Branch
D. Boyd - Principal Reactor Inspector

Subjects Discussed

General

This exit interview provided two primary functions. First, the meeting brought together responsible management personnel from Bechtel, General Electric, Iowa Electric Light and Power, and Duane Arnold Energy Center, to provide final summary documents and discussion to assure all interested parties that the necessary construction, testing, and data review, and evaluations which are required to support a safe initial fuel loading program had been completed. Secondly, the meeting provided IELP management and the AEC inspectors with the timely opportunity to address the attendees on the subjects of conduct of operations relating to the license, the technical specifications, and other matters concerning the safe operation of the plant.

Specific topics discussed include the following:

1. Report and discussion from the coordinator of the Preoperational test review board (PTRB). (Paragraph 1)
2. Report and discussion from the chairman of the operations review committee. (Paragraph 2)
3. Report and discussion from the chairman of the safety review committee. (Paragraph 3)
4. Report and discussion from the DAEC cold functional test coordinator. (Paragraph 4)
5. Report and discussion from the DAEC surveillance testing coordinator. (Paragraph 5)
6. Report and discussion from the DAEC coordinator for the final check list for system line up for initial fuel load. (Paragraph 6)
7. Report and discussion from the General Electric Company representatives regarding readiness for initial fuel loading. (Paragraph 7)
8. Report and discussion from the Bechtel representatives regarding the status of construction and testing to support safe initial fuel loading. (Paragraph 8)
9. Reports and discussions from other key staff personnel. (Paragraph 9)
10. AEC Regulatory inspectors summary of findings. (Paragraph 10)
11. Closing address to the attendee's by:
President, IELP
Executive Vice President, IELP. (Paragraph 12)

REPORT DETAILS

1. Preoperational Test Review Board (PTRB)

The coordinator of the PTRB reported that the preoperational testing, data review, and analysis required for initial fuel loading had been completed, declared operable, and turned over to the operations review committee. He stated that this included re-test and evaluation of previously rejected systems. He stated that it was the unanimous conclusion of the PTRB members that the subject systems were operable and that he was not aware of any item that would invalidate this conclusion.

The inspectors reviewed each of the PTRB summary reports, and as previously reported^{1/}, compared the summary reports against the "Master" Test Data packages. The inspectors also reviewed the total facility system status reports. No items of concern were identified.

2. Operations Review Committee (ORC)

The chairman of the operations review committee acknowledged having received and reviewed the summary reports from the PTRB. He stated that the ORC concurred that the above systems are operable and that he was unaware of any item that would invalidate this conclusion.

The inspectors reviewed the ORC meeting minutes No. 117, which was held specifically to evaluate the plant readiness for initial fuel loading, no items of concern were identified.

3. Safety Committee (S.C.)

The chairman of the S.C. acknowledged having received and reviewed the PTRB summary reports and the ORC reviews of these reports. He stated that the S.C. concurred that the above systems were operable and that he was unaware of any item that would invalidate this conclusion.

The inspectors examined S.C. records which establish that to-date, twenty-three separate formal meetings have been conducted to evaluate the plants readiness to safely load fuel. No items of concern were identified.

4. Cold Functional Testing

The DAEC coordinator of the cold functional testing program stated that the cold functional testing required for initial fuel loading had been completed and had been reviewed and found to be acceptable by the ORC.

^{1/} RO Inspection Report No. 050-331/74-16.

The inspector reviewed the "Master" copy of the cold functional testing procedure and ORC meeting minutes No. 117. ORC No. 117 found that the cold functional testing required prior to initial fuel load had been satisfactorily completed. No items of concern were identified.

5. Surveillance Testing

The DAEC coordinator for the verification of the adequacy of surveillance test procedures stated that the functional verification testing required for initial fuel load had been completed and turned over to the ORC for review.

The inspectors reviewed the "Master" copy of the test program and ORC meeting No. 117 found that the surveillance testing program had been satisfactorily completed. The inspectors concurred in this finding following a review of the test data.

6. Final Check List For Initial Fuel Load

The DAEC coordinator for the completion of the final systems line up for initial fuel loading reported that the "line up" was complete. He provided the inspectors with the signed and dated "Master" copy of the check list.

The inspectors reviewed the master check list for completion and then selected the following systems for a detailed verification inspection:

- 125 Volt DC System
- 250 Volt DC System
- 48 Volt DC System
- Uninterruptable AC System
- Stand by Gas Treatment System
- Stand by Liquid Injection System
- Neutron Monitoring System
- Reactor Protective System
- Emergency Service Water System

The above systems were verified to be "lined up" as indicated on the master check list. No items of concern were identified.

7. General Electric Company

The General Electric Company (GE) Resident Site Manager provided a letter to IELP and stated that "General Electric is in agreement that fuel loading can commence safely at this time." Eight specific items were identified as being completed in readiness for initial fuel load, as follows:

- Startup test program administrative agreement procedures -- approved by IELP and G.E.

- Cold Functional Testing
- Operating Procedures approved and implemented.
- Preoperational test program -- test results reviewed and approved.
- Initial fuel load master check list.
- Secondary containment tests completed and secondary containment established. Stand by Gas Treatment system operable.
- Loss of station AC power tests
- The required startup test instruction completed and approved.

The G.E. startup supervisor stated that they are ready to support the fuel loading activities with members of the G.E. startup, test design and analysis group, a nuclear instrument engineer, and shift startup personnel.

8. Bechtel Corporation

The Bechtel project manager, the San Francisco home office startup supervisor, and the resident startup supervisor, stated that all systems required for initial fuel loading had been constructed, tested, reviewed and declared to be operable. These findings were concurred in by the PTRB, ORC, and S.C.. PTRB summary reports for each system were provided and a total system status report was provided.

The inspectors completed their review of the summary reports and the system status reports and verified the status of ten systems during their detailed inspection of systems. No items of concern were identified.

9. Staff Member Reports

The following key staff members reported briefly on the status of those areas for which they have the primary responsibility and authority;

- Radiation Protection Engineer
- Operations Supervisor
- Chief Engineer
- Assistant Chief Engineer
- Reactor and Plant Performance Engineer
- Mechanical maintenance supervisor
- Electrical maintenance supervisor
- Quality assurance manager, IELP
- Production Manager, IELP

In each instance, at the request of the Executive Vice President each staff member was asked to state whether he was aware of any item that would preclude the conclusion that the facility was ready to safely begin fuel loading. No items of concern were identified.

10. Regulatory Inspectors

The inspectors stated that they had completed a comprehensive review to determine the plants readiness to safely load fuel. This review involved interviews with the individuals and groups identified in paragraphs 1 thru 9 above, and also involved the review of test data and evaluation records. The five main areas requiring final verification prior to a finding of readiness for initial fuel loading and initial criticality were as follows;

- Completion of the required systems testing and evaluation of test data, ie, systems verified to be operable.
- Completion of the required cold functional testing program
- Completion of the required functional testing to verify the adequacy of the surveillance procedures.
- Acceptable resolution of outstanding deviation reports (DR), nonconformance report (NCR), equipment malfunction reports (EMR), and maintenance action requests (MAR) on these systems required to be operable prior to initial fuel loading.
- Completion of the final system "line up's" for initial fuel load.

The inspectors stated that as a result of their reviews and inspections, identified in paragraphs 1 thru 9, the RO:III finding is that the facility is ready to begin the fuel loading program.

11. President, Executive Vice President

The President of IELP, addressed the group on a number of company matters which included a company policy statement to the effect that "it is IELP's intent to operate the DAEC in accordance with the license, the technical specifications, and other documents to which IELP is committed."

The Executive Vice President formally informed the Chief Engineer (orally and in writing) that he was authorized to begin initial fuel loading.

12. Unusual Occurrences

A. Dropped Blade Guide

On February 20, 1974; an incorrectly latched fuel handling grapple resulted in the premature release of a partially withdrawn blade guide. The blade guide fell back into its core position. During the fall, contact was made with an adjacent blade guide. Examinations of the dropped blade guide, the adjacent blade guide, the upper core plate, and the orifice plate indicates that no damage resulted.

The licensee plans to report this occurrence in accordance with 10 CFR 50.55(e), reporting requirements.

On February 21, 1974, while practicing the proper use of the fuel handling grapple in the storage basin area, the bail of a double blade guide assembly broke free from the assembly. Preliminary inspection of the cast aluminum bail indicates the possibility that a casting fault exists. As a result all blade guides were removed from the reactor pressure vessel for testing and nondestructive examination. The testing involved the use of a dynamometer whereby 1 1/2 times the weight of the blade guide assembly was imposed on each lifting bail. No failures occurred. This was followed by a dye-penetrant check of each bail. One yoke indicated a crack in one corner of one handle. The blade guides were reinstalled in the reactor pressure vessel. This occurrence will be reported in accordance with 10 CFR 50.55(e), reporting requirements.

13. Initial Fuel Loading Activities

Two Region III inspectors were present to observe the licensee's initial fuel loading activities. One inspector observed the activities on the refueling floor while the other inspector observed the activities in the control room. The inspectors observed that fuel loading was performed in accordance with a written and approved procedure (previously reviewed by RO:III^{2/}). No deviations from the procedure were observed and no items of concern were identified.

^{2/}RO Inspection Reports No. 050-331/73-18 and No. 050-331/74-06.