



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

MAR 21 1980

Docket No. 50-331

Iowa Electric Light and Power  
Company

ATTN: Mr. Duane Arnold  
President

IE Towers  
Post Office Box 351  
Cedar Rapids, IA 52406

Gentlemen:

This refers to the inspection conducted by Messrs. G. C. Wright and W. F. Christianson of this office on February 19-22, 1980, of activities at the Duane Arnold Energy Center authorized by NRC Operating License No. DPR-49 and to the discussion of our findings with Mr. B. York 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.

During this inspection, certain of your activities appeared to be in noncompliance with NRC requirements, as described in the enclosed Appendix A.

This notice is sent to you pursuant to the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty days of your receipt of this notice a written statement or explanation in reply, including for each item of noncompliance: (1) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved.

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, the enclosures, and your response to this letter will be placed in the NRC's Public Document Room, except as follows. If the enclosures contain information that you or your contractors believe to be proprietary, you must apply in writing to this office, within twenty days of your receipt

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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.

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

Sincerely,

R. F. Heishman, Chief  
Reactor Operations and  
Nuclear Support Branch

Enclosures:

1. Appendix A, Notice  
of Violation
2. IE Inspection Report  
No. 50-331/80-03

cc w/encl:

Mr. D. Minick, Chief  
Engineer  
Central Files  
Reproduction Unit NRC 20b  
PDR  
Local PDR  
NSIC  
TIC

RIIL

for Wright/rl  
3/6/80

RIIL

for Christianson

RIIL

for Little

RIIL

for Heishman

3/14

Appendix A

NOTICE OF VIOLATION

Iowa Electric Light and  
Power Company

Docket No. 50-331

Based on the inspection conducted on February 19-22, 1980, it appears that certain of your activities were in noncompliance with NRC requirements, as noted below. Items 1 and 2 are infractions, item 3 is a deficiency.

1. Technical specification section 6.4.2 states in part ". . . fire brigade training sessions. . . shall be held at least quarterly."

Contrary to the above fire brigade training had not been held during the period of July, 1978 to June, 1979.

2. Technical specification section 6.8 states in part "detailed written procedures involving nuclear safety. . . shall be prepared. . . all procedures shall be adhered to." Included in section 6.8.1 is "Fire Protection Plan Implementation."

Contrary to the above the monthly fire extinguisher inspections required by the DAEC Fire Plan and Inspection Procedure IP-013/IE-3 have not been performed from 1977 to date.

3. Technical specification section 6.8 states in part "detailed written procedures involving nuclear safety, including applicable check-off lists. . . shall be prepared. . ."

Operating instruction #53 "standby liquid control system" Appendix I indicated that air sparger, air inlet valve U-26-11 is to be locked closed.

Contrary to the above STP 44C01 "standby liquid control system Boron Concentration" does not contain sufficient direction and/or check sheets to prevent valve U-26-11 from being left unlocked at the conclusion of the procedure. This was the case when the inspector observed valve U-26-11 to be unlocked after the completion of STP 44C001.

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

REGION III

Report No. 50-331/80-03

Docket No. 50-331

License No. DPR-49

Licensee: Iowa Electric Light and Power Company  
Security Building, P. O. Box 357  
Cedar Rapids, Iowa 52406

Facility Name: Duane Arnold Energy Center

Inspection At: Duane Arnold Energy Center  
Palo, Iowa

Inspection Conducted: February 19-22, 1980

Inspectors:

*[Signature]*  
C. Wright  
*[Signature]*  
F. Christianson

3/14/80  
3/14/80  
3/14/80

Approved By: *[Signature]*  
W. S. Little, Chief  
Reactor Projects Section 1-2

Inspection Summary

Inspection on February 19-22, 1980 (Report No. 50-331/80-03)

Areas Inspected: Routine, unannounced inspection of: Pre-refueling activities; Refueling activities; General Employee Training; Requalification Training; and LER followup. The inspection involved 53 inspector-hours (including 4 hours off-shift) onsite by two NRC inspectors.

Results: Of the areas inspected three items of noncompliance (Infraction-failure to conduct fire brigade training; Deficiency inadequate procedure; Infraction-failure to conduct monthly fire extinguisher inspections) were identified.

## DETAILS

### 1. Persons Contacted

\*B. York, Assistant Chief Engineer Operations  
D. Wilson, Assistant Chief Engineer Technical  
\*D. Teply, Operations Supervisor  
\*R. McCracken, Quality Control Supervisor  
\*J. VanSickel, Technical Engineer  
\*D. Rockhill, Mechanical Maintenance Supervisor  
R. Anderson, Training Coordinator

The inspectors also interviewed several other licensee employees including: Shift Supervising Engineers; Nuclear Station Operators; Onsite Engineering Personnel; and General Station Personnel.

\*Denotes those present at the exit interview.

### 2. Licensee Event Report Followup

The inspector reviewed the following licensee event reports to ascertain whether the licensee's review, corrective actions, and report on the event and associated conditions, were adequate and in conformance with regulatory requirements, Technical Specifications and licensee procedures and controls.

#### a. Inoffice Review

- (1) (Closed) LER 331/79-30
- (2) (Closed) LER 331/79-31
- (3) (Closed) LER 331/79-32
- (4) (Closed) LER 331/79-34
- (5) (Closed) LER 331/79-35
- (6) (Closed) LER 331/79-36
- (7) (Closed) LER 331/79-38

A design review has been initiated relative to LER 331/79-30. Results of the review will be inspected during a subsequent inspection (331/80-03-01).

#### b. Onsite Review

The following LER's, were selected for onsite review. The review consisted of discussions with licensee personnel direct observation and review of records.

- 1) (Closed) LER 331/79-33, Refer to IR # 331/79-32
- 2) (Closed) LER 331/79-37

No items of noncompliance were identified.

3. Training

The inspectors reviewed licensee procedure ACP 1401.5, "Plant Indoctrination and Training Program," the Training Programs Administrative Manual and the Operator Qualification and Requalification Program Manual, and the corresponding training records.

The training program was reviewed to ascertain whether the overall training activities for new employees and the retraining of non-licensed personnel were in conformance with Technical Specification requirements and commitments in the FSAR. The inspectors verified that formal training and retraining programs have been established for new employees, temporary or service personnel, non-licensed/ licensed personnel, technicians and craft personnel; that the formal training program for the personnel listed above covers administrative controls and procedures, radiological health and safety, industrial safety, controlled access and security procedures, emergency plan, and quality assurance; that the retraining program for technicians and craft personnel includes on-the-job training, formal technical training; that responsibilities have been assigned to assure that training program requirements have been met; and that all female employees are provided instructions concerning prenatal radiation exposure.

Amendment 43 to license DPR-49 added the requirement of quarterly fire brigade training to Section 6.4.2 of the Technical Specification.

Contrary to the above the licensee did not conduct formal fire brigade training from July 1978 to June 1979.

This item is considered to be an infraction. (331/80-03-02).

No other items of noncompliance were identified.

4. Licensed Operator Requalification Training

The requalification program was reviewed to ascertain whether the licensed operator requalification training program is effective and in conformance with Regulatory requirements. The inspectors verified that an operator requalification training program has been established and includes preplanned lectures, attendance documentation and identification of specific training aids to be used in lieu of an instructor; the on-the-job training requirements have been specified to include control manipulations, discussion/review of changes in facility design, procedures, and license; and that records of licensed individuals are maintained to include completed course and yearly examinations, documentation of manipulations, documentation of required simulations of emergency and abnormal conditions, results of supervisory evaluations of examinations,

results of supervisory evaluations and observation of manipulations and simulations identified above, documentation of individual study, and documentation of accelerated requalification training.

The inspectors reviewed the records of licensed Senior Reactor Operators and licensed Reactor Operators to verify that the licensee's approved requalification training program was being properly implemented.

No items of noncompliance were identified.

5. Preparation for a Refueling Outage

The inspector verified that approved procedures were available for new fuel receipt and inspection and for fuel transfer and core verification. In addition, the inspector verified that new fuel and fuel channels were received and inspected in accordance with the licensee's procedures. A licensee representative stated that neither fuel sipping operations, irradiated fuel inspections, nor fuel reconstitution would be performed during this refueling outage.

No items of noncompliance were identified.

6. Pre-Fuel Handling Activities

The inspector verified that surveillance testing had been completed on Technical Specification requirements, refueling machine operation, refueling interlocks, crane testing, refueling deck radiation monitors, and communication systems.

The inspector verified by record review, that the surveillance procedures for IRM trips; SRM trips, secondary containment demonstration; refueling interlocks, SRM daily response check, and refuel mode required scrams were completed. In addition the inspector reviewed the reactor building overhead crane preventative maintenance procedure, the refueling deck area radiation monitoring surveillance procedures and verified that communications between the refueling bridge and the control room had been checked.

No items of noncompliance were identified.

7. Fuel Handling Activities

The inspector verified by direct observations that core monitoring during refueling operations was in accordance with Technical Specifications, that containment integrity during refueling operations was in accordance with the Technical Specifications, that fuel bundle removal was in accordance with established procedures,

that fuel accountability methods were in accordance with established procedures, that core internals were stored to protect against damage, that housekeeping was proper, that vessel level was in accordance with the Technical Specifications, that the reactor mode switch position was as required by the Technical Specifications, and that control blade checks were scheduled to be performed in accordance with approved procedures. The inspector also observed that the individual directing fuel handling activities held a senior operating license and was present directly supervising activities, and that a licensed reactor operator was present in the control room and in constant direct communication with a member of the fuel handling crew when work was being performed that could affect the reactivity of the core.

The inspector also verified that operations personnel stationed on the refueling bridge had prior fuel handling experience.

No items of noncompliance were identified.

#### 8. Independent Inspection

While conducting a general walk through of the facility the inspectors noted two items which were brought to the attention of plant management:

- a. The inspector noted at approximately 3:00p.m. on February 20, 1980, during an independent valve lineup check on the Standby Liquid Control System, that valve V-26-11, manual isolation valve on the air sparger inlet, was not locked in its closed position. Further investigation indicated that STP 44C001 "Standby Liquid Control System Boron Concentration" had been performed earlier on the same day and had been preceded by air sparging of the SBLC tank between 8:05a.m. and 9:44a.m.

A review of Operating Instruction #53, for the Standby Liquid Control System, indicated that valve V-26-11 was to be locked closed. Technical Specification 6.8 states in part that "Detailed written procedures involving nuclear safety, including applicable check-off sheets. . . shall be prepared. . ."

Contrary to the above STP44C001 does not include any statement relating to valve V-26-11 which would preclude the valve from being left unlocked.

This item is considered a deficiency. (331/80-03-03).

When the above item was brought to managements attention the valve was immediately locked in the closed position.

- b. Technical Specification Section 6.8.1 states in part, "Detailed written procedures involving nuclear safety. . . shall be prepared . . . all procedures shall be adhered to." Included in Section 6.8.1 is "Fire Protection Plan Implementation". The DAEC Fire Plan approved on January 19, 1977, requires inspection procedure IP-013/IE-3, Revision 1, dated February 23, 1979 to be performed. This inspection procedure includes both monthly inspections and annual servicing requirements for all fire extinguishers.

An effort was made to review the inspections, however no records of the monthly inspections could be located, the annual inspection for 1979 was reviewed. Further review indicated that in 1977 the monthly inspection requirement was put on the Mini-MAR System to be performed by the operations department. Discussions with operations revealed that they were unaware of their responsibility in this area.

Contrary to the requirements of the Technical Specification and the Fire Plan, the required monthly inspections of fire extinguishers were not performed. This resulted in the inspectors identifying three, out of approximately eight extinguishers inspected, which had service tags which were out of date.

This item is considered an infraction (331/80-03-04).

The three extinguishers with expired tags were replaced with up-to-date extinguishers when the licensee's management was made aware of the situation. The licensee further indicated that all fire extinguishers in the plant are to be serviced during the present refueling outage.

- c. On February 19, 1980 while the inspectors were in the control room a 4160 volt feeder breaker to a 480 volt switch gear tripped. This resulted in the following events: Power loss to all Area Radiation Monitors (ARM's); AC power lost to the uninterruptable power MG set; Power loss to half of the containment isolation logic; and Power loss to half of the APRM's and LPRM's.

The loss of power to the ARM's resulted in all the local alarms being actuated. This resulted in an evacuation of the refueling floor and partial evacuation of the reactor building although no formal evacuation was initiated. Immediate surveys by in-place health physics personnel indicated there was no actual increase in radiation levels.

The loss of AC power to the uninterruptable power M.G. set resulted in it automatically transferring to its backup

D.C. power supply. Personnel in the area indicated that the M.G. set was sparking and arcing. The unit was removed from service and the alternate AC power supply was connected to the bus. Subsequent investigation revealed that the M.G. set was operating normally and that no corrective action is required.

The loss of power to half of the containment isolation logic circuits resulted in one isolation valve in the Reactor Water Cleanup System and the RHR Shutdown Cooling System closing which is the appropriate action. Once power was restored these valves were reopened and the systems returned to operation.

Loss of power to one of the two APRM channels would normally have resulted in only a half scram. However, APRM "B", in the unaffected channel, utilizes LPRM inputs from both channels (as far as initial power supply), therefore, APRM "B" lost half of its inputs. In addition, APRM "B" also had five unaffected LPRM's bypassed. This combination resulted in a trip of APRM "B" on too few inputs (i.e., 50%).

The trip on APRM "B" combined with the APRM channel A trip resulted on a full scram.

After the scram, it was noted that nine of the twelve control rods which had been fully withdrawn and valved out, after unloading their respective fuel cells, had also been inserted. Investigation by the licensee revealed that the three control rods which had not inserted had their cooling water supply valved out. It was further determined that cooling water flow diversion upon scrambling was responsible for the other nine drives being inserted.

Since the nine control rods had been inserted in an unsupported manner the licensee has committed to a 100% visual (underwater T.V. camera) inspection of those nine control rods and associated fuel support pieces prior to reloading those fuel cells. (331/80-03-05).

9. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on both February 21, 1980 (D. Wilson only) and February 22, 1980 (all others except D. Wilson). The inspector summarized the scope and findings of the inspection.