UNITED STATES
ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

A. RO Inspection Report No. 050-331/73-08

Transmittal Date : August 23, 1973

Distribution:
RO Chief, FS&EB
RO:HQ (5)
DR Central Files
Regulatory Standards (3)
Licensing (13)
RO Files

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RO Chief, FS&EB
RO:HQ (4)
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B. RO Inquiry Report No. _____

Transmittal Date : _____

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RO:HQ (5)
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RO Chief, FS&EB
RO:HQ
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C. Incident Notification From: _____
(Licensee & Docket No. (or License No.)

Transmittal Date : _____

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RO Chief, FS&EB
RO:HQ (4)
Licensing (4)
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Distribution:
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UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

August 23, 1973

Iowa Electric Light and Power Company
ATTN: Mr. Charles W. Sandford
Vice President, Engineering
Security Building
P. O. Box 351
Cedar Rapids, Iowa 52405

Docket No. 50-331

Gentlemen:

This refers to the inspection conducted by Messrs. Pagliaro and Greger of this office on July 9-11, 1973, of activities at the Duane Arnold site authorized by AEC Construction Permit No. CPPR-70 and to the discussions held with Messrs. Hunt, Hammond, Graybeal and other members of your staff at the conclusion of the inspection and as further discussed with Mr. Hammond via telephone on August 9, 1973. A copy of our report of this inspection is enclosed.

Areas examined during this inspection are described in the enclosed inspection report. Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with personnel, and observations by the inspector.

During this inspection, it was found that certain of your activities appear to be in nonconformance with statements in your Final Safety Analysis Report. The items and references to the pertinent requirements are listed in the enclosure to this letter.

This letter is a notice of violation sent to you pursuant to the provisions of Section 2.201 of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty (20) days of your receipt of this notice, a written statement or explanation in reply including: (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full conformance will be achieved. Such a statement or explanation should be provided for each of the items listed in the enclosure.

A copy of our report of this inspection is enclosed and in accordance with Section 2.790 of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter with the enclosed inspection report will be placed in the AEC's Public Document Room. If

the inspection report contains information which you or your contractors believe to be proprietary, it is necessary that you submit a written application to this office, within 20 days of the date of this letter, requesting that such information be withheld from public disclosure. If such an application is submitted, it must identify the basis for which information is claimed to be proprietary and should be prepared so that proprietary information identified is contained in a separate part of the document since the application, excluding this separate part, will also be placed in the Public Document Room. If we do not receive an application to withhold information, or are not otherwise contacted within the specified time period, the enclosed report will be placed in the Public Document Room with a copy of this letter.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

Boyce H. Grier
Regional Director

Enclosures:
1. Description of Violations.
2. RO Inspection Rpt. No. 050-331/73-08

cc: G. Hunt, Chief Engineer
DAEC Site - w/o encl

bcc: RO Chief, FS&EB
RO:HQ (4)
Licensing (4)
DR Central Files
Regions I & II
RO Files
PDR
Local PDR
NSIC
DTIE
OGC, Beth, P-506A

ENCLOSURE

Iowa Electric Light and Power Company
Docket No. 50-331

Certain activities under your license appear to be in violation of AEC requirements as listed below: These apparent violations are considered to be Category III severity.

1. Section 2.7.2.1 of the FSAR states that surface and ground water samples indicating a gross beta activity in excess of 10 pCi/liter will be analyzed by gamma spectrometry to determine the specific nuclide constituents and by radiochemical separation to determine if Sr-90 is present.

   Contrary to the above, surface water samples indicating a gross beta activity in excess of 10 pCi/liter have not, in all cases, been subjected to gamma spectrum and Sr-90 analyses.

2. Section 2.7.2.1 of the FSAR states that surface water samples indicating a gross alpha activity in excess of 3 pCi/liter will be analyzed for Ra-226.

   Contrary to the above, surface water samples indicating a gross alpha activity in excess of 3 pCi/liter have not, in all cases, been analyzed for Ra-226.

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

RO Inspection Report No. 050-331/73-08

Licensee: Iowa Electric Light and Power Company
Security Building
P. O. Box 351
Cedar Rapids, Iowa 52405

Duane Arnold Energy Center
Palo, Iowa

License No. CPPR-70
Category: B

Type of Licensee: BWR - 538 Mwe

Type of Inspection: Special, Announced

Date of Inspection: July 9-11, 1973

Date of Previous Inspection: July 1-2, 1973 (Test and Startup)

Principal Inspector: J. A. Pagliaro James M. Allan for 8/23/73 (Date)

Accompanying Inspector: L. R. Greger L.R. Greger 8/22/73 (Date)

Other Accompanying Personnel: None

Reviewed By: James M. Allan, Chief
Radiological and Environmental
Protection Branch
James M. Allan 8/23/73 (Date)

SUMMARY OF FINDINGS

Enforcement Action

Two items of nonconformance with Volume 1, Section 2.7 of the licensee's FSAR were identified.

A. Surface and ground water samples have not, on all required occasions, been subjected to gamma spectrum and Sr-90 analyses. (Paragraph 7)

B. Surface water samples have not, on all required occasions, been analyzed for Ra-226. (Paragraph 7)

Licensee Action on Previously Identified Enforcement Items

No previously identified enforcement items within the scope of this inspection.

Unusual Occurrences

None within the scope of this inspection

Other Significant Findings

A. Current Findings

This inspection included a limited examination of the licensee's preoperational environmental monitoring program and the initial preoperational examination of the licensee's emergency preparedness plan and associated implementation procedures. No unresolved items were identified within the scope of the environmental monitoring portion of this inspection. The following unresolved emergency items will be examined further during a subsequent inspection.

1. Contamination control at the offsite emergency treatment/decontamination facilities. (Paragraph 8)

2. Location of the alternate emergency coordination center. (Paragraph 9)

3. Communications equipment utilized in the re-entry procedure. (Paragraph 10)

B. Status of Previously Reported Unresolved Items

No previously reported unresolved items within the scope of this inspection.

Management Interview

A. The environmental radiological monitoring aspects of the inspection were discussed with Messrs. Graybeal, Hunt, and Hammond at the conclusion of the inspection on July 11, 1973, and via telephone with Mr. Hammond on August 9, 1973. The following subjects were discussed during these conversations.

1. The inspector discussed the scope of this inspection and stated that the non-radiological portion of the licensee's environmental monitoring program would be examined during a subsequent inspection. (Paragraph 2)

2. Each nonconformance item was specifically discussed with the licensee. (Paragraph 7)

3. The inspector noted that sampling procedures for the operational phase of the environmental radiological monitoring program were not available. The licensee representatives stated that procedures would be written to encompass sample collection and preparation for the operational phase of the environmental monitoring program. (Paragraph 6)

B. The Emergency Planning aspects of the inspection were discussed with Messrs. Graybeal, Hunt, and Hammond at the conclusion of the inspection on July 11, 1973. In addition to the unresolved items listed previously, the following subjects were discussed:

1. Development of detailed written procedures to effectively implement the objectives of the emergency plan. (Paragraph 11)

2. Off-site support agreement with the Benton County Representatives. (Paragraph 12)

3. Update Table 1, "Off-site Emergency Support Groups," of the Preparedness Plan. (Paragraph 13)

4. Off-site protective action criteria. (Paragraph 14)

REPORT DETAILS

1. Personnel Contacted

G. Hunt, Chief Engineer, DAEC
E. Hammond, Assistant Chief Engineer, DAEC
R. Graybeal, Radiation Protection Engineer, DAEC
D. Vernon, Environmental Technician, DAEC
R. Leahman, Mechanical Maintenance Supervisor, DAEC
J. Ward, Nuclear Group Leader, IE
Dr. J. Houston, Chief Medical Consultant, Mercy Hospital

2. General

The inspection included an examination of the licensee's environmental monitoring program and the initial preoperational examination of the licensee's emergency planning program. The environmental monitoring portion of the inspection examined the radiological monitoring program including a selected review of sampling techniques and procedures, sampling equipment and locations, and program results. Management control aspects including organizational structure, responsibilities and authorities, and administrative control were also examined. The licensee's FSAR commitments were used as the primary inspection criteria. The inspection did not include an examination of the analytical laboratory equipment or procedures nor was the licensee's nonradiological environmental monitoring program examined. These items will be examined during a subsequent inspection. Except as specified otherwise in this report, those aspects of the licensee's environmental radiological monitoring program inspected conformed to the requirements specified in the licensee's FSAR commitments.

3. Program Management

The licensee utilizes Eberline Instrument Corporation laboratory services to perform all environmental radiological sample analyses except for TLD measurements of the gamma background which are read by DAEC personnel. NUS Corporation had provided the laboratory services prior to 1972, at which time the program was transferred to Eberline. The sample collecting functions of the program are performed by DAEC personnel and University of Iowa personnel. University of Iowa personnel collect the bottom sediment, aquatic biota, fish, and wildlife samples which are then transferred to DAEC personnel and subsequently shipped to the Eberline laboratory. DAEC personnel collect the remainder of the samples.

The environmental radiological monitoring program is supervised by the DAEC Radiation Protection Engineer who is responsible to the DAEC Assistant Chief Engineer in these matters. At present, the Radiation Protection Engineer has one Environmental Technician who is responsible for daily implementation of the monitoring program. Monitoring results are evaluated by the Radiation Protection Engineer. Although trend plots are not presently maintained the licensee intends to commence trend plotting of selected results prior to operation of the facility.

4. Physical Plant Facilities

The facility location, site and general topography, and site environs characteristics were found to be essentially as described in the licensee's FSAR. The only sample analysis performed at DAEC is evaluation of gamma background as recorded with TLD's. All other environmental samples are sent to the licensee's contract laboratory for analysis.

5. Instrumentation, Sampling, and Measurements

The only equipment located at DAEC and used in conjunction with the environmental radiological monitoring program are the sampling and TLD reading equipment. The TLD reading equipment consists of annealing ovens and an Eberline Model TLR-5 reader; Harshaw TLD-100 LiF TLD's are utilized in the program. Bendix and CEP air samplers are utilized. Calibration of the sampling and TLD equipment is performed by DAEC personnel. The Eberline laboratory (licensee's contractor) was not examined during this inspection.

6. Procedures

Procedures describing collection of preoperational environmental radiological samples were available at DAEC. Although no procedures were available for the operational phase of the monitoring program, the existing preoperational procedures are essentially identical to the procedures to be followed during the operational phase. One further procedural point discussed with the licensee representative was the lack of specificity of some of the procedures as pertains to collection and evaluation procedures and precautions. As an example, a licensee representative stated that it was not their practice to average air flow through the CEP air samplers, over the week's sample period, in arriving at the week's integrated air flow but instead used the air flow at the end of the collection period. Another example was evidenced by the response to the inspector's question concerning collection of the soil sample. The licensee representative's response indicated that soil samples were not always collected by digging an "unvegetated area approximately one-foot square to a depth of about three inches" as reported

in the licensee's "Reports of Environmental Monitoring Program." The licensee representative stated that environmental radiological sampling procedures would be developed for the operational phase of the program and that these procedures would contain appropriate collection and evaluation procedures and precautions.

The licensee's contract laboratory's analytical procedures, quality assurance program, and equipment calibration and maintenance procedures were not examined during this inspection. The licensee, through the DAEC Radiation Protection Engineer, audits and evaluates the results reported by the licensee's contract laboratory to assure compliance with regulatory requirements and to evaluate the reported results.

7. Environmental Monitoring Reports

The results of the licensee's environmental radiological monitoring program from April 1971 through March 1973 were selectively examined. No unusual results or trends were identified. With the following exceptions the licensee's environmental radiological monitoring program appears to comply with regulatory requirements.

Section 2.7.2.1, Item 1, of the licensee's FSAR states that surface water samples will be analyzed for gross beta activity in the dissolved and suspended solids fractions. All samples indicating a gross beta activity in excess of 10 pCi/liter are to be analyzed for specific nuclide constituents by gamma spectrometry and for Sr-90 by radiochemical separation. Item 1 further states that if gross alpha activity exceeds 3 pCi/liter, an analysis will be conducted for Ra-226. Examination of the licensee's environmental monitoring results revealed that on several occasions, analysis of surface water samples indicated in excess of 10 pCi/liter gross beta or 3 pCi/liter gross alpha but that the required gamma spectrometry or Sr-90 radiochemical analyses were not performed. In particular, surface water samples collected at sample sites No. 73 and No. 75 on January 28, 1973, and March 13, 1973, were not analyzed as required.

Section 2.7.2.1, Item 2 of the licensee's FSAR states that ground water samples will be analyzed in the same way as surface water samples. Examination of the licensee's environmental monitoring results revealed that on several occasions analysis of ground water samples indicated in excess of 10 pCi/liter gross beta but the required gamma spectra analyses were not performed. In particular, ground water samples collected at sample sites No. 56 and No. 59 on February 28, 1973, and No. 59 on March 13, 1973, were not analyzed as required.

8. Off-Site Emergency Treatment/Decontamination Facilities

The facilities at Mercy Hospital in Cedar Rapids, Iowa, were examined during this inspection. The facilities were found to be suitable for the purposes of emergency planning with the following exceptions:

a. There were no provisions for filtration of the exhaust air.

b. There were no provisions for collection of liquid waste.

c. The shower facility was not equipped to provide contamination control.

9. Emergency Coordination Center

The primary and alternate emergency coordinating centers were examined. The primary emergency coordinating center is located near the security post in the administration building and the secondary emergency coordinating center is located in the equipment building in the switchyard. The inspectors questioned the desirability of the location selected for the alternate emergency coordination center, due to its proximity to the primary emergency coordination center. The licensee intends to evaluate the location of the alternate center.

10. Re-entry Procedures

The re-entry procedures presently available employ the use of a tag board procedure. Individuals upon arriving at the Emergency Coordination Center remove a tag from the assignment board. The tags are numbered designating specific responsibilities. One of the tags designates reponsibility for re-entry. The inspector expressed concern as to the method of selections of the composition of the re-entry teams. The licensee intends to re-evaluate their present re-entry procedures.

Re-entry communications equipment has not been tested with operators wearing respirators. The licensee intends to perform this test prior to fuel loading.

11. Emergency Plan Implementing Procedures

All of the emergency plan implementing procedures were not available for review at the time of this inspection. The procedures are being prepared by a consultant to the licensee. These procedures will be reviewed for content as they become available in subsequent inspections. Items which were discussed regarding the available procedures were:

a. Action levels are not included as part of the definition of local and site emergencies. The licensee believes the procedures being developed will reflect local and site action levels.

b. The sequence of duties of emergency monitoring team personnel in the Tag No. 1 procedure. Radiation monitoring in the vicinity of the coordinating center appears as a third step in the procedure. The licensee is considering giving this item greater priority in the implementing procedures.

12. Letters of Agreement

With one exception, letters of agreement with off-site support agencies essentially have been completed. The exception is that of the Benton County agreement. Benton County adjoins Linn County to the west about three miles from DAEC, which is in Linn County. The licensee representative indicated that the proper arrangements would be made and a letter of agreement would be executed.

13. Off-Site Emergency Support Groups

Table 1 of the Preparedness Plan "Off-Site Emergency Support Groups," lists the contacts, location and telephone numbers of off-site support groups. Some of the listings provided are outdated. The licensee intends to update this listing.

14. Off-Site Protective Action Criteria

The off-site protective action criteria given in the preparedness plan was reviewed for conformance with the EPA interim protective action levels.

The licensee's protective action guidelines are more conservative than the EPA guidelines. It was suggested by the inspector that consideration be given to updating these protective action levels to the present EPA guidelines.