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

REGION III

Report No. 50-331/81-19

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

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

Facility Name: Duane Arnold Energy Center

Inspection At: Duane Arnold Site, Palo, IA

Inspection Conducted: September 28 - October 2, 1981

Inspector: R. A. Paul 11/3/81

Approved By: L. R. Greger, Chief 11/3/81
Facilities Radiation
Protection Section

Inspection Summary

Inspection on September 28 - October 2, 1981 (Report No. 50-331/81-19)
AreasInspected: Routine, unannounced inspection of the status of post-TMI requirements for operating reactors, licensee actions taken in response to Health Physics Appraisal findings and items of noncompliance, licensee event reports, and IE Bulletins. The inspection involved 41 inspector-hours onsite by one NRC inspector.
Results: Of the four areas inspected, one apparent item of noncompliance was found in one area (Failure to follow technical specifications - Section 9).

DETAILS

1. Persons Contacted

*R. Dye, Assistant Radiation Protection Engineer
*R. McCracken, QA Supervisor
*D. Mineck, Chief Engineer
*D. Wilson, Assistant Chief Engineer, Radiation Protection and Security
*K. Young, Radiation Protection Engineer
*L. Clardy, Resident Inspector, NRC
*W. Little, Section Chief, NRC Region III

*Denotes those attending the exit interview.

2. General

This inspection, which began at 10:30 a.m. on September 28, 1981, was conducted to examine the licensee's actions in response to the Health Physics Appraisal (HPA) findings, licensee event reports, IE Bulletins, and post-TMI requirements. The inspection also included several plant tours, review of posting and labeling, and independent radiation measurements by the inspector. General housekeeping was adequate.

3. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance Item (50-331/80-21): Inadequate control of access to high radiation areas. Installation of a chain link fence around the high radiation area, posting of the area, and training of employees in the requirements for controlling access to the area has been accomplished.

(Closed) Noncompliance Item (50-331/80-21): Seven instances of failure to adhere to radiation protection procedural requirements. The corrective actions described in the licensee's response dated February 27, 1981, were reviewed and appeared adequate.

4. Radiation Protection Group Staffing.

The HPA noted that staffing of the Radiation Protection Group was not sufficient to adequately perform certain of their responsibilities.

In response to this concern, the licensee has: significantly increased the radiation protection staff; filled technical support positions with contract engineers; and eliminated some of the duties of the Radiation Protection Engineer (RPE). In addition, the licensee is reviewing their reliance on contract personnel for technical support with the intent of replacing those services with DAEC employees.

In response to other concerns noted in the HPA, the licensee: has made provision for the RPE to have an alternate direct reporting path to the Chief Engineer, is considering permanently separating the health physics and chemistry functions; is now adequately staffed with professional

health physicists; has given the health physics program more corporate and station management support; is developing a radiation chemistry technician (RCT) training and retraining program; and is giving new health physics technicians five weeks of initial training. These matters were discussed at the exit interview.

No items of noncompliance or deviations were identified.

5. Emergency Response

The HPA noted several weaknesses in the licensee's emergency response capability.

The offsite dose estimation procedures have been rewritten to tailor the instructions to the level of expertise of the emergency response personnel using them. Also, a new GeLi pulse height analyzer system has been installed and training has been given to the chemistry technicians and certain management personnel who would respond in an emergency. Although walk-through training of the post-accident sampling and other emergency procedures has not occurred, the licensee intends to provide the training in the near future. (Open Item 331/81-19-01)

Additional high and intermediate range portable survey instruments have been purchased to ensure emergency response requirements are met. In addition, the schedule for calibration of portable survey instruments allows for more even distribution of instruments due for calibration, and an improved instrument control system has been implemented. These matters were discussed at the exit interview.

No items of noncompliance or deviations were identified.

6. ALARA

The HPA identified the need for a more formalized ALARA program with strong management support.

The licensee is developing a formal ALARA program which will be implemented as soon as practicable. As part of this program, an ALARA Coordinator position has been developed but not filled at the time of this inspection. The licensee's progress in implementing the ALARA program will be reviewed at a future inspection. These matters were discussed at the exit interview. (Open Item 331/81-19-02)

7. Radiological Controls

The HPA identified the need to strengthen and improve the implementation of the Radiation Work Permit System (RWPS).

Since the appraisal, the licensee has: revised the DAEC General Employee Training Program to provide more emphasis on implementation of RWPS procedures; provided guidance and instruction to plant managers, supervisors, and employees on the importance of proper use of the RWPS;

increased surveillance and monitoring of the RWPS by QA and health physics persons; and advised employees of their responsibility to comply with radiation protection procedures, and informed them of management's intent to use the employee accountability program to ensure compliance.

The HPA noted that surveillance to identify high radiation areas (HRA's) needs improvement, and that HRA access controls do not ensure entries are made with adequate knowledge of exposure rates, or overlong entries will be promptly recognized.

The licensee has: increased surveillance for identification of HRA's and revised the procedures to require personnel entering HRA's to have continuous health physics coverage or have in their possession the Minirad Radiation Monitors which have been issued to the control room for use by auxiliary operators.

In response to a problem concerning adherence to radiation protection procedure noted during the previous inspection, the licensee has revised the Radiation Occurrence Report (ROR) system. The revision is incorporated in Radiation Protection Procedure 4.4. The revised ROR system is intended to create better cooperation between departments, involve plant management in the correction of identified problems, and to provide for disciplinary action when necessary. These matters were discussed at the exit interview.

No items of noncompliance or deviations were identified.

8. Radiation and Contamination Control

The HPA noted several weaknesses relating to radiation and contamination control.

The licensee has corrected each of the specific problems noted in the HPA. In addition, they have increased the frequency of monitoring known radiation and contamination areas and increased surveillance frequency to identify potential radiation and contaminated areas. Training sessions and meetings with plant and contractor supervisory personnel have been conducted by plant management to provide guidance and instructions to prevent recurrence of radiation and contamination control problems, and to re-enforce the need for plant employees to comply with the radiation protection program. Also, procedures have been developed and implemented concerning the operation of the laundry and decontamination facilities, including the proper handling of contaminated material. The progress in implementing these corrective actions will be reviewed at a future inspection. These matters were discussed at the exit interview. (Open Item 331/81-19-03)

No items of noncompliance or deviations were identified.

9. Review of Nonroutine Events

The inspector reviewed the licensee's corrective actions concerning the radiological aspects of the following licensee event reports.

LER 50-331/81-001, and LER 50-331/81-003	"B" Drywell Particulate Radiation Element was unresponsive to a source check (January 1, 10, and 11, 1981). Design change is in progress and will be reviewed during a future inspection. (Open Item 331/81-19-04)
LER 50-331/79-03	Control Building Standby Filter Unit did not start when initiated due to instrument drift. Flow switch circuitry has been modified.

None of the above events had significant radiological consequences.

LER 50-331/81-026	Containment Atmosphere Monitoring System (CAMS) were not monitoring containment particulate radioactivity on June 15, July 1, and August 12, 1981, due to personnel error. This is noncompliance with Technical Specification 3.6.C.2 which requires the air sampling system to be operable during reactor power operations. Licensee Corrective Actions have apparently been inadequate, resulting in repetitive occurrences. (Noncompliance 331/81-19-05).
Environmental Technical Specification Violation Report 81-2	During a refueling shutdown, the offgas stack radiation monitor sample pump was inoperable for a short time. Due to personnel error, no action was taken after the pump low flow alarm was acknowledged. Operations personnel were reinstructed to take immediate and appropriate action. Corrective Actions appear to be adequate. There has been no recurrence.

One item of noncompliance was identified.

10. Review of IE Circulars

The inspector reviewed the licensee's actions regarding the following IE Circulars.

IEC 78-03:	Packaging Greater than Type A Quantities of Low Specific Radioactive Material for Transport. Licensee Action: Written procedures limiting LSA to Type A quantities.

IEC 79-09:	Occurrences of Split or Punctured Regulator Diaphragms in Certain Self Contained Breathing Apparatus. Licensee Action: Not required for the type of breathing apparatus onsite.
IEC 79-15:	Bursting of High Pressure Hose and Malfunction of Relief Valve "O" Ring in Certain Self Contained Breathing Apparatus. Licensee Action: Not required for the type of breathing apparatus onsite.
IEC 79-21:	Prevention of Unplanned Releases of Radioactivity. Licensee Action: Reviewed circular, and initiated design modification for constructing a three inch concrete curb in the Radwaste Building.
IEC 81-07:	Control of Radioactively Contaminated Material. Licensee Action: Revised procedure to strengthen control of contaminated material. (RPP 5.3)
IEC 81-09:	Containment Effluent Water that Bypass Radioactivity Monitors. Licensee Action: Review in progress.

11. Review of IE Bulletin No. 80-10

During the previous inspection, it was noted that, although the technical engineering staff had completed actions in response to IE Bulletin No. 80-10 (nonradioactive system contamination), several recommended actions were still under review. Since then, the license has implemented some of the recommendations and completed their review. (Closed 33/80-21)

12. Transfer of Radioactive Oil

The licensee transferred 18,000-gallons of slightly contaminated oil to a contractor who used the material to oil roads. Each barrel of oil pumped to the contractor's tanker was sampled before it was transferred, and the radioactive concentrations were less than 6E-5 uCi/ml, which is the licensee's minimum level of detection for these samples.

The radioactivity was discovered when a sample of sludge, taken from the bottom of a drum from which oil had been pumped to the tanker, showed cobalt-60 concentrations of 5E-4 uCi/ml. Based on this sample, the licensee calculated the radioactive concentration in the 18,000-gallons of oil to range from 1E-6 to 1E-7 uCi/ml. When spread on the roads, the maximum radioactive contamination present would be less than 10% of the detection limit guidance specified in IE Circular No. 81-07 for release to unrestricted areas.

Although the concentration of radioactivity in the oil was less than the limits for release of water to unrestricted areas, there are no specific regulatory guidelines concerning the acceptability of release of other liquids, including oil. This matter is considered an unresolved item pending resolution of the regulatory requirements in this area. (Open Item 331/81-19-06)

13. Followup on TMI Action Items

The status of the following items is based on evaluation of previous reviews by the resident inspectors and regional specialist inspectors and review during this inspection of licensee actions to correct the problems noted during those reviews.

a. Plant Shielding (2.1.6.b)

The licensee has satisfied the intent of the Category "A" requirements and is in the process of making shielding evaluations to meet the Category "B" requirements. A review of the licensee's projected radiation fields under emergency conditions revealed possible high radiation fields in two locations where occupancy is required. The licensee plans to further review the data. This matter will be reviewed at a future inspection. (Open Item 331/81-19-07)

b. Post-Accident Sampling (2.1.8.a)

This item was inspected during the HPA in November 1980. Interim Procedures RPP 13.2, Emergency Procedure for Sample Retrieval and Analyses, and RPP 13.4, Containment Atmosphere Sampling Analysis: Accident Conditions have been written, and training covering the procedures have been provided to the RCT's.

It appears that the licensee has met the intent of the Category "A" requirements and is working to meet Category "B" requirements.

c. Instrumentation for Monitoring Accident Conditions (2.1.8.b)

The interim requirements (II.F. 1 and 2) were inspected by the Region III HPA team in November 1980. Interim procedures (EPIP 3.3.a and b, and RPP 13.2) cover post-accident sampling and release rate determination for radioiodines, particulates, and noble gases. Training in the procedures has been provided to RCT's. It appears that the licensee has met the intent of the Category "A" requirements and is in the process of installing monitoring equipment to meet Category "B" requirements.

d. Inplant Radiation Protection Monitoring-Iodine (2.1.8.c)

The licensee has installed a portable radioiodine analyzer which incorporates a multichannel pulse height analyzer and a 2" x 2" sodium iodide detector system to measure radioiodines collected by grab air samples using silver zeolite and charcoal filters.

Emergency sampling procedures (RPP 13.7 and RPP 13.8) have been developed and implemented, and training in the procedures has been provided to RCT's.

These matters were discussed at the exit interview.

14. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in Section 11.

15. Exit Interview

The inspector met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on October 2, 1981.

The inspector summarized the scope and findings of the inspection. In response to certain items discussed by the inspector, the licensee:

a. Acknowledged the inspector's remarks concerning the item of noncompliance and the unresolved item. (Sections 9 and 31)

b. Agreed to review the TMI Design Review of Plant Shielding data to determine if the evaluation is adequate. (Section 12)

c. Acknowledged the inspector's remarks concerning the positive steps and corrective action the licensee has taken in regard to the HPA Significant Items. (Sections 4, 5, 6 and 7)