



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

NOV 21 1977

Docket No. 50-331

Iowa Electric Light and Power
Company
ATTN: Mr. Duane Arnold
President
IE Towers
P. O. Box 351
Cedar Rapids, IA 52406

Gentlemen:

This refers to the inspection conducted by Messrs. H. B. Kister and R. C. Knop of this office on October 4-7, 25-28, 1977, of activities at Duane Arnold Energy Center authorized by NRC Operating License No. DPR-49 and to the discussion of our findings with Mr. Hammond and his staff.

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. The inspection showed that action had been taken to correct the identified noncompliance and to prevent recurrence. Consequently, no reply to this noncompliance is required and we have no further questions regarding this matter at this time.

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

Iowa Electric Light and
Power Company

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

Sincerely,

Caston Fiorelli, Chief
Reactor Operations and
Nuclear Support Branch

Enclosures:

1. Appendix A, Notice
of Violation
2. IE Inspection Report
No. 50-331/77-19

cc w/encs:

Mr. E. L. Hammond,
Chief Engineer
Central Files
Reproduction Unit NRC 20b
PDR
NSIC
Local PDR
TIC

OFFICE ➤	RIII	RIII	RIII			
SURNAME ➤	Kister/ls <i>ACK</i>	Knop <i>ACK</i>	Fiorelli <i>ACK</i>			
DATE ➤	11/18/77					

Appendix A

NOTICE OF VIOLATION

Iowa Electric Light and
Power Company

Docket No. 50-331

Based on the inspection conducted on October 4-7 and 25-28, 1977, it appears that certain of your activities were in noncompliance with NRC requirements, as noted below. Item 1 is an infraction and item 2 is a deficiency.

1. Contrary to the Duane Arnold Energy Center Technical Specification, Section 3.7.D.1 and ACP 1401.4, the licensee failed to perform post maintenance testing to verify closure time requirements on MOV 4424, 4302, and 4303.
2. Contrary to the Duane Arnold Energy Center Technical Specifications, Section 6.11.2.B(2), the licensee failed to report the results of a surveillance test on the MSIV-LC system which revealed a degraded mode condition.

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

REGION III

Report No. 50-331/77-19

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 Arnold Energy Center

Inspection At: Duane Arnold Site, Palo, IA

Inspection Conducted: October 4-7 and 25-28, 1977

Inspectors: H. B. Kister *RC Knop for*

11/18/77

RC Knop
R. C. Knop

Approved By: *RC Knop*
R. C. Knop, Chief
Reactor Projects Section 1

11/18/77

Inspection Summary

Inspection on October 4-7 and 25-28, 1977 (Report No. 50-331/77-19)

Areas Inspected: Routine, unannounced inspection of plant operations, design changes, maintenance, Licensee Event Review, Quality Assurance Auditing, and followup on items of noncompliance and outstanding inspection items. The inspection involved 70 inspector-hours onsite by two NRC inspectors:

Results: Of the six areas inspected no items of noncompliance or deviations were found in four areas; two items of noncompliance were found in two areas (infraction - failure to perform post maintenance testing (Paragraph 4.a) and a deficiency - failure to report a failed breaker in the MSIV-LCS system (Paragraph 3.a)).

DETAILS

1. Persons Contacted

Corporate Office

H. Rehrauer, Supervisor, Project Engineering
H. Shearer, DAEC Project Engineer
D. Gembler, Supervisor, Quality Assurance

Site

*E. Hammond, Chief Engineer
*D. Mineck, Assistant Chief Engineer
*B. York, Operations Supervisor
R. Hannen, Reactor and Plant Performance Engineer
*J. Gebert, Maintenance Superintendent
*J. Vinqvist, Electrical Maintenance Supervisor
*R. Rockhill, Mechanical Maintenance Supervisor
*R. Rinderman, Quality Supervisor
C. Vondra, Shift Supervisory Engineer
R. Zook, Shift Supervisory Engineer
C. Mick, Shift Supervisory Engineer
M. Hammer, Shift Supervisory Engineer
W. McVicker, Chemist
D. Wilson, Technical Engineer
*J. VanSickle, Engineering Assistant

The inspector also talked with and interviewed several other licensee employees, including members of the technical and operating staff.

*Denotes those attending exit interview.

2. Review of Licensee Event Reports

A review of reporting, corrective actions, licensee review and evaluation and compliance with regulatory requirements was conducted for the following reportable occurrences:

<u>Event Title</u>	<u>Event Date</u>	<u>Licensee Rpt Date</u>
<u>In Office Review</u>		
a. 50-331/77-59, ADS timer B setting out of specification (30 day)	7/22/77	8/17/77

b.	50-331/77-61, MSL Hi temp switch tripped out of specification (30 day)	7/26/77	8/24/77
c.	50-331/77-66, SUPP Pool Hi temp sensor tripped out of specification (30 day)	8/15/77	9/14/77
d.	50-331/77-73, IRM CH "A" downscale trip found inop. (30 day)	9/2/77	9/27/77
e.	50-331/77-75, IRM CH "B" downscale trip found inop. (30 day)	9/15/77	10/14/77
f.	50-331/77-76, Control room standby filter Unit "A" fan found inop. (30 day)	8/28/77	9/27/77
g.	50-331/77-79, MSIV-LCS valve 8401C would not open when initiated (30 day)	7/18/77	10/14/77

Site Review

h.	50-331/76-66, 3 of 4 MSIV-LCS subsystems were found inoperable (14 day)	10/15/76	10/29/76
i.	50-331/77-25, "A" RHR torus suction strainer found damaged (14 day)	3/29/77	4/11/77
j.	50-331/77-26, Main Steam Relief Valves failed to lift during testing (14 day)	3/28/77	4/8/77
k.	50-331/77-36, Fire in electrical breaker (14 day)	5/7/77	5/20/77
l.	50-331/77-63, Rx Hi pressure Recir Pump trip switch tripped hi (30 day)	8/4/77	8/24/77

m.	50-331/77-64, CAD system N ₂ volume decreased below allowable TS (30 day)	8/6/77	9/1/77
n.	50-331/77-67, Torus Water Temp. Transmitters found out of spec. (14 day)	8/24/77	9/15/77
o.	50-331/77-70, Five Hyd. shock suppressors found inoperable (14 day)	9/4/77	9/16/77

The licensee event reports reviewed in the office are considered closed. The inspector's onsite review of reports included discussions of each event with licensee representatives as required, examination of the report, and other documents related to the particular areas reviewed. Comments are as follows:

Item g - Failure to report this event was noted by the inspector during review of Deviation Reports. Refer to paragraph 3.a for further discussion.

Item h - The inspector reviewed the results of the licensee's nonconformance review which concluded that the system design was adequate and that most of the problems experienced were the result of inexperience with the particular valve operator used. The valves and operators were worked on during 1978 refueling outage and to date, there has been only one reported problem with valve operation. This item is considered closed.

Item i - This event was reviewed during an earlier inspection.^{1/} At that time the licensee agreed to inspect all suction strainers in the torus for damage. The licensee subsequently stated that the inspection was conducted and no additional damage was noted. No cause for damage could be determined. The licensee committed to inspecting all torus strainers during the 1978 refueling outage. No additional concerns were identified.

Item j - All aspects of this event have been reviewed during prior inspections.^{2/3/} Since the valves were completely replaced by an improved valve this item is considered closed.

- ^{1/} IE Inspection Rpt No. 50-331/77-09 dtd 5/20/77.
- ^{2/} IE Inspection Rpt No. 50-331/77-08 dtd 5/18/77.
- ^{3/} IE Inspection Rpt No. 50-331/77-16 dtd 8/29/77.

- Item k - The subject breaker was replaced and the phase barriers were replaced in the identical redundant breaker (52-4401) with certified fire retardant material. Material certification and procurement was reviewed during a prior inspection.^{4/}
- Item l - This event will remain open pending review of the events of the licensee's review of these instruments. The inspector noted that increased surveillance is being conducted.
- Item m - The licensee stated that no leakage could be detected that could have contributed to the decrease in nitrogen volume. The inspector reviewed the surveillance test procedure that monitors the volume daily and noted that there was no further significant decrease in volume. The minimum volume was restored in less than two days which satisfied the limiting condition for operation. No further concerns were identified.
- Item n - The questionable operability of the second suppression chamber temperature transmitter changed the reportability requirement from a 30 day report to a 14 day report. This was identified and corrected by the licensee's normal review process. The item is considered closed.
- Item o - The cause for the inoperability of the five snubbers was discussed with the licensee. No cause for the loss of fluid had yet been determined. Since the failed snubbers had been replaced by new mechanical units, no further investigation had been conducted. The inspector requested the licensee to disassemble one unit for inspection. Snubber DBA-6-SS-30 was disassembled and the problem appeared to be a pinched seal which could possibly be attributed to the last assembly of the unit. The licensee agreed to disassemble the remaining four units and determine the cause for failure. This item will remain open pending the results of the above investigation and the results of the next inaccessible snubber inspection scheduled for November 1977.

3. Plant Operations

- a. A review of the licensee's routine plant operations for July 1977 through September 1977. The following records were reviewed:

4/ Ibid.

- (1) Control room log sheets
- (2) Equipment operators log sheets
- (3) Control and Shift Supervisors log books
- (4) Operating orders
- (5) Jumper and Bypass log book
- (6) Water chemistry records
- (7) Review of Deviation Reports

During the deviation report review, the inspectors noted that on July 18, 1977 a failure of a breaker for valve MO 8401C in the MSIV-LCS, which prevented the valve from opening during a surveillance test, was not reported in accordance with Section 6.11.b. of the Technical Specifications (DR-155). The inspector informed the licensee that the failure to report would be considered an item of noncompliance. The licensee agreed to submit a Licensee Event Report. The licensee was informed during the exit interview that no response to the noncompliance would be required if the report was submitted. Subsequently, Licensee Event Report 50-331/77-79 was submitted on October 14, 1977. No other significant problems were identified.

- b. The inspector conducted a tour of accessible areas of the plant and noted the following:
 - (1) Monitoring instrumentation was recording as required.
 - (2) Radiation controls were properly established.
 - (3) Plant Housekeeping conditions were generally fair.
 - (4) Fluid leaks and piping vibrations did not seem to be a problem.
 - (5) Piper hanger/seismic restraints inspected were satisfactory.
 - (6) Selected valve switches were in the correct position.
 - (7) Equipment caution tags were timely.

- (8) Control room manning was in accordance with Technical Specifications.

The inspectors conducted discussions with Control Room Operators relating to the reasons for various lighter annunciators. No concerns were identified.

4. Maintenance

The inspector conducted a review of selected maintenance activities to determine that limiting conditions for operation were met, proper approvals were obtained, procedures used were approved, required inspections conducted, system and components were functionally tested as required prior to return to service, records were maintained, maintenance was conducted by qualified personnel, and reportability requirements were adhered to. Comments are as follows:

- a. Maintenance Action Request (MAR) 019996 (MOV 4424 repacking) MAR 019868, (CV 4302) (Limit Switch Adj.), and MAR 019867 (CV 4303 Limit Switch Adj.).

The inspector noted that the subject valves have closing times specified in Table 3.7-3 of the Technical Specifications and that the maintenance activity, valve stem repacking and limit switch adjustments could have an effect on the valve timing. Further investigation resulted in determining that the subject valves had not been functionally checked and closing times verified after maintenance. Block 7 of the MAR, which should indicate whether or not retest is required, had no indicated retest requirements. Technical Specifications requires that at least once per operating cycle power operated valves shall be tested and closing times verified. A review of the test procedure, STP 47001, revealed that the subject valves had been tested prior to the 1977 refueling outage, some of them as early as January 1977. The inspector discussed the apparent discrepancy with the licensee. The licensee decided that in lieu of reviewing all of the maintenance records to determine what other valves may have had maintenance performed subsequent to the last timing test, they would re-perform timing tests on all of the valves specified subject to operating conditions. Maintenance records will be checked for those valves that could not be operated to identify if maintenance had been performed. As a result of the retest, one valve, MOV 2740, failed to meet the minimum closing time. The valve limit switches were re-adjusted and operability re-established. The licensee stated that a Licensee Event Report⁵ would be initiated regarding the discrepancy.

5/ LER 50-331/77-83 dtd 11/3/77.

The inspector informed the licensee that failure to retest the valves after maintenance would be considered an item of non-compliance. The inspector further commented that post maintenance testing continues to be a problem and has been the subject of discussions^{6/7/} which resulted in previous noncompliance. It was further noted that corrective action was still in progress with a commitment for completing the required corrective action by January 1, 1978.^{8/} The above item of noncompliance will not require formal response since corrective action is continuing. The adequacy of the final corrective actions will be reviewed during a subsequent inspection.

No further concerns were identified.

5. Design Changes/Modifications

The inspector conducted a review of selected design changes and/or modifications to determine that they were accomplished in accordance with 10 CFR 50.59, properly reviewed and approved, procedures were adequate, acceptance tests were performed when required, associated operating procedures were changed as required, and applicable drawings changed. Comments are as follows:

a. General

- (1) The inspector noted that the DCR packages selected for review had been accomplished during the Spring 1977 refueling outage and that most were still in various stages of final review and drawing changes were in progress.
- (2) With regard to post Design Change testing, the inspector noted that when engineering determines that no special design acceptance testing is required, the decision for determining what tests are necessary to return the system to an operable status is relegated to the operating staff. In discussions with the licensee it appears that the shift supervisors, as a part of the MAR review, are expected to determine the final test requirements. This may be in the form of specifying a post maintenance operability test, or a surveillance or calibration test, in Block 7 of the MAR form. There appears to be a potential problem in this regard, in that the shift supervisor is not necessarily intimately familiar with every design change, thus may not have the basis for determining what tests will be necessary to ensure operability requirements are fully satisfied.

6/ IE Inspection Rpt No. 50-331/77-14 dtd 6/24/77.

7/ IE Inspection Rpt No. 50-331/77-16 dtd 8/29/77.

8/ IEL&P ltr from J. A. Wallace to J. G. Keppler dtd 7/27/77.

The licensee agreed to consider this aspect as a part of the corrective actions committed to regarding post maintenance testing.^{9/}

b. Standby Diesel Generator Fuel Line Modification (DCR 669)

In the process of reviewing the above modification, the inspector noticed that the authorizing signatures, ie, the shift supervisor had neither authorized the work nor had he signed off that it had been returned to service. The discrepancy was brought to the attention of the licensee and after further investigation, the licensee informed the inspector that the modification had been accomplished under the control of the MAR that was issued for the diesel generator annual inspection. The inspector reviewed the subject MAR and noted that it had been properly processed, however, the shift supervisor had failed to indicate the required post maintenance testing requirements on the MAR. Further investigation revealed that the Surveillance Test had been performed which verified the operability of the diesels after the annual inspection and modification had been accomplished. It should be recognized, however, that the MAR should have specified the above test requirements. The inspector commented that this was another example of the problem discussed in paragraph 4.a and 5.a(2) above. The licensee stated that the above examples would be taken into consideration in determining the proper corrective actions required to correct the overall problem of MAR documentation and post maintenance testing.

No further concerns were identified.

6. Corporate Quality Assurance Audits

The inspector reviewed selected areas of the Corporate Quality Assurance Auditing function. The auditing schedule for 1977 was discussed and the inspector was informed that progress toward completion of the annual auditing requirements was very slow. Only 5 of the 21 listed audits had been completed during the first 8 months of the year. The licensee stated that the WASH Document review and subsequent Quality Assurance Directive revision had taken precedence over audits. The inspector reminded the licensee that QAD 1318.2, Quality Assurance Audits, states that the specified audits should be performed at least annually. The licensee acknowledged the inspector's comment. The inspector conducted a cursory review of the five audits conducted and noted some improvement over previous auditing practices.

^{9/} Ibid.

7. Followup on Previous Noncompliance and Outstanding Inspection Items

- a. Unresolved item, Main Steam Relief Valve testing (OII 77-5) - The matter in which relief valve testing had been conducted has been resolved for the present time in that the method used (testing of the pilot assembly only) has been considered acceptable by NRC licensing. This item is considered closed.
- b. Noncompliance, IR 75-11 Item 2.a - Failure of the Safety Committee to review proposed plant changes in accordance with Technical Specifications. Amendment 27 to the Technical Specifications dated February 11, 1977 deleted the requirements for Safety Committee to review all proposed plant changes. This item is considered closed.
- c. Noncompliance, IR 76-05 Item B.1 - Failure to maintain secondary containment during refueling operations. Installation of an Air Lock on the steam tunnel has been completed (DCR 652). This item is considered closed.
- d. Commitment IR 76-26, Updating the Operations Manual has been completed with the exception of the abnormal procedures. The licensee stated that they will be completed by January 1, 1977. This item will remain open pending completion of the abnormal procedures.
- e. Noncompliance IR 77-07 - Failure to issue a MAR for DCR 680, Fuel drilling - MAR has been issued. This item is considered closed.

8. IE Bulletins

IE Bulletin 76-03, regarding STP Transformer Differential Relays. The subject work has been completed in accordance with Design Change 572. This item is considered closed.

9. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspections on October 7, and 28, 1977. The inspectors summarized the scope and findings of the inspection. The licensee representatives made the following responses to certain of the items discussed by the inspector:

- a. The containment isolation valve retiming tests resulted in one valve (MOV 2740) not meeting the required closing time. The value has been readjusted, and an LER will be prepared and issued regarding the event.
- b. Progress is continuing regarding corrective actions to ensure adequate post-maintenance testing is performed, and that post Design change testing will also be considered in the final corrective action.
- c. The abnormal procedures section of the Operating Manual will be completed by January 1, 1977.