U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-331/82-07(DPRP)

Docket No. 50-331 License No. DPR-9

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

Facility Name: Duane Arnold Energy Center

Inspection At: Duane Arnold Site, Palo, IA

Inspection Conducted: June 1 through June 30, 1982

Inspector: L. S. Clardy 8-9-82

Approved By: L. A. Reyes, Chief 8/9/82
Projects Section 2C

Inspection Summary

Inspection on June 1 - 30, 1982 (Report No. 50-331/82-07(DPRP))
Areas Inspected: Routine Resident Inspection of Long Term Shutdown; Monthly Maintenance Observation; Monthly Surveillance Observation; Licensee Event Report Followup; Radiological Controls; Calibration; Followup on Regional Requests; Followup on Previous Inspection Findings; Main Steam Line Isolation Valve Actuator Damage and Standby Gas Train Inoperability. The inspection involved a total of 90 inspector-hours onsite by one NRC inspector including 15 inspector-hours onsite during offshifts.
Results: Of the ten areas inspected no items of noncompliance were identified in seven areas, three items of noncompliance were identified in three areas, (Failure to include surveillance data and properly lock a valve after the conduct of surveillance - Paragraph 8; Failure to follow the unit startup procedure during opening of the MSIVs - Paragraph 10; Failure to store the tagout log records - Paragraph 11).

DETAILS

1. Persons Contacted

R. McGaughy, Director Nuclear Generation
*D. Mineck, Plant Superintendent, Nuclear
P. Ward, Manager Design Engineering
*D. Wilson, Assistant Plant Superintendent, Rad Protection/Security
J. Vinquist, Assistant Plant Superintendent, Technical Support
*B. York, Assistant Plant Superintendent,Operations
D. Teply, Operations Supervisor
C. Mick, Assistant Operations Supervisor
K. Young, Radiation Protection Supervisor
L. Voss, Assistant Electrical Maintenance Supervisor
R. McCracken, Quality Control Supervisor
J. Sweiger, Electrical Maintenance Supervisor
R. Rockhill, Maintenance Supervisor
J. West, Quality Control Inspector

In addition, the inspector interviewed several other licensee personnel including shift supervising engineers, control room operators, engineering personnel, administrative personnel and contractor personnel (representing the licensee).

*Denotes those contacted at the exit interviews.

2. Followup On Previous Inspection Findings

(Closed) Open Item (331/82-01-01) 4.16 KV Switchgear. The GE supplied switchgear at DAEC does not exceed the 66000 Amps short circuit current, and no modifications are required.

3. Inspection During Long Term Shutdown

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the month of June. The inspector verified surveillance tests required during the shutdown were accomplished, reviewed tagout records, and verified applicability of containment integrity. Tours of the accessible areas, including exterior areas were made to make independent assessments of equipment conditions, plant conditions, radiological controls, safety, and adherence to regulatory requirements and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector observed plant housekeeping/cleanliness conditions, including potential fire hazards, and verified implementation of radiation protection controls. The inspector by observation and direct interview verified that the physical security plan was being implemented in accordance with the station security plan. The inspector reviewed the licensee's jumper/bypass controls to verify there were no conflicts with technical specifications and verified the implementation of radioactive waste system controls.

The inspector witnessed portions of the radioactive waste systems controls associated with radwaste shipments.

No items of noncompliance or deviations were identified.

4. Monthly Maintenance Observation

Station maintenance activities of safety related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with technical specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and, fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety related equipment maintenance which may affect system performance.

The following maintenance activities were observed/reviewed:
"A" and "B" Main Steam Isolation Valve (MSIV) Actuator Repair
MSIV and MSIV Actuator Refurbishment
MSIV Local Leak Rate Test

No items of noncompliance or deviations were identified.

5. Monthly Surveillance Observation

The inspector observed technical specification required surveillance testing on the Emergency Service Water System and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with technical specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by the appropriate management personnel.

No items of noncompliance or deviations were identified.

6. Licensee Event Reports Followup

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with technical specifications.

82-07/01-0	Closed	RCIC Inoperable Due to Failed Contactor for MOV 2512.
82-09/01-0	Closed	Secondary Containment Broken. Airlock interlock mechanism repaired.
82-29/03-0	Closed	Blown Control Fuse on "D" MSIV LCS.
82-30/03-0	Closed	HPCI PS-2264A Out of Calibration. Switch was recalibrated and tested satisfactorily. Currently scheduled to be replaced in 1982 outage.
82-31/03-0	Closed	Reactor Building Vacuum PDS 4304 out of calibration. Switch was recalibrated and tested satisfactorily. Currently scheduled to be replaced in 1982 outage.
82-32/03-0	Open	"D" RHR SW Pump Inoperable. The cause was a corroded check valve mechanism resulting in improper seating. The mechanism was repaired. Remaining RHR SW pump discharge check valves will be inspected in 1982 outage.
82-33/03-0	Open	PCIS CV 4306 Failure. The valve would not close due to its pneumatic valve control sticking. Pneumatic portion cleaned and tested satisfactorily. The remaining valves will be put on a preventive maintenance schedule.
82-34/01-0	Open	MSIV Actuator Damage. The "A" and "B" inboard MSIV actuators were damaged when the inboards were opened with 850 psid across them. (See paragraph 2 of this report) This item will be reviewed further when repairs and corrective actions are complete.

No items of noncompliance or deviations were identified.

7. Radiological Controls

The inspector reviewed licensee actions in response to their receipt of radioactive material shipments. On June 21, 1982 the licensee

received a Xenon 133 gas shipment from Cintichem Corporation to be used for instrument calibration. The bottom of the package read 220 mr/hr on contact upon receipt, the limit is 200 mr/hr. The package or vials were not damaged in transient, and the contact readings on shipment were within allowable limits. The licensee believes that Cintichem used the wrong instrument to survey the shipment.

Iowa Electric notified Cintichem, the RIII office and the resident inspector of this event.

The inspector verified that Iowa Electric took prompt actions in accordance with procedures and regulatory requirements.

No items of noncompliance or deviations were identified.

8. Calibration

The inspector reviewed the latest available plant calibration records and selected logs and records for the below listed calibration activities. This review was performed to determine that the frequency of calibration was met; the service status of the system was in conformance with the applicable limiting conditions of operation; the procedures used to calibrate the components were reviewed and approved as required by the Technical Specifications; the procedures used contained acceptable trip settings using applicable technical specification requirements; the procedures used contained detailed stepwise instructions; the technical content of the procedures would result in satisfactory calibration; the trip points conformed to applicable Technical Specifications. He also reviewed instrument testing device records to ensure that calibration frequency was met; that accuracy was verified as prescribed by internal procedures or specifications; that accuracy was traceable to National Bureau of Standards or other independent testing organizations, and that storage and control of the selected devices were in accordance with internal procedures or specifications.

The inspector reviewed the following procedures:

Procedure No.	Title
41A001	Reactor High Pressure Calibration
41A004	IRM Trip Functional and Calibration
41A006	Scram Discharge Volume High Water Level Instrument Functional Test
41A007	Turbine Control Valve Oil Pressure Function
41A009	MSIV Closure Instrument Functional Test
41A015	LPRM Instrument Calibration
41A022	Reactor Pressure Permissive Calibration
42A001	CRD Accumulator Alarm Functional
42A003	Main Steam Low Pressure Calibration
42A010	Reactor Low Level Functional Test and Calibration

42A015	Main Condenser Loss of Vacuum Calibration
42F008	Drywell/Torus Indicator Calibration
42F010	Drywell and Torus Pressure Instrument Calibration.

One item of noncompliance with two examples was identified as a result of the review performed.

Technical Specification 6.8.1 states in part, "Detailed written procedures involving nuclear safety, including applicable check-off lists and instructions ... All procedures shall be adhered to:
5. Preventive and corrective maintenance operations which could have an effect on the nuclear safety of the facility."

Surveillance Test Procedure 42F010, Step 4.12 requires calibration data and calibration certification for PS 4368A and PS 4368B to be attached to the STP.

Contrary to the above STP 42F010, performed on May 12, 1982, did not have the data or certification attached. This is an item of noncompliance with Technical Specification 6.8.1 (331/82-07-01A).

Surveillance Test Procedure 41A006, Step 4.6.e requires valve 18-07 to be locked open.

Contrary to the above, following performance of STP 41A006 on May 16, 1982, V-18-07 was opened, but the chain lock was not attached to the pipe. This is an item of noncompliance with Technical Specification 6.8.1 (331/82-07-01B).

Actions were taken to correct both problems upon identification. However, since the control of locked valves have been previously noted we request that the licensee respond to this item.

In both examples of the noncompliance the inspector noted that procedures were being performed and reviewed without thorough attention given.

The STP 42F010 step for attaching the data sheets was signed off and the STP went through its entire review chain as complete and satisfactory. STP 41A006, Step 4.6.3 had initials for completion of not only channel A1 but also A2, B1 and B2. At some later time the performer realized he had signed off too many items and crossed out his initials on A2, B1 and B2.

No other items of noncompliance or deviations were identified.

9. Followup on Regional Requests

a. IE Information Notice 82-08: Check Valve Failures on Diesel Generator Cooling Systems.

The inspector verified that the referenced failures are not applicable to DAEC. The cooling system is a closed loop with no check valves in the line. The cooling for the closed loop is supplied by Emergency Service Water (ESW). There are 8-inch check valves on the pump discharge which are manufactured by Pacific Valve Corporation. In addition, the ESW system is operability tested under the licensees Surveillance Test Program.

b. Bullet Resistant Fire Doors

The resident inspector was requested by Region III to determine the manufacturer of installed bullet resistant fire doors and determine if the licensee had documentation specifically confirming that the doors had been tested and approved for fire resistance by a nationally recognized laboratory. It was determined the doors were manufactured by Protective Materials Company, Inc. The licensee did not have documentation that specifically confirmed the doors, as supplied, had been tested and approved by a nationally recognized laboratory. The licensee agreed to provide such documentation by July 31, 1982. In the event that the documentation cannot be provided by that date, the licensee agreed to consider the doors to be inoperable at that time and implement the applicable compensatory measures specified in the Technical Specifications. This is an open item (331/82-07-02) pending review of the documentation to be provided by the licensee. The inspector also observed a random sampling of other fire doors to ensure they had proper Underwriters Laboratory ratings.

No items of noncompliance or deviations were identified.

10. Main Steam Line Isolation Valve (MSIV) Actuator Damage

On May 22, 1982, during a plant startup from hot standby the licensee opened the inboard MSIVs with 850 psid across them. The valves should only be opened with a 50 psid maximum.

Technical Specification 6.8.1 states in part, "Detailed written procedures involving nuclear safety, including applicable checkoff lists and instructions ... All procedures shall be adhered to: 1. Normal startup, operation, and shutdown of systems and components of the facility."

Duane Arnold Energy Center Operating Instruction 83, Section C.2.2 states in part, that the outboard MSIVs must be opened, pressure must be equalized across the inboard MSIVs, and then open the inboard MSIVs"

Contrary to the above the inboard MSIV's were opened first without equalizing pressure and an incorrect procedure, IPOI Section II.C, which did not address this condition, was used.

This is an item of noncompliance with Technical Specification 6.8.1 (331/82-07-03).

10 CFR 50, Appendix B Quality Assurance Criteria, Section V Instructions, Procedures and Drawings, states in part, "Activities affecting quality shall be prescribed by documented instructions ... and shall be accomplished in accordance with these instructions."

Duane Arnold Energy Center Administrative Control Procedure 1404.4, "Operating Logs," Section 5.8, states, "The Operations Supervisor shall review and initial the duplicate copies of the Shift Supervising Engineers and Operating Logs. He shall route the duplicate copies to other personnel as may be required for review of entries concerning their area of supervision."

Contrary to the above the Operations Supervisor did not review the duplicate logs for May 22, 1982. This is an item of noncompliance with 10 CFR 50, Appendix B, Criterion V (331/82-07-04).

The inspector is concerned that with a Shift Supervising Engineer, a Shift Technical Advisor and a Licensed Operator present that this could occur on a preplanned evolution. In addition, the licensee's log review process should have revealed that the inboard MSIVs were opened without equalizing the pressure across them. The inspector discussed the log review process with several operators who indicated that they do not look for this kind of information. This was discussed with the licensee and they will implement training on the log review process.

After several telephone conversations between the Region III staff and the licensee, the licensee agreed to implement certain actions prior to the unit startup. These actions were documented in a letter dated June 11, 1982 from L. D. Root to J. G. Keppler.

The actions delineated in the letter were:

a. Inspect and subsequently perform a local leak rate test on all four (4) inboard main steam isolation valves in accordance with 10 CFR 50 Appendix J requirements.

b. Perform a stress analysis using the highest forces that can be postulated for the event to determine if any portion of the valve assembly, including the stem mechanism, was overstressed.

c. Rebuild the actuator mechanisms on all four (4) inboard main steam isolation valves.

d. A review, by the NRC, of the corrective actions taken.

The resident inspector, RIII, and NRR observed/reviewed the licensees corrective actions. These included: a walkdown of the main steam piping; visual inspection and rebuilding of all four inboard MSIVs and actuators; a review of the stress analysis of forces applied and possible damages to the MSIVs and actuators; a local leak rate test on all four inboard MSIVs; retraining of the on-shift operators;

disciplinary actions taken; and retraining of operations personnel on the review of logs.

At the time of this report, the licensee was still shutdown affecting repairs.

No other items of noncompliance or deviations were identified.

11. Standby Gas Train Inoperability

While performing preventive maintenance on June 17, 1982, the licensee discovered that the heaters for the Standby Gas Treatment "A" Train were not capable of energization. The control room "heater on" indication was working properly but this indication is not connected directly to the heater circuit. There are three inline breakers for the heaters. The third breaker inside the local breaker panel was in the off position.

The licensee believes the switch was left this way upon completion of maintenance in March 1982.

In trying to determine when actual tagout and clearance occurred neither the inspector nor the licensee, could locate the tag out log sheets for March 1982.

10 CFR 50, Appendix B Quality Assurance Criteria, Section V Instructions, Procedures and Drawings, states in part, "Activities affecting quality shall be prescribed by documented instructions ... and shall be accomplished in accordance with these instructions."

Duane Arnold Energy Center Administrative Control Procedure 1402.1, "Records Management," Section 4.13 states in part, "The Support Services Supervisor is responsible ... for storing original records in ... a manner to prevent deterioration or damage." Section 5.2 states in part, "For all records ... the retention period shall begin as of the date of the document."

Contrary to the above the tag out logs for March 1982 cannot be located. This is an item of noncompliance with 10 CFR 50, Appendix B, Criterion V (331/82-07-05).

The licensee has initiated a design change to ensure "heater on" indication only if the heaters are actually on. The licensee verified that the "fan on" indication for Standby Gas Treatment is wired such they will only indicate on if running. Until the design change is complete the licensee is checking the breaker status daily. Additional corrective action the licensee is considering is the verification of actual breaker lineup on similar designed systems when the operational lineup has been changed.

No other items of noncompliance or deviations were identified.

12. Exit Interview

Due to the length of the inspection and the diversity of areas inspected, the exit interviews were conducted on a weekly basis between the NRC inspector and the appropriate licensee personnel.

In each case the scope and findings of the individual inspection areas were summarized.