REGULATORY OPERATIONS, REGION III

A. RO Inspection Report No. 050-321/73-01

Transmittal Date : February 8, 1973

Distribution:
RO Chief, RT&OB or RO Chief, RCB
RO:HQ (5)
DR Central Files
Regulatory Standards (3)
Licensing (13)

Distribution:
RO Chief, M&FFB
RO:HQ (4)
L:D/D for Fuel & Materials
DR Central Files

B. RO Inquiry Report No. _____

Transmittal Date : _____

Distribution:
RO Chief, RT&OB or RO Chief, RCB (2)
RO:HQ (5)
DR Central Files
Regulatory Standards (3)
Licensing (13)

Distribution:
RO Chief, M&FFB
RO:HQ
DR Central Files

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

Transmittal Date : _____

Distribution:
RO Chief, RT&OB or RO Chief, RCB
RO:HQ (4)
Licensing (4)
DR Central Files

Distribution:
RO Chief, M&FFB
RO:HQ (4)
L:D/D for Fuel & Materials
DR Central Files

LB

Original
Files

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

TELEPHONE
(312) 858-2660

February 8, 1973

Iowa Electric Light and Power Company
ATTN: Mr. Charles W. Sandford
Vice President, Engineering
Security Building
P. O. Box 351
Cedar Rapids, Iowa 54205

Docket No. 50-331

Gentlemen:

This refers to the inspection conducted by Messrs. Boyd and Feierabend of this office on January 24 and 25, 1973, of activities at the Duane Arnold site, authorized by AEC Construction Permit No. CPPR-70, and to the discussion of our findings held by the inspectors with Messrs. Hunt, Hammond, Essig, Mineck, and Engle (NSC) of your staff at the conclusion of the inspection on January 25, 1973.

Areas examined during this inspection included Operating Organization Quality Assurance Program; maintenance of components and systems turned over to the operating organization by construction; operating organization staffing; operating organization log books; corporate office engineering/technical support to the site; and the resolution of RO:III comments on preoperational/acceptance test procedures. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with plant personnel, and observations by the inspectors.

No items of noncompliance with AEC requirements were identified within the scope of this inspection.

It is our understanding that consideration will be given regarding the performance of a "Plant Response to Loss of Instrument Air Test," as is identified in the appendix to the December 7, 1970, "Guide for the Planning of Preoperational Testing Programs."

A copy of our report of this inspection is enclosed. 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 with the enclosed inspection report will be placed in the AEC's Public Document Room. If the inspection report contains information which you or your contractors believe to be proprietary, it is necessary that you submit a written application to this office, within 20 days of the date of this letter, requesting that such information be withheld from public disclosure. If such an application is submitted, it must identify the basis for which information is claimed to be proprietary and should be prepared so that proprietary information identified is contained in a separate part of the document since the application, excluding this separate part, will also be placed in the Public Document Room. If we do not receive an application to withhold information, or are not otherwise contacted within the specified time period, the enclosed report will be placed in the Public Document Room with a copy of this letter.

Unless you wish to make application to withhold information, no reply to this letter is necessary; however, should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

Boyce H. Grier
Regional Director

Enclosure:
RO Inspection Rpt No. 050-331/73-01

bcc: RO Chief, RT&OB
RO Chief, RCB
RO:HQ (4)
Licensing (4)
DR Central Files
Regions I, II & V
PDR
Local PDR
NSIC
DTIE
OGC, Beth, P-506A

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

RO Inspection Report No. 050-331/73-01

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: Routine, Unannounced

Dates of Inspection: January 24 and 25, 1973

Dates of Previous Inspection: November 28 - 30, 1972

Principal Inspector: D. C. Boyd — 2-8-73 (Date)

Accompanying Inspectors: C. D. Feierabend — 2-8-73 (Date)

Other Accompanying Personnel: None

Reviewed By: D. M. Hunnicutt, Chief
Reactor Testing and Startup Branch — 2/8/73 (Date)

SUMMARY OF FINDINGS

Enforcement Action

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

Licensee Action on Previously Identified Enforcement Items

All previously identified enforcement items have been satisfactorily resolved and these resolutions have been stated in a previous report.1/

Design Changes

Comments relative to design changes will be identified in reports prepared by the Directorate of Regulatory Operations, Construction Branch.

Unusual Occurrences

No unusual occurrences were determined or identified as a result of this inspection.

Other Significant Findings

A. Current Findings

1. Status Report

   a. Construction Completion --- 77.5%

   b. Primary System Hydro Test, Target Date - April 1, 1973

   c. Initial Fuel Loading Target Date - September 1973

2. Operating Organization Staffing

   As of February 1, 1973, all operating organization personnel, as identified in Section 6.2 of the FSAR, are onsite. (Paragraph 1)

1/ RO Inspection Report No. 050-331/72-12.

3. Corporate Office Engineering/Technical Support for the Site

Currently eight engineers from the corporate engineering group have been assigned full time engineering and technical support responsibilities at the site. Tentative plans indicate that several other engineers from this group will also be assigned to the site at a later date. (Paragraph 2)

4. Post Construction Pipe Cleaning and Flushing

These activities are currently in progress. An RO:III review indicates that these activities are being conducted in accordance with approved procedures and that the applicant is participating in the performance of and is witnessing these activities. (Paragraph 3)

5. Overload Testing of Major Cranes and Hoists

These activities are currently in progress. An RO:III review indicates that these activities are being conducted in accordance with approved procedures and that the applicant is participating in the performance of and is witnessing these tests. (Paragraph 4)

6. Equipment Turned Over to Operating Organization

An RO:III review indicates that a program and procedures exist to maintain components and systems which have been turned over to the Operating Organization by the construction forces. (Paragraph 5)

7. Operating Organization Quality Assurance Program

The preparation of the Operating Organization Quality Assurance Program and procedures is in progress. (Paragraph 6)

8. Preoperational/Acceptance Test Review

The applicants review and resolution of RO:III comments on preoperational/acceptance test procedures is being accomplished in a timely manner. (Paragraph 7)

B. Unresolved Items

The applicant has not included a "Plant Response to Loss of

Instrument Air" test in the Instrument Air Acceptance Test Procedure. (Paragraph 7)

C. Status of Previously Reported Unresolved Items

The applicant has not determined whether the final cleaning of the primary recirculating system piping (for the assured removal of possible foreign objects or debris) will be accomplished by a 100 percent recirculation flow or by some alternate procedure.

Management Interview

Persons Present

The following persons were present during the management interview:

Iowa Electric Light and Power Company

G. Hunt, Chief Engineer
E. Hammond, Assistant Chief Engineer
D. Mineck, Shift Supervising Engineer
G. Engle, DAEC Technical Staff (on contract from NSC)
R. Essig, Quality Assurance Engineer

Directorate of Regulatory Operations, Region III

D. C. Boyd, Principal Inspector
C. D. Feierabend, Assigned Backup Inspector

Subjects Discussed

The following subjects were discussed:

A. Resolution of RO:III comments on preoperational/acceptance test procedures. (Paragraph 7)

B. Operating organization-quality assurance program. (Paragraph 6)

C. Site Security Program.

D. Corporate Office Engineering/technical support for the site. (Paragraph 2)

E. Operating organization staffing. (Paragraph 1)

REPORT DETAILS

Persons Contacted

Iowa Electric Light and Power Company (IEL&P)

L. Root, DAEC Assistant Project Manager
J. Wallace, IEL&P Production Manager
G. Hunt, Chief Engineer
E. Hammond, Assistant Chief Engineer
D. Mineck, Shift Supervising Engineer
R. Zook, Shift Supervising Engineer
D. Teply, Shift Supervising Engineer
M. Kappl, Shift Supervising Engineer
D. Kalavitinos, Shift Supervising Engineer
C. Vondra, Shift Supervising Engineer
R. Lehman, Mechanical Maintenance Supervisor
R. Nossardi, Group Leader, Site Production Engineers
R. Essig, Quality Assurance Engineer
G. Engle, DAEC Technical Staff (NSC)
R. York, Operating Supervisor

Bechtel Corporation (Bechtel)

F. Adamek, Preoperational Test Engineer
S. Dye, Pipe Cleaning and Flushing Engineer

1. Station Staffing

A member of Duane Arnold Energy Center (DAEC) management provided the inspector with information and documentation which establishes that all of the operation organization personnel as described in Section 13 of the FSAR, have been assembled.[2/] The applicant also informed the inspector that the stations six shift supervising engineers have been named. The inspector met with these individuals and other members of IEL&P and DAEC management and briefly reviewed with them some of the Regulatory Operations functions.

2. Corporate Office Engineering/Technical Support at the Site

The inspector met with a member of the onsite production engineers to review the status of this technical support group. Currently, according to this individual, eight members of the engineering staff are assigned, full time, at the site. Tentative plans call

2/ The final individual to be assigned to the site on February 1, 1973.

for one, possibly two, more engineers to be assigned for support effort on the radwaste systems, and one more engineer is planned for support in the electrical area. Currently there are three systems support teams and an electrical support function. Each team member has been assigned specific system responsibilities and these assignments generally coincide with the individuals past experience with these systems during the design and construction phases of the project. The Group Leader stated that in addition to the technical support function of this group, it is intended that each member maintain close liaison with the contractor to assure that the systems and components are ready for preoperational or acceptance testing in accordance with the master testing schedule.

3. Post Construction Pipe Cleaning and Flushing

The inspector met with members of IEL&P management and members of Bechtel Startup Organizations to review the status of the pipe cleaning and flusing program. This review included the examination of the following: Bechtel Startup Standard No. 16 - Velocity Flushing Procedures; individual system and sub-system pipe cleaning and flushing procedures; data obtained from these activities; master flushing charts (color coded); and master valve status charts. It was determined that these activities are being conducted in accordance with approved procedures (Bechtel) and that IEL&P is participating in the performance of these activities; is witnessing these activities; and is reviewing the data obtained.

The Bechtel pipe cleaning and flushing engineer pointed out that the cleaning and flushing of all piping having a potential flow path to the reactor pressure vessel is conducted in a segmented but coordinated manner. The inspector reviewed the master pipe flushing and valve status diagrams and observed that the individual procedures do identify the use of red tags to establish the flush boundary, and green tags to identify the sections of piping being flushed. It was also noted that in some instances chains and locks are utilized, in addition to tags, to insure proper control of the pipe cleaning and flushing program. The inspector observed that the program and procedures include provision for the following:

a. Cleaning of water jacketed equipment, coolers, heat exchangers and similar equipment to insure internal cleanliness and to verify the correct direction of flow.

b. Cleaning of inlet and outlet connected piping to tanks and vessels by reverse flushing techniques.

c. Providing the initial leak test of piping systems not normally hydro-tested.

DAEC management stated that it is their intent to follow the cleaning and flushing of all piping having a potential flow path to the reactor pressure vessel in this manner. A member of IEL&P management stated that the IEL&P engineering group and Bechtel are currently deliberating on the procedures to be used for the final flush of the primary coolant system and the reactor pressure vessel.3/

4. Overload Testing of Major Cranes and Hoists

The inspector met with members of DAEC management to determine the degree of IEL&P involvement in the testing of safety related cranes and hoists. It was determined that members of the DAEC staff witnessed the overload testing of the Reactor Building Overhead Crane (Rated at 100 tons) and the auxiliary hoists (rated at 5 ton). The test package provided certification of the instrumentation and the test weights and slings used. The data obtained included: verification of limit switch operation; control and brake operations; record of voltage, amperage, and watts required by the drive motors under various load conditions; drive speeds; loss of power performance under load; and the measurement of center of girder deflection at 125 percent load with bridge at center span. The 100 ton crane was tested with various loads up to approximately 125 tons (250,705 pounds) and the 5 ton hoist was tested at various loads up to approximately 6¼ tons (12,549 pounds).

DAEC management stated that it is their intent to follow the testing of all safety related cranes and hoists in this manner.

5. Operating Organization Equipment

The inspector inquired regarding the program established by the Operating Organization to assure that the systems and components turned over to them by the construction forces are being properly maintained. A member of DAEC management provided the inspector with copies of administrative procedures, maintenance requests forms, equipment malfunction report forms, and the shift wise component and system status checklist (maintained in the Operating Log). The applicant summarized for the inspector the formal procedures utilized to control and record all maintenance activities. These procedures define five levels of priority to assure the timeliness of repair activities. Preventative maintenance, component

3/ In response to a concern expressed in RO Inspection Report No. 050-331/72-12.

lubrication and surveillance is being performed in accordance with vendor recommendations or IEL&P conventional plant practices, and it is expected that these activities will be incorporated into the Operating Organization Quality Assurance Program which is currently being prepared. (See Paragraph 6)

6. Operating Organization Quality Assurance Program

The inspector met with the members of DAEC management and a member of Nuclear Services Corporation (NSC) to discuss the DAEC plans for the preparation and implementation of an Operating Organization Quality Assurance Program. The applicant explained that NSC has been contracted to prepare the program and procedures for DAEC implementation. The NSC representative, who is assigned full time at the site, outlined his plans for the preparation of the program and stated that it will specifically address each of the eighteen criteria of 10 CFR Appendix B, and that NSC is cognizant of the guidelines provided in ANS 3.2 and ANSI N 45.2 - 1971.

The inspector stated that the preparation and implementation of an adequate Operating Organization Quality Assurance Program is considered to be a necessary prerequisite to the operation of the plant and that Regulatory Operations would be following the progress in this area closely.

7. Preoperational/Acceptance Test Procedure Review

The inspector met with the DAEC preoperational/acceptance test coordinator and other members of DAEC management to determine the status of previous RO comments on these documents. It was determined that all of the items stated in RO Inspection Report No. 050-331/72-12, Paragraph 17, have been addressed by DAEC and Bechtel and that adequate resolution has been attained in each instance.

The inspector stated that an RO:III review of the following Acceptance Test Procedures had been completed:

Test No. 8 - Well Water System

Test No. 10.2 - Screen Wash Water

Test No. 11.1 - General Service Water

Test No. 13 - Fire Protection System

Test No. 17 - Instrument AC Control System

Test No. 18 - Instrument Air System

Test No. 19 - Service Air System

The inspector commented that this review had established that the format and content of the Acceptance Test Procedures was found to be essentially the same as is utilized for the Preoperational Test Procedures, and that the procedures had been reviewed and approved by DAEC management (Operation Review Committee and Chief Engineer) and by IEL&P Engineering.

One item requiring resolution was identified in Acceptance Test No. 18 - Instrument Air System. The inspector pointed out that this test procedure does not include a "Plant Response to Loss of Instrument Air Test" in accordance with the guidelines provided in the December 7, 1970, Guide for the Planning of Preoperational Testing Programs.

The applicant stated that a component by component response to loss of instrument air test is provided in each preoperational/ acceptance test procedure. The inspector acknowledged that while this individual component testing is desirable, it does not provide the applicant with adequate knowledge of the manner in which an operating plant would respond to the loss of instrument air. This knowledge, the inspector stated, would be required to permit the applicant to prepare an emergency procedure for the "Loss of Instrument Air" in accordance with Safety Guide No. 33. The applicant stated that consideration would be given toward the performance of a "Plant Response to the Loss of Instrument Air Test" and that their position on this matter would be identified at a later time.

8. Miscellaneous Inspection Items

a. Operations Review Committee Minutes

The inspector reviewed the following Operations Review Committee minutes:

December 1, 1972

January 9, 1973

January 22, 1973

b. Log Book Review

The inspector accompanied by a member of DAEC management reviewed the following control room log books:

Shift Supervising Engineers Log Book

Operating Log

Diesel Operating Logs

Radiography Log

Hold Card and Tag Out Log

Back Shift Instrument Log

Work Permit Log

General Information Book

The applicant stated that the Shift Supervising Engineers Log Book and the Operating Log were currently being maintained in temporary type log books but that permanent type log books were being prepared for these functions.

The inspector observed that the station was not utilizing a "jumper log" to control the use of electrical jumpers, lifting of leads, or blocking of relay contacts. The applicant stated that these activities were specifically controlled in the body of each test procedure which requires the use of jumpers, lifting of leads, or blocking of relay contacts. The applicant stated that consideration would be given towards providing a formal DAEC jumper control procedure, including a jumper log, prior to the time of initial fuel loading.