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DESCRIPTION:
Ltr submitted on behalf of the Iowa Electric Light and power Company trans the following....

ENCLOSURES:
Operator Requalification Program

(40 cys encl rec'd)

ACKNOWLEDGED
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PLANT NAME: Duane Arnold Energy Center

FOR ACTION/INFORMATION 1-14-74 JB

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January 14, 1974

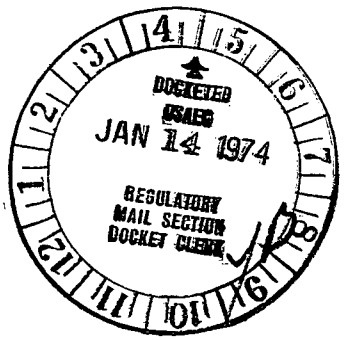
Mr. John F. O'Leary
Director of Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Re: Iowa Electric Light and Power Company, Central Iowa Power Cooperative and Corn Belt Power Cooperative
Duane Arnold Energy Center
Docket No. 50-331

Dear Mr. O'Leary:

Transmitted herewith are forty (40) copies of the "Duane Arnold Energy Center Reactor Operator Training Program," which, in Part III, describes the operator requalification program which is required by 10 CFR 55, Appendix A.

Sincerely,



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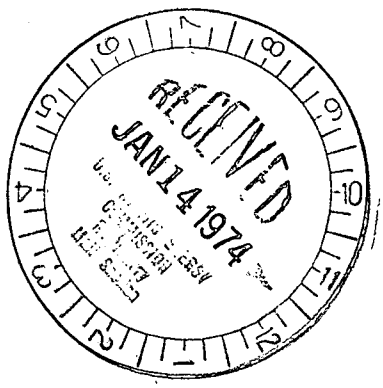

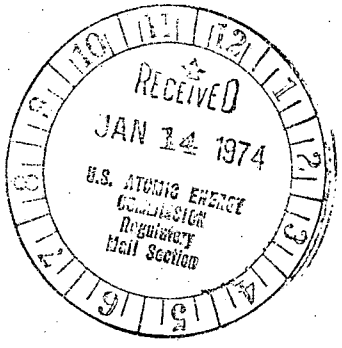

50-331

DUANE ARNOLD ENERGY CENTER

OPERATOR TRAINING PROGRAM

OUTLINE

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I. Introduction

Purpose:

To set forth a program by which holders and prospective holders of Atomic Energy Commission Reactor Operator and Senior Operator licenses will be trained for initial and subsequent renewal licensing.

Discussion:

The DAEC Operator Training Program is divided into two separate sections. The first of these is the operator Initial Licensing Program. This program will be designed to give unlicensed personnel the knowledge and experience necessary to meet the standards set forth in Federal Regulations for license application.

The second section of this training program will be Licensed Operator Retraining. This continuous program will be conducted in order to keep operator proficiency at a high level. It is designed to meet or exceed all Federal Regulations pertaining to Operator retraining and renewal licensing. The training program will be accomplished through a combination of the following:

1. On-site lecture series supplemented at times by films, video tapes and other effective training aids. The following general subject areas, as a minimum, will be covered during the lectures of both sections of this program.

    a. Reactor Theory
    b. Facility Design Features
    c. Instrumentation and Control
    d. Radiation Protection
    e. Station Operating and Emergency Instructions
    f. ECCS and Their Performance
    g. Specific Operating Characteristics
    h. Fuel Handling and Core Parameters
    i. Technical Specifications
    j. Chemistry and Waste Disposal
    k. Applicable Portions of 10CFR, Code of Federal Regulations

2. Evaluation Exams

3. Implementation and documentation of an operator review program whereby all licensed personnel are kept cognizant of:

   a. Operating and integrated plant operating instructions.

   b. Applicable administrative control procedures.

   c. Technical Specifications.

   d. Abnormal Occurrence Reports.

   e. Plant Design Changes.

4. Actual control manipulation, or direct supervision thereof, for at least 10 reactor startups, shutdowns, or significant reactivity changes which demonstrate familiarity with reactivity control systems. Reactivity changes that take place during Surveillance testing may be documented for training purposes.

   Documentation of the initial training program will be accomplished through the use of records in each individual's training file. For documentation of retraining efforts a control room training notebook will be utilized with information therein contained periodically transferred to each individual training file. See attachment #1.

   The Assistant Chief Engineer has the responsibility of administering all training efforts. He will insure on a regular basis that each individual enrolled in the program is making satisfactory progression. The Operations Supervisor will be responsible for maintaining adequate records of all training efforts, with the exception of the control room training notebook which will be maintained by each individual and reviewed by the Shift Supervisors and Operations Supervisor on a periodic basis.

II. Initial License Training Program

As a need for additional Atomic Energy Commission licenses at DAEC arises, a training program will be initiated to assure each individual's training and experience is adequate for license application submittal. This program will consist of the following:

A. Classroom instruction in the following subject areas.

a. Reactor Theory
b. Facility Design Features
c. Instrumentation and Control
d. Radiation Protection
e. Station Operating and Emergency Instructions
f. ECCS and Their Performance
g. Specific Operating Characteristics
h. Fuel Handling and Core Parameters
i. Technical Specifications
j. Chemistry and Waste Disposal
k. Applicable Portions of 10CFR, Code of Federal Regulations

Periodic quizzes shall be administered throughout the classroom training program and records maintained such that the candidate's progress may be evaluated and adjustments can be made to the program.

B. Documentation of the classroom instruction area will be maintained by the Operations Supervisor. Documentation will consist of:

a. Attendance Records. See attachment #2.
b. Curriculum Schedule.
c. Periodic evaluation of examination results.

These records will be maintained for the purpose of license application preparation. The application will then become a part of each individual's training record.

C. Actual manipulation of station controls sufficient to demonstrate ability to operate in a safe and competent manner.

a. A training sheet (attachment 1 - page 3) will be maintained in the control room training notebook and all training pertinent to licensing will be recorded in this book by each license applicant as he performs evolutions. This book will be regularly reviewed by the Shift Supervisors and Operations Supervisor.

D. Upon completion of the above each prospective licensee will be required to pass a company administered exam similar in scope and depth to an Atomic Energy Commission Examination.

When personnel receive a license from the Commission, a copy of that license and any report from the Commission pertaining to the person's weak areas on the examination will be placed in the training file. The licensed operator will then be enrolled in the retraining program. The Commission's report on the examination will serve as the basis for each new licensee's retraining efforts.

III. Licensed Operator Retraining Program

A continuous retraining program will be conducted in order to keep operator and Senior operator proficiency at a high level. This program will consist of the following:

A. Evaluation Examinations

1. Examinations will be administered to each licensed operator and Senior operator at least annually.

2. Reactor operator examination categories will be:

   A. Principles of Reactor Operation
   B. Features of Facility Design
   C. General Operating Characteristics
   D. Instruments and Controls
   E. Safety and Emergency Systems
   F. Standard and Emergency Operating Procedures
   G. Radiation Control and Safety

3. Senior Operator examination categories will be:

   H. Reactor Theory
   I. Radioactive Material Handling, Disposal and Hazards
   J. Specific Operating Characteristics
   K. Fuel Handling and Core Parameters
   L. Administrative Procedures, Conditions and Limitations

4. Each licensed operator or Senior licensed operator failing to achieve a satisfactory overall examination grade, will be required to participate in an accelerated requalification program after being relieved of his licensed duties. A judgement will be made by the Assistant Chief Engineer at the time of failure as to how the accelerated program may best be administered.

5. The following information in relation to evaluation examinations will become a permanent part of each license holders training file.

   a. A copy of examination questions.
   b. Copy of licensees answers and numerical grade given for that answer.
   c. Licensees achieved grade on each exam section and his overall percentage grade. See attachment 1, page 1.
   d. Recommendations for retraining on those sections that licensee fails to achieve a grade of 70 percent.

B. On-Site Lecture Series

1. A pre-planned on-site lecture series will be conducted on a regular and continuing basis. The following general sections will comprise the lecture series with the approximate time per section noted.

   a. Reactor Theory (8 hours)
   b. Facility Design Features (4 hours)
   c. Instrumentation and Control (8 hours)
   d. Radiation Protection (4 hours)
   e. Station Operating and Emergency Instructions (8 hours)
   f. ECCS and Their Performance (8 hours)
   g. Specific Operating Characteristics (8 hours)
   h. Fuel Handling and Core Parameters (4 hours)
   i. Technical Specifications (4 hours)
   j. Chemistry and Waste Disposal (4 hours)
   k. Applicable Portions of 10CFR, Code of Federal Regulations. (4 hours)

2. Each licensed operator and Senior Operator shall attend the lecture series regardless of his examination performance. Where individual attendance at a specific lecture is impractical, sufficient self study shall be considered an acceptable substitute.

3. The normal lecture series will be scheduled so that each individual will have the opportunity to attend each lecture in the normal course of his shift routine.

4. The Operations Supervisor will insure the following records are maintained for the lecture series.

   a. Attendance records. See attachment #2.
   b. Periodic quizzes administered and a pass or fail mark assigned.
   c. Schedule and curriculum record.

C. Operator Review Program

1. A document review notebook shall be maintained in the control room. The Operations Supervisor shall periodically enter updated revisions of the below listed documents into this notebook for review by all licensed personnel.

a) Operating Instruction and Integrated Plant Operating Instructions
b) Applicable Administrative Control Procedures
c) Technical Specifications
d) Abnormal Occurrence Reports
e) Plant Design Changes

2. For each document entered, a sign-off sheet (attachment #3) shall be placed in the notebook to document review by all licensed personnel. Upon completing his review of a given document, each licensee shall sign, and date the applicable sign-off sheet indicating he has reviewed and understands the content of the document.

3. Each Shift Supervising Engineer shall periodically review the sign-off sheets to insure satisfactory review progress by the members of his crew. The group discussion method is encouraged for members of the on-shift crews.

4. The Operations Supervisor shall control the rate at which material is entered into the review notebook such that an annual review of the Operating and Emergency Instructions is assured.

5. The following documentation relative to the review program shall be maintained by the Operations Supervisor and where applicable, become a permanent part of each licensee's training file:

a. Completed review program sign-off sheets.
b. An up-to-date index of all plant Operating and Emergency Instructions, and Technical Specifications, showing the date each was last reviewed (sign-off sheet completed).

D. Reactivity Control Manipulations

1. Each licensed operator and Senior Operator is required to perform or direct at least ten significant reactivity changes, which demonstrate skill and/or familiarity with control systems, during the two year duration of his license.

2. A listing of the evolutions for which credit will be taken by 1) the operator performing the event and 2) the senior operator supervising the event is included in attachment #4.

3. Manipulations will be documented by each individual on the appropriate page of the Control Room Training Notebook (see attachment 1, page 3). This information will be incorporated into the individual training file by the Operations Supervisor.

E. Operating Experience

1. The Operations Supervisor shall ensure that all licensed personnel maintain adequate proficiency on plant controls. By scheduling all persons, who do not on a regular basis operate plant controls, for periodic shift operations their certification can be maintained.

2. Any person absent from operating duties for an extended period of time will be given a written evaluation examination and/or an oral examination to determine any areas in which he needs accelerated training prior to his return to operating duties.

3. All licensed personnel will be systematically evaluated at least annually by the plant management. This evaluation will be performed and documented. See attachment #5.

F. Additional Training

1. Any off-site seminars, classes, or demonstrations which contribute to a licensee's qualifications and are attended by those persons will be documented. See attachment #1.

IV. Audit

1. Documentation, records, and training material are subject to auditing as provided in the Duane Arnold Energy Center Administrative Control Procedures.

Operator Evaluation Examination

Grade Summary

Licensee_____

License No._____ Date Exam Administered_____

Category (R.O.)	Point Value	% of Total	Earned Points	Category Grade (%)
A. Principles of Reactor Operation				
B. Features of Facility Design				
C. General Operating Characteristics				
D. Instrumentation and Control				
E. Safety and Emergency Systems				
F. Standard and Emergency Operating Procedures				
G. Radiation Control and Safety				
Totals				

Category (S.R.O.)	Point Value	% of Total	Earned Points	Category Grade (%)
H. Reactor Theory				
I. Radioactive Materials, Handling Hazards and Disposal				
J. Specific Operating Characteristics				
K. Fuel Handling and Core Parameters				
L. Administrative Procedures, Conditions and Limitations				
Totals				

Graded by_____

Reviewed by_____

On-Site Lecture Series - Quiz Results (P or F)

Reactor Theory

Facility Design Features

Instrumentation and Control

Radiation Protection

Station Operating and Emergency Instructions

ECCS and Their Performance

Specific Operating Characteristics

Fuel Handling and Core Parameters

Technical Specifications

Chemistry and Waste Disposal

Applicable Portions of 10CFR, Code of Federal Regulations

Comments and Recommendations:

Reactivity Control Manipulations

	Evolution	Date
1.		
2.		
3.		
4.		
5.		
6.		
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23.		
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25.		

Additional Training:

Comments:

ATTENDANCE RECORD

Lesson Title Date

Instructor

1.
2.
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13.
14.
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24.
25.

LECTURE TITLE	Hours	NAME
Reactor Theory	4 4	
Facility Design Features	4	
Instrumentation and Control	4 4	
Radiation Protection	4	
Standard and Emergency Instructions	4 4	
ECCS and Their Performance	4 4	
Specific Operating Characteristics	4 4	
Fuel Handling and Core Parameters	4	
Technical Specifications	4	
Chemistry and Waste Disposal	4	
Applicable Portions of 10CFR, Code of Federal Regs.	4	

Document Review

Sign-Off Sheet

A copy of _____ has been entered into the control room document review notebook under tab. No. _____. Your signature below indicates that you have reviewed and understand the contents of this document.

Date Entered_____

_____

Operations Supervisor

Signature	Date

SIGNIFICANT REACTIVITY CONTROL MANIPULATIONS

1. Any reactivity change resulting in a controlled reactor criticality or subcriticality.

2. Any reactivity control manipulaiton which results in a controlled heatup or cooldown rate of $\pm 5^{\circ}F$/hr. or greater, when averaged over 1 hour.

3. Any reactivity control manipulation which results in an actual reactor thermal power change of 10% or greater.

4. Control Rod Scram Testing

5. Control Rod Venting and Speed adjustment

6. Turbine Control System testing which results in 1 bypass valve being cycled 50% or greater.

7. Any Surveillance test that causes a reactivity change - for example:

    a. High Pressure Coolant Injection System Testing.

    b. Auto Depressurization System Testing.

    c. Main Steam Isolation Valve Testing.

ON THE JOB PERFORMANCE EVALUATION

Name of Operator: _____

1. Evolutions Observed: _____

2. Compliance with Technical Specifications _____

3. Detection and Response to Malfunctions _____

4. Recovery from Malfunctions _____

5. Compliance with Operating Procedures _____

6. Overall Control of Plant _____

7. Comments: _____

Date _____ Evaluated by _____