

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

REGION III

Report No. 50-331/80-09

Docket No. 50-331

License No. DPR-49

Licensee: Iowa Electric Light and  
Power Company  
IE Towers  
Post Office Box 351  
Cedar Rapids, IA 52406

Facility Name: Duane Arold Energy Center

Inspection At: Duane Arnold Site, Palo, IA

Inspection Conducted: June 16-17, 1980

Inspector: *E. J. Gallagher for*  
E. J. Gallagher

6/24/80

Approved By: *E. W. Hayes for*  
E. W. Hayes, Chief  
Engineering Support Section 1

6/24/80

Inspection Summary

Inspection on June 16-17, 1980 (Report No. 50-331/80-09)

Areas Inspected: Routine, unannounced inspection of previously identified outstanding items and follow-up to IE Bulletin No. 79-02, Pipe Support Base Plate Designs Using Concrete Expansion Anchors. Review of licensee event reports on pipe supports; review of concrete cracks in floor under torus. The inspection involved 11 inspector hours onsite by one NRC inspector.

Results: No items of noncompliance were identified.

## DETAILS

### Persons Contacted

#### Iowa Electric Company

- \*D. L. Mineck, Chief Engineer
- \*R. York, Assistant Chief Engineer
- \*D. Wilson, Assistant Chief Engineer
- \*J. Van Sickel, Technical Engineering
- M. Edmonds, Quality Assurance

#### Bechtel Power Company

J. Kozman, Staff Engineer

#### NRC Resident

- \*L. Clardy, Resident Inspector
- \*N. Jackiw, RIII Inspector

\*Denotes those in attendance at Exit Meeting on June 17, 1980.

### Functional or Program Areas Inspected

#### 1. Licensee Action on Previous Inspection Findings

- a. (Closed) Unresolved Item (331/79-30-01): NRC requested the licensee to submit calculations and design basis for block walls with pipe support attachments. The licensee responded on January 15, 1980 (Letter LDR-80-15) and submitted the wall design basis and acceptance criteria. Since that time the NRC has issued IE Bulletin 80-11 regarding Masonry Wall Design. The evaluation of the suitability of block walls to support safety-related pipe supports will be performed as a result of the bulletin issuance.
- b. (Closed) Unresolved Item (331/79-30-02): Licensee responded with Letter LDR-80-15 dated January 15, 1980 regarding design control measures to assure adequate design review, verification, and checking. The response indicated that design work is required to be performed in accordance with Bechtel engineering procedures and in accordance with regulatory guide 1.64.
- c. (Closed) Unresolved Item (331/79-18-05): The licensee addressed the three items in submittal LDR-79-342 dated December 10, 1979, specifically that (a) a factor of safety of four or five in accordance with IE Bulletin 79-02 was used to determine pipe support design; (b) bolts were preloaded to equal to or greater than design load; and (c) torque/tension correlations were performed on shell type anchors. This item is considered resolved at this time.

2. Review of Licensee Event Reports (LERs)

The following LERs regarding work performed in conjunction with IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchors" were reviewed:

- a. LER #50-331/79-14 - As a result of NRC IE Bulletin 79-02 test program, a generic problem existed with the concrete expansion anchors used to support base plates and pipe supports. The corrective action taken was to implement an anchor bolt replacement program by replacing shell type anchors with stud type expansion anchors. This program is complete and the final report in preparation is to be submitted to NRC Region III when complete. This report will be reviewed and evaluated in accordance with Bulletin requirements.
- b. LER #50-331/79-25 - While the licensee was performing an inspection of the RHR piping on September 27, 1979, it was determined that two supports, GBB-23-SR-158 and 160, were not intact. Support SR-160 was restored to service and an analysis performed demonstrated that only one of the two was required to maintain the system operable. Support SR-158 has been left out of service due to being inaccessible. It was determined that the supports were damaged due to water hammer in the RHR line. Iowa Electric letter LDR-79-234 dated October 12, 1979 requested Bechtel to provide alternatives to preclude water hammer damage from occurring in the future. Bechtel responded in letter BLIE-79-36 dated November 14, 1979 with three alternatives. Iowa Electric has committed to install a new locked closed manual valve close to the RHR header (GBB-3) thereby not relying on operator action to vent and maintain the line filled. In addition, NDE examination on welds of the RHR line were performed with no indications noted.

3. Review of Report on Concrete Cracks in Foundation Mat

Iowa Electric Company letter IE-74-392 dated April 22, 1974 committed to a surveillance on a yearly basis of the concrete crack condition and seepage of ground water through the foundation mat under the Torus at elevation 716'-9". The NRC Region III office received Iowa Electric letter LDR-80-116 dated April 25, 1980 stating that, "inspection since 1974 have verified that a self-healing process has taken place, and based on this data, we will cease yearly reinspections". During this inspection a review of the Iowa Electric file (Q-443) regarding the cracks under the Torus was performed. The following items were reviewed:

- a. Bechtel Report dated March 2, 1972
- b. Bechtel Report dated April 1, 1974
- c. Letter IE-74-238 dated April 5, 1974
- d. NRC letter dated July 12, 1974 to Iowa Electric
- e. Surveillance Report dated February 10, 1975
- f. Surveillance Report dated February 18, 1976

- g. Surveillance Report (S-06-80) dated March 12, 1980
- h. Quality Assurance letter dated April 4, 1980

The file indicated that the surveillance inspection committed to on a yearly basis had not been performed during the years 1977, 1978, and 1979. Quality Assurance Department requested Engineering to evaluate the need for developing a surveillance test procedure in order to assure that the inspections were performed on a yearly basis.

Engineering performed an evaluation which concluded that the reinspections were not necessary in the future, based on the 1980 surveillance which indicated a "self-healing" of the cracks due to concrete chemical residue deposited in the cracks sealing off water flow.

Quality Assurance has since closed nonconformance report file Q-433 based on the Engineering evaluation.

#### Exit Interview

The inspector met with Iowa Electric Company staff representatives (denoted in Persons Contacted) at the conclusion of the inspection on June 17, 1980. The inspector summarized the findings of the inspection. The licensee acknowledged the findings.