U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-331/90016(DRP)

Docket No. 50-331 License No. DPR-49

Licensee: Iowa Electric Light and Power Company
IE Towers, P.O. Box 351
Cedar Rapids, Iowa 52406

Facility Name: Duane Arnold Energy Center

Inspection At: Palo, Iowa

Inspection Conducted: August 7-11, 1990, October 1-5, 1990, and January 7-11, 1991

Inspector: J. W. McCormick-Barger 2/1/91
Date

Approved By: R. Hague, Chief 2/1/91
Reactor Projects Section 3C Date

Inspection Summary

Inspection on August 7-11, 1990, October 1-5, 1990, and January 7-11, 1991 (Report No. 50-331/90016(DRP))
Areas Inspected: Routine, unannounced inspection to evaluate the licensee's quality assurance program implementation and self-assessment capability.
Results: No violations were identified. An executive summary follows.

Safety Assessment/Quality Verification

The licensee's self-assessment programs appeared to be generally adequate. Safety Committee and Operational Committee meetings were found to be conducted frequently and were adequately staffed. Followup of actions requested by the committees were found to be timely and adequate. Although discussions observed during committee meetings generally appeared adequate, additional staff involvement when reviewing negative performance trends or activities is necessary to identify underlying causes and recommend actions to address the causes.

The licensee's quality assurance (QA) program was also found to be adequate. Quality assurance audits and surveillances were thorough and identified good findings and observations. Licensee's responses and actions to resolve these findings and observations also appeared to be adequate. Recent changes in the

QA organization, concerning increasing QA surveillance staff, and reorganizing and moving the QA audit staff from the corporate office to the site, should improve the organization's ability to identify problem areas and aid management in determining areas where additional management attention is warranted.

## DETAILS

1. Persons Contacted

*R. Anderson, Testing and Surveillance Superintendent
*R. Baldyga, Response Engineering Supervisor
*C. Bleau, Systems Engineering Supervisor
*A. Browning, Supervising Engineer, Licensing
*D. Church, Quality Engineering Supervisor
*C. Crew, Operational Committee Engineer
*D. Fowler, Operations Shift Supervisor
*H. Giorgio, Radiation Protection Supervisor
R. Hannen, Plant Superintendent, Nuclear
*C. Hill, Quality Engineer
*M. Huting, Quality Control Supervisor
*J. Kerr, Safety Committee Engineer
*B. Klotz, Quality Engineering Group Leader
B. Lacy, Manager, Design Engineering
R. McGaughy, Vice President, Production
C. Mick, Operations Supervisor
*W. Miller, Supervising Engineer, Analysis Engineering
*K. Peveler, Corporate Quality Assurance Manager
*R. Potts, Procedure Supervisor
*J. Probst, Technical Support Engineer
*K. Putnam, Technical Support Supervisor
R. Salmon, Manager, Nuclear Licensing
*J. Thorsteinson, Technical Services Superintendent
*G. Van Middlesworth, Assistant Plant Superintendent, Operations
*J. West, Design Evaluations and Practices
*D. Wilson, Outage Manager

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*M. Parker, Senior Resident Inspector
*C. Miller, Resident Inspector

In addition, the inspector interviewed other licensee personnel.

*Denotes those present at the entrance meeting on August 7, 1990, and/or the exit interview on January 11, 1991.

2. Evaluation of Licensee Quality Assurance Program Implementation (IP 35502)

An evaluation of portions of the licensee's implementation of its quality assurance program was performed. This evaluation included review of the licensee's internal audit program, and its quality engineering maintenance and operations surveillance program.

a. Internal Audit Program

The inspector obtained a list of all Technical Specification (TS) required audits that were performed during the past year. The inspector chose the following three audits for detailed review:

(1) Audit Report I-90-04, "Results of Corrective Action," issued May 18, 1990.

(2) Audit Report I-90-07, "Conformance of Facility Operations to Technical Specifications," issued May 30, 1990.

(3) Audit Report I-90-08, "Maintenance Program," issued June 22, 1990.

From the review, the inspector determined that: the Safety Committee actively participated in the development of the audit checklists; the audits included performance based observations; several good findings and numerous helpful observations were identified, indicating thorough audits were being performed; licensee responses to the observations and findings were adequate and generally timely; and auditors were supplemented by technical specialists, when needed, to enhance the auditor staff's technical expertise. The inspector reviewed the qualifications of the lead auditors and found them to comply with ANSI N45.2.12.

The inspector obtained a copy of the current list of open audit findings and observations. There were about 230 items that had not been closed. Most of these items were less than two years old. The inspector was told that the list contained some items where the required work had been completed, but the auditors had not had time to followup and close the items. Approximately two months prior to the inspector's review, the QA manager, who had recently been promoted to this position, assigned a lead auditor to review all open items and take action, as necessary, to assure that the items were being addressed as committed to by the various plant organizations. Although the number of open findings and observations appeared to be large, the actions taken by the new QA manager should adequately address this concern.

The QA internal auditor staff appeared to be small considering the quantity of work required by the staff. This was evident by the number of findings and observations that were open. The QA manager stated that he plans to utilize qualified lead auditors in other parts of his organization to perform selected audits in order to relieve some of the audit burden from the internal auditor staff. This action, coupled with the move of the auditors to the site and the licensee's ongoing recruitment efforts, should assure continued good audits, along with improved followup of open findings and observations.

b. Quality Engineering Maintenance and Operations Surveillance Program

In addition to the licensee's internal audit program, the licensee's Quality Engineering group also performed reviews of plant activities to assess the plant's compliance with established procedures, codes, and standards and its effectiveness in performing required tasks. During 1990, the group performed 107 formal surveillances of licensee activities. Nearly 70% of these surveillances were performed during the 71 day 1990 refueling outage. The inspector selected the following surveillance reports for closer review:

(1) Surveillance Report No. S-90-017, dated June 5, 1990, "Surveillance on Bechtel Contractor Labor While Working CMAR A00340."

(2) Surveillance Report No. S-90-043, dated July 13, 1990, "SBLC Tank and Heater Repair per CMAR 083840."

(3) Surveillance Report No. S-90-074, dated August 2, 1990, "Witness STP 47A005 (LLRT) of V-26-8 and V-26-9, SBLC Check Valves."

(4) Surveillance Report No. S-90-094, dated September 10, 1990, "'B' Recirc Pump Motor CMAR A03187."

From these reviews, the inspector determined that the surveillances were performance based, covered a wide variety of activities, and identified areas where management actions were necessary to correct weaknesses. For example, problems associated with contractor compliance to licensee procedures were identified by the quality engineering group at the beginning of the 1990 refueling outage and throughout the outage. Although corrective actions to each of the contractor compliance findings were identified and performed by the applicable organizations, the effectiveness of the corrective actions apparently was not adequate. The contractor compliance issue was identified as a violation in NRC inspection report 50-331/90017(DRP). Licensee corrective actions to this issue will be reviewed and documented under item 331/90017-05.

The inspector reviewed the list of open surveillance findings and found that very few items (less than 20) were open. The group had a good tracking system, and appeared to stay cognizant of its issues to assure proposed corrective actions were performed.

Staffing in the surveillance group was very small at the beginning of 1990. There was only one quality engineer assigned to perform surveillances. However, the licensee stated that at the beginning of 1990, it had been actively pursuing two additional staff members. The staff was supplemented during the outage and management has recently obtained two new quality engineers to fully staff the group.

In addition to performing surveillances, the quality engineering group also prepared the licensee's monthly Nuclear Management Information System report. This report trends numerous performance parameters including plant availability, safety system actuations, safety system performance, licensee event reports, (LERs) scrams, involuntary limiting conditions for operation, equipment failures, maintenance action requests, design change packages, field change notices, engineering work request, radiological data, safety review committee action items, QA audit findings, NRC and INPO commitments, and other plant performance related information. From a review of the latest monthly report, the inspector concluded that the reports provided management with a valuable overview of most plant organization activities and performance.

No violations or deviations were identified in this area.

3. Evaluation of Licensee Self-Assessment Capability (IP 40500)

In addition to an evaluation of the licensee's implementation of its quality assurance program, the inspector reviewed the licensee's overall self-assessment capability. This review included observing several TS required Operations Committee (Onsite Review Committee) and Safety Committee (Offsite Review Committee) meetings. In addition, the inspector performed detailed reviews of several issues identified during preparation for the inspection. Preparation included reviewing the licensee's last SALP report, recent NRC inspection reports and LERs, and other performance related information.

a. Safety Committee (SC) Meetings

The inspector observed three SC meetings during the inspection period. Although plant TS require the SC to meet at least twice per year, typically the SC was found to meet twice per month. Prior to each meeting, the SC engineer prepared an agenda and a detailed package containing information about each issue to be discussed. The packages were sent to the SC members well in advance of the meetings. The meetings were chaired by the Vice President, Production, and well attended. Voting members met or exceeded the minimum qualification requirements identified in the TS.

The licensee appointed a consultant member with expertise in several areas, including fuels and metallurgy. Also, an exchange program was in place involving Duane Arnold and Monticello plant managers attending and participating in the other plant's SC meetings. Both of these actions appeared to have positive effects. Discussion at the meetings was generally extensive. Many of the initial comments came from the consultant and often the Monticello plant manager was asked how his plant had addressed various issues. On several occasions, the SC asked applicable technical staff to return to a later SC meeting with additional information before taking action on particular items.

The inspector reviewed a list of all SC meetings held during the past year and randomly selected six meetings for which meeting minutes were obtained for detailed review. The inspector concluded from this review that: meetings minutes were detailed and appeared to capture significant comments and discussions; action items were tracked from meeting to meeting; and request for additional information was documented.

The inspector observed the SC review of both TS pre-audit checklists and post-audit results. The SC appeared to become actively involved with both ends of the audit process. Changes were made to checklists based on SC concerns and interest was expressed in how plant management was resolving certain audit findings.

One special audit was requested by the SC during the last year. This audit concerned the Nuclear Fuel Reload QA program. In addition, following three successive reactor trips after startup from the 1990 refueling outage, the licensee requested a special INPO scram assist team review. Also, two significant QA Corrective Action Requests (CARs) were issued for management to address procedural non-compliance and contractor control problems identified during the outage. However, based on poor plant performance during the past year, additional SC efforts (for example, requesting special audits or independent inspections) to determine causes of the poor performance and potential corrective actions may have been warranted.

b. Operations Committee (OC) Meetings

The inspector observed about six OC meetings during the inspection period. Plant staff conducted these meetings at least weekly, which far exceeded the TS-required monthly frequency, and occasionally, when plant activities require it, several times per week. The meetings were chaired by the assistant plant superintendent and included an adequate mix of qualified staff members from most of the plant technical organizations. The TS-required quorum was verified prior to beginning the meetings.

Based on OC meeting observations, the inspector determined that the licensee is meeting its TS required obligations. The depth of review of each item on the agenda appeared to vary depending on the importance of the item in terms of plant safety. Items such as minor procedure changes were approved with little or no discussion, where as special proposed tests or proposed activities outside normal operating procedures or the review of draft LERs received substantial attention and discussion. Disagreements were either resolved during the meetings or the applicable items were not approved by the OC Chairman until the disagreements were adequately addressed subsequent to the meetings.

Several examples of conservative OC actions were identified. For example, prior to approval of a draft LER concerning a Primary Containment Isolation System (PCIS) Group IV isolation due to water voiding in the RHR system suction line, the OC required the addition of a commitment to add control room indication of RHR suction line pressure in the near future. One example of an OC action that did not appear to be based on a complete understanding of the issue at hand concerned the OC approval of a TS interpretation. This interpretation concerned what actions would be necessary to meet the TS LCO requirements of electrically deactivating a PCIS valve when the associated PCIS valve was inoperable. Although some OC members were aware of the extent the NRC disagreed with the proposed TS interpretation, the full OC was not fully apprised of this information. Based on this lack of information, the OC approved the interpretation without fully understanding the reasons for the NRC disagreement. Note: This specific TS interpretation issue is being addressed in NRC residents' inspection report No. 50-311/90023. In addition to the above, the inspector, on several occasions,

observed issues being approved by the OC with little or no indepth discussions. These issues may not have been new to the OC and/or to the individual members and therefore may not have required extensive discussions. However, based on the TS interpretation issue discussed above, it was possible that the OC had not considered significant aspects to the issues approved.

The inspector obtained copies of selected OC meeting minutes covering activities during the past year. The minutes briefly described the issues/items reviewed and significant actions taken. Although the meeting minutes were abbreviated, they appeared to capture the significant actions and discussions that occurred during the meetings.

c. Followup on Specific Issues

Two specific concerns were identified and followed up on as a result of reviews of plant information in preparation for this inspection. The following is a description of the concerns and actions taken by DAEC management to resolve the concerns.

(1) System Engineering Concerns

Several NRC inspection reports and licensee audit reports discussed weaknesses in the performance of equipment and component trending. This activity was generally assigned to the System Engineering organization. The inspector was also informed that recent organizational changes resulted in some System Engineers (SEs) being assigned as full time Shift Technical Advisors (STA). These changes, coupled with SE losses due to staff attrition, had resulted in the SE staff being reduced from about 23 to 11. The STA function was also removed from the SE organization responsibilities.

The inspector was informed that, although the SE staff planned to perform this activity, little equipment/component performance trending had been done. The SEs were assigned to outage-related activities prior to and during the 1990 refueling outage. This, along with the staff reductions, resulted in trending not being performed. The inspector interviewed many of the SE staff and learned that the reduced staff were assigned relatively large numbers of systems. The SE staff generally felt that most of their time was taken up responding to current problems, with little time left to do normal SE duties such as trending.

Lack of trending and SE staffing concerns were discussed with licensee management during a management meeting conducted on October 4, 1990. At the meeting, the licensee committed to review the concerns and take actions as appropriate. Subsequently, the inspector determined that the SE staff was increased from 11 to 15, with 3 additional SE staff members still being sought. In addition, the licensee has developed a draft equipment/component trending procedure which it expects

to finalize and implement in the near future. These management actions appear to have adequately address the concern.

(2) Drawing/Procedural Concerns

Several plant events have occurred that were related to problems associated with plant drawings, procedures, and valve labeling. In followup to this concern, the inspector learned that numerous small instrument air line, fire protection, and balance of plant valves were not on plant piping and instrument drawing (P&ID) or included in plant procedure valve line ups. During discussions with plant staff, the inspector learned that management had taken action to address this concern several years ago and corrective action was ongoing, but with a very low priority. The low priority was partly due to the fact that the valves in question were non-safety related.

Because of the recent plant events that were related to this valve identification concern, the NRC asked plant management to address this concern during the October 10, 1990, management meeting. During the meeting, the licensee committed to place a higher priority on completing its efforts to label, document, and proceduralize all plant valves and components. A followup inspection revealed that significant efforts had been accomplished toward completing this task. Licensee staff informed the inspector that they had an internal goal of completing the task by the end of 1991. Management's actions to address this issue appear to be adequate.

No violations or deviations were identified in this area.

4. Exit Interview (71707)

The NRC inspector met with licensee representatives (denoted in Paragraph 1) on January 11, 1991, to address the scope and findings of the inspection. The licensee acknowledged the statements made by the inspector with respect to items discussed in the report. The inspector discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection and the licensee did not identify any such documents or processes as proprietary.