

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

A. IE Inspection Report No. 050-331/75-03

Transmittal Date : March 27, 1975

Distribution:

IE Chief, FS&EB

IE:HQ (5)

DR Central Files

Regulatory Standards (3)

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L:D/D for Reactor Project

B. IE Inquiry Report No. \_\_\_\_\_

Transmittal Date : \_\_\_\_\_

Distribution:

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C. Incident Notification From: \_\_\_\_\_  
(Licensee & Docket No. (or License No.))

Transmittal Date : \_\_\_\_\_

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Central Files

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
DIRECTORATE OF REGULATORY OPERATIONS  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

MAR 27 1975

Iowa Electric Light and Power Company  
ATTN: Mr. Charles W. Sanford  
Executive 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. Greger and Januska of this office on February 11-13, 20 and 21, 1975, of activities at Duane Arnold authorized by NRC Operating License No. DPR-49 and to the discussion of our findings with Mr. Hunt and others of your staff at the conclusion of the inspection.

A copy of our report of this inspection is enclosed and identifies the areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspectors.

During this inspection, it was found that certain of your activities appear to be in noncompliance with NRC requirements. The items and reference to the pertinent requirements are listed under Enforcement Action in the Summary of Findings Section of the enclosed inspection report. Other deficiencies identified through your internal audit program, for which corrective action was initiated, are set out in the Report Details Section of the enclosed inspection report. No additional information is needed for these items at this time.

This notice is sent to you pursuant to the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty 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



MAR 27 1975

be taken to avoid further items of noncompliance; and (3) the date when full compliance will be achieved. Such a statement or explanation should be provided for each of the items listed.

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 notice, the enclosed inspection report, and your response to this notice will be placed in the NRC's Public Document Room. If this report contains any information that you or your contractors believe to be proprietary, it is necessary that you make a written application to this office, within twenty days of your receipt of this notice, to withhold such information from public disclosure. Any such application must include a full statement of the reasons for which it is claimed that the information is proprietary, and should be prepared so the proprietary information identified in the application is contained in a separate part of the document. Unless we receive an application to withhold information or are otherwise contacted within the specified time period, the written material identified in this paragraph will be placed in the Public Document Room.

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

Sincerely yours,

Gaston Fiorelli, Chief  
Reactor Operations Branch

**Enclosure:**

IE Inspection Rpt. No. 050-331/75-03

bcc: IE Chief, FS&EB  
IE:HQ (4)  
Licensing (4)  
Central Files  
IE Files  
PDR  
Local PDR  
NSIC  
TIC

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

REGION III

Report of Environmental Program Inspection

IE Inspection Report No. 050-331/75-03

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

Duane Arnold  
Palo, Iowa

License No. DPR-49  
Category: C

Type of Licensee: BWR (GE)

Type of Inspection: Routine, Announced - Environmental Inspection

Dates of Inspection: February 11-13, 20 and 21, 1975

Dates of Previous Inspection: December 9-11, 1974 (Operations)

Principal Inspector: L. R. Greger

*L. R. Greger*  
3/24/75  
(Date)

Accompanying Inspector: A. G. Januska

*A. G. Januska*  
3/24/75  
(Date)

Other Accompanying Personnel: None

Reviewed By: *Jesse A. Pagliaro*  
Jesse A. Pagliaro  
Senior Environmental Scientist  
Environmental and Special  
Projects Section

3/25/75  
(Date)

## SUMMARY OF FINDINGS

### Enforcement Action

The following items of noncompliance were identified during this inspection.

#### A. Violations: None

#### B. Infractions

1. Contrary to Section 4.1.1 of the Appendix B Technical Specifications:
  - a. The semi-monthly general water quality analyses specified in Section 4.1.1.1 were not conducted at the discharge canal sample location on five occasions during calendar year 1974. (Paragraph 5.b)
  - b. The benthic studies specified in Section 4.1.1.5 were not conducted during the fourth quarter of 1974. (Paragraph 5.b)
  - c. The impingement studies specified in Section 4.1.1.9 were not conducted during the second and third quarters of 1974. (Paragraph 5.b)
  - d. The visual inspections for salt drift damage specified in Section 4.1.2 were not conducted during calendar year 1974. (Paragraph 5.b)

This infraction was identified by the inspectors and had the potential for causing or contributing to an occurrence with environmental significance.

#### C. Deficiencies

1. Contrary to Section 5.3 of the Appendix B Technical Specifications:
  - a. Procedures for calibration of the thermoluminescent dosimeter monitoring equipment had not been prepared and approved. (Paragraph 3.c)
  - b. The environmental radiological sample collection procedures had not been reviewed by the Operations Committee as specified in Section 5.1. (Paragraph 3.b)

This deficiency was identified by the inspectors.

2. Contrary to Section 5.4.2.1 of the Appendix B Technical Specifications:
  - a. Instances of noncompliance with the temperature surveillance requirements specified in Section 3.1.1 were not reported to the NRC within the specified time periods. (Paragraph 3.d)

- b. Instances of noncompliance with the chlorine sampling requirements of Section 3.2.1 from December 10-30, 1974 were not reported to the NRC within the specified time periods. (Paragraph 5.d)

This deficiency was identified by the inspectors.

#### Licensee Action on Previously Identified Enforcement Items

Two items of nonconformance with Volume 1, Section 2.7 of the licensee's FSAR were identified during the July 9-11, 1973, environmental inspection.<sup>1/</sup> The corrective actions described in the licensee's reply dated September 17, 1973, were examined during this inspection. The inspectors have no further questions concerning these items and consider the items closed.

#### Unusual Occurrences

None within the scope of this inspection.

#### Other Significant Findings

##### A. Current Findings

This inspection included examinations of the licensee's non-radiological effluent and radiological and non-radiological environmental monitoring programs. Three unresolved items with respect to calibration of the amperometric titrator (Paragraph 3.c), sensitivity and accuracy of the discharge and river temperature sensors (Paragraph 4.c), and performance of discharge and river chlorine studies (Paragraph 4.b) were identified during this inspection.

##### B. Status of Previously Reported Unresolved Items

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

#### Management Interview

Management interviews were conducted with Messrs. Hunt and others of your staff on February 13 and 21, 1975, and subsequently with Mr. Hunt by telephone on March 11, 1975. The following items were discussed with the licensee representatives.

- A. The inspector stated that the corrective actions regarding the previous nonconformance items had been examined and appeared adequate. (Paragraph 6)
- B. The items of noncompliance identified during this inspection were discussed with the licensee representatives. (Paragraphs 3 and 5)
- C. The licensee stated that the necessity for calibration of the

<sup>1/</sup> RO Inspection Report No. 050-331/73-08

amperometric titrator would be investigated. (Paragraph 3.c)

- D. The licensee agreed to specifically include the environmental and nonradiological effluent surveillance programs within the scope of the next audit of the surveillance program performed by the plant quality group. (Paragraph 3.d)
- E. The licensee agreed to re-examine the adequacy of the present trend plotting program. (Paragraph 3.e)

## REPORT DETAILS

### 1. Persons Contacted

G. Hunt, Chief Engineer  
E. Hammond, Assistant Chief Engineer  
R. Graybeal, Radiation Protection Engineer  
R. York, Operations Supervisor  
R. Johnson, Plant Chemist  
K. Young, Assistant Radiation Protection Engineer  
R. Rinderman, Quality Supervisor  
J. Weeda, Technical Specification Surveillance Coordinator  
D. Teply, Shift Supervising Engineer  
D. Vernon, Environmental Technician  
D. Harrington, Instrument Engineer  
G. Fulford, Auxiliary Operator

### 2. General

The inspection consisted of an examination of the licensee's non-radiological effluent and radiological and non-radiological environmental monitoring programs including sampling techniques and procedures, sample collection equipment and locations, and program results. Management control aspects including organizational structure, responsibilities and authorities, and administrative control were also examined. The licensee's Technical Specification requirements were used as the primary inspection criteria.

Consultant laboratories continue to be utilized by the licensee to assist in the environmental monitoring (radiological and nonradiological) sample collection and analysis functions. Eberline Instrument Corporation (Midwest Facility) functions in this regard in the radiological area while University of Iowa personnel provide input to both the radiological and non-radiological programs. This inspection did not include an examination of the licensee's contract laboratory personnel, equipment, or procedures.

### 3. Procedural Controls

The licensee's administrative and procedural controls for implementation of the effluent and environmental monitoring to assure compliance with the monitoring requirements were examined. The examination included a review of the assignment of responsibilities and authorities for program management and implementation.

#### a. Organization

The licensee's organization for implementation of the environmental monitoring requirements remains unchanged from the previous inspection. The non-radiological effluent monitoring responsibilities are shared by the operations group (circulating water temperatures) and the chemistry group (chemical discharges).



b. Operational Procedures

Operational environmental sampling procedures were available and are apparently complied with by licensee personnel. The licensee stated that the availability of contract laboratory procedures would be pursued with the individual laboratories and would be examined during future licensee audits of these facilities. The licensee's radiological environmental sampling procedures had not been reviewed by the Operations Committee; the licensee is therefore in noncompliance with Sections 5.3.B and 5.1.1 of the Appendix B Technical Specifications.

c. Calibration Procedures

The licensee possessed procedures for calibration of the equipment utilized to comply with the environmental and non-radiological effluent requirements with the exception of the thermoluminescent dosimeter monitoring equipment and the amperometric titrator utilized in conjunction with the chlorine analyses. The licensee stated that the contract laboratories had been informed of the procedural requirements including calibration functions and that adherence to these requirements would be examined during a future licensee audit of these facilities. The licensee is in noncompliance with Section 5.3.A of the Appendix B Technical Specifications for failure to prepare, approve, and adhere to procedures for calibration of the thermoluminescent dosimeter monitoring equipment. The requirement for calibration of the amperometric titrator was not ascertained. This item will be resolved during a subsequent inspection.

d. Internal Audit

A partial audit of implementation of the effluent and environmental monitoring programs was conducted by the Iowa Electric Quality Assurance group in May, 1974. Areas examined included compliance of the non-radiological effluent and radiological and non-radiological environmental monitoring programs with the Appendix B Technical Specifications and applicable plant procedures. The functions performed by the University of Iowa consultant group were included in the audit. Recommendations resulting from the audit have been acted upon by the licensee. Additionally, the plant quality group performs annual audits of the plant Surveillance Program. The first such audit was conducted in June 1974. The June 1974 audit did not examine the surveillance requirements pertinent to the non-radiological effluent or environmental monitoring requirements. The licensee stated that these surveillance requirements would be included within the scope of the audit scheduled for March 1975.

The May 1974 audit revealed that the licensee was not in full compliance with the thermal monitoring requirements of Section 3.1.1 of the Appendix B Technical Specifications in that the local river water temperature recorder was not operational nor were the hourly and daily maximum discharge and ambient river temperatures logged. The licensee responded to these findings and achieved full compliance with the thermal monitoring requirements of the Appendix B Technical Specifications by October 1974. (Computer software procurement problems prohibited earlier compliance according to licensee representatives.) Although the licensee corrected the non-compliance situation, the reporting requirements of Section 5.4.2.1 of the Appendix B Technical Specifications were not complied with in that the licensee did not notify the NRC of the Technical Specification noncompliance items revealed through their internal audit program.

e. Trend Plotting

The only radiological environmental monitoring parameters presently trend plotted by the licensee are the thermoluminescent dosimeter results which are plotted by individual sample locations and annual recorded exposures. The licensee stated that the desirability of additional trend plotting would be investigated.

4. Analytical Capabilities

The licensee's methodology and control of the sample collection, preparation, and analysis functions were examined. This examination included a review of sample collections, instrument calibrations and physical plant facilities.

a. Instrument Calibrations

The equipment possessed by the licensee for utilization with the environmental and non-radiological effluent monitoring requirements is essentially limited to temperature and flow measuring devices, air samplers, thermoluminescent dosimeters and the associated reading equipment, pH instrumentation, and an amperometric titrator. With the exception of the amperometric titrator (see Paragraph 3.c) the licensee has been following specified instrument calibration programs. A review of selected calibration records indicated that the licensee was conforming to the required calibration schedules. Permanent calibration records for the pH instrumentation were not maintained; a licensee representative stated that such records would be maintained in the future.

b. Air Samplers

Bendix and CEP air samplers are utilized in the radiological environmental monitoring program. Six spare samplers are available as replacements as needed during corrective maintenance performed by plant personnel. It was noted that the samplers were not equipped with vacuum gauges. The licensee stated that the necessity for vacuum corrections to the sampler flow meter readings would be investigated. This item will be examined further during a subsequent inspection.

c. Thermal Monitoring

Resistance temperature detectors (RTD) are used to provide monitoring for primary and backup discharge and river temperatures. Sufficient information was not available during this inspection to confirm the sensitivity and accuracy of these temperature sensors. This item will be resolved during a subsequent inspection.

d. Discharge Canal Surface Water Samples

A licensee representative acknowledged that plant discharge surface water samples have not always been collected during liquid radioactive waste discharges but that a continuous discharge canal sampler had provided such sampling. The licensee does not intend to discharge liquid radioactive waste on a routine basis in the future. (The last radioactive waste discharge occurred in October 1974.) Therefore, future monthly plant discharge surface water samples will not normally reflect contributions from liquid radioactive waste releases.

5. Implementation of Monitoring Program

The results of the licensee's operational effluent (non-radiological) and environmental (radiological and non-radiological) monitoring for calendar year 1974 were selectively examined for compliance with monitoring and reporting requirements.

a. Radiological Environmental Monitoring

No unusual results or trends were identified in the inspector's review of the radiological environmental monitoring results. The licensee experienced difficulty in locating aquatic biota samples in the vicinity of the plant during 1974; no samples were analyzed. A licensee representative stated that efforts would be intensified during 1975 in an attempt to collect such samples. Due to a change in reporting methods the licensee had not submitted the results of the second quarter 1974 monitoring

program to the NRC. The licensee stated that these results would be submitted with the second half semi-annual report. These items will be examined further during a subsequent inspection.

b. Non-radiological Environmental Monitoring

No unusual results or trends were identified in the inspectors' review of the non-radiological environmental monitoring results. It was noted however, that the licensee had not complied with the environmental surveillance requirements of Section 4.1 of the Appendix B Technical Specifications in the following areas.

- (1) Section 4.1.1.1 requires the conduct of semi-monthly general water quality analyses at five sample locations. Records did not indicate that the analyses were conducted at the discharge canal sample location on May 6, September 23, October 7, December 2, and December 16, 1974. The licensee confirmed that discharge canal samples had not been collected on the above dates.
- (2) Section 4.1.1.5 requires the conduct of quarterly benthic studies at four sample locations. Records did not indicate that the analyses were conducted during the fourth quarter of 1974. The licensee confirmed the above omission.
- (3) Section 4.1.1.9 requires the conduct of fish impingement monitoring including quarterly fish basket inventories. Records did not indicate that the inventories were conducted during the second and third quarters of 1974. The licensee confirmed the above omissions.
- (4) Section 4.1.2 requires the conduct of monthly visual inspections downwind of the site cooling towers for possible salt drift damage. Records did not indicate that the inspections were conducted. The licensee confirmed the above omissions.

The licensee is in noncompliance with Section 4.1 of the Appendix B Technical Specifications as a result of the above non-radiological environmental monitoring omissions. Additionally, the licensee has not performed the chlorine study specified in Section 4.1.1.12 of the Appendix B Technical Specifications. A licensee representative stated that a policy of securing circulating water system blowdown during chlorination had been followed since shortly after commencement of plant operation. The chlorine study therefore had not been conducted. This item will be clarified with the Division of Reactor Licensing and resolved during a subsequent inspection.

c. Thermal Discharges

A review of applicable records did not reveal any instances in which the thermal discharge environmental protection conditions were exceeded. Nor were any instances of noncompliance with the technical specification monitoring requirements detected subsequent to October 1974. (See Paragraph 3.d)

d. Chemical Discharges

A review of applicable records did not reveal any instances in which the chemical discharge environmental protection conditions were exceeded. It was noted however (and confirmed by the licensee), that for the period of December 10 - 30, 1974, the licensee did not comply with the chlorine monitoring requirements of Section 3.2.1 of the Appendix B Technical Specifications. This omission occurred as a result of the failure to secure deicing flow to the intake structure during and immediately following circulating water chlorinations (until residual chlorine levels decrease below the limits of Section 2.2.1 of the Appendix B Technical Specifications). The licensee routinely secures the circulating water blowdown flow until residual chlorine levels decrease below the Technical Specifications limits; therefore sampling of the discharge canal is not normally required. The existence of the deicing discharge path (and the subsequent requirement to perform chlorine sampling) was recognized by the licensee late in December 1974 and corrective action completed by December 31, 1974. Although the licensee corrected the noncompliance situation, the reporting requirements of Section 5.4.2.1 of the Appendix B Technical Specifications were not complied with in that the licensee did not notify the NRC of the existence of the noncompliance situation.

It was also noted that the licensee had not reported sulphuric acid usage for the period covered in the semi-annual report for the first half of 1974. The licensee stated that this information would be included in the next semi-annual report.

6. Action on Previous Noncompliance Items

The July 9 - 11, 1973, inspection of the licensee's preoperational environmental program revealed several omissions from the required analysis schedule.<sup>2/</sup> The corrective actions specified in the licensee's reply dated September 17, 1973, were examined during this inspection. The licensee's corrective actions have apparently

<sup>2/</sup> Ibid.

been responsive to the problem as no similar omissions were detected during the present inspection. The inspectors have no further questions regarding the items of nonconformance; the items are closed.

7. Meteorology

A meteorological tower with Regulatory Guide 1.23 instrumentation installed at the 35 foot and 165 foot levels is currently operational. (Meteorological parameters are not monitored at the stack release height.) Remote readout is available in the control room. Equipment maintenance with the exception of certain semi-annual calibrations is performed by a meteorological consultant. Instrument accuracies and data reduction and compilation functions will be examined further during a subsequent inspection.