Plant Supt. _____ Review Date _____
Mgr. of Ops. _____

YANKEE ROWE OPERATOR TRAINING PROGRAM

SCOPE

To establish a program through which holders and prospective holders of Nuclear Regulatory Commission Reactor Operator and Senior Operator licenses will be trained for initial and renewal licensing.

ENCLOSURES

AP-0500 - Pgs. 1-7 - Rev. 4
Attachment A - Pg. 1 - Rev. 4

REFERENCES

1. ANSI N18.1 - 1971, Selection and Training of Nuclear Power Plant Personnel.

2. Title 10, Code of Federal Regulations Part 55 and Part 55 Appendix A.

3. Technical Specifications, Section 6.4.1

DISCUSSION

The training program is divided into two separate phases. The first of these is the initial operator licensing program. This phase will be designed to give unlicensed personnel the knowledge and experience necessary to meet the requirements of the Federal Regulations for license application.

The second phase of the training program will be licensed operator and senior operator retraining. The program will be conducted to maintain licensed operators and senior operators at their highest level of competence and proficiency. The program is designated to meet or exceed the requirements set forth by the Nuclear Regulatory Commission in the Code of Federal Regulation, pertaining to operator retraining and license renewal. The program will consist of a combination of the following:

1. Evaluation Exams.

2. On site lecture series supplemented at times by videotapes and other effective training aids.

3. Implementation and documentation of a review program in which all licensed personnel are kept aware of:

   a. Operating and emergency procedures.

   b. Applicable administrative procedures.

   c. Plant design changes.

   d. Abnormal plant events, their cause and correction.

4. Actual control manipulation, or direct supervision thereof, for at least 10 reactor startups, shutdowns, or significant reactivity changes which demonstrate familiarity with the reactor control systems.

The following subject areas will be covered during the evaluation and lecture series of both phases of the program:

1. Reactor Theory and Principles of Operation.
2. General and Specific Plant Operating Characteristics.
3. Plant Instrumentation and Control System.
4. Plant Protection Systems.
5. Engineered Safety Systems.
6. Radiation Control and Safety.
7. Technical Specifications.
8. Standard and Emergency Operating Procedures.
9. Applicable portions of Title 10, Code of Federal Regulations.

Documentation of the initial training and retraining programs will be maintained by the Training Coordinator.

The training coordinator has the responsibility of implementing all training. He will also be responsible for maintaining adequate records of the training effort.

PROCEDURE

I. Initial License Program.

A. As the need arises for additional N.R.C. licenses at Yankee Rowe, a training program will be instituted to ensure each candidate will receive sufficient training and experience for license application submittal. This program will consist of the following:

1. Classroom lectures in the following subject material:

a. Reactor Theory
b. System and Components
c. Instrumentation and Controls
d. Transient Analysis
e. Design Features

f. Health Physics

g. Technical Specifications

h. Operating and Emergency Procedures

2. Classroom lecture attendance and evaluation examination results will be maintained by the training coordinator. These records will be maintained only for the purpose of license application. The application will become a part of the individual's training file.

3. Actual manipulation of the reactor controls by the individual to demonstrate his ability to operate the plant in a safe and competent manner.

4. Upon completion of the above, each applicant will be required to pass a company examination similar in scope and depth to an N.R.C. examination.

B. When an individual receives an N.R.C. license, a copy of the license will be filed in the training record. The licensee will then be enrolled in the retraining program.

II. Licensed Operator Retraining

A. Evaluation Examination

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

2. Reactor operator examination categories will consist of the following topics:

a. Principles of Reactor Operation

b. Features of Facility Design

c. General Operating Characteristics

d. Instrumentation and Control Systems

e. Safety and Emergency Systems

f. Standard and Emergency Operating Procedures

g. Radiation Control and Safety

3. Senior operator examination categories will consist of the following topics:

a. Reactor Theory

b. Radioactive Material Handling, Disposal and Hazards

c. Specific Operating Characteristics

d. Fuel Handling and Core Parameters

e. Administrative Procedures, Conditions and Limitations

4. If a licensed operator or senior operator fails to achieve an overall examination grade of 70%, on either the annual examination or the walk through evaluations, he will be required to participate in an accelerated requalification program prior to resuming licensed activities. A judgement will be made by the training coordinator at the time of the failure as to how the accelerated program may best be administered.

5. The following information pertaining to evaluation examinations will become a part of the license holders training file:

   a. A copy of the licensees' answers.

   b. The grade the licensee achieved for each section and his overall percentage grade.

6. A copy of all examination questions will be maintained by the training coordinator.

7. The requalification records shall be maintained for a period of two years per Reference 2.

B. On-Site Lecture Series

The on-site lecture series will consist of preplanned lectures to be given on a regular and continuing basis which will be interrupted by heavy plant workloads or outages and the traditional vacation periods of June, July and August. Where applicable, up to 50% of the lecture series may be supplemented by the use of films, video tapes, and/or individual study.

1. The following general sections will comprise the lecture series:

   a. Theory and Principles of Operation

   b. General and Specific Plant Operating Characteristics

   c. Plant Instrumentation and Controls

   d. Plant Protection Systems

   e. Engineered Safety Systems

f. Normal, Abnormal and Emergency Operating Procedures

g. Radiation Control and Safety

h. Technical Specifications

i. Applicable portions of Title 10, Chapter I, Code of Federal Regulations

2. Each licensee who fails to achieve a grade of 80% in a grade section or sections shall be required to attend lectures given pertaining to the subject material in which he has shown the deficiency.

3. The normal lecture series will be scheduled so that each licensee will have the opportunity to attend each lecture in the normal course of his work schedule.

4. An examination will be administered at the completion of the lecture period. Any individual failing to achieve a grade of 80% will be given individual instruction on the material to be able to achieve a satisfactory grade.

5. The training coordinator shall maintain the following records for the lecture series:

a. Attendance Record

b. Results of Examinations Administered

c. Schedule and Curriculum Record

C. Operator Review Program

1. All licensed operators and senior operators will review facility design changes, applicable procedure changes and facility license changes.

2. The training coordinator will insure all licensed operators and senior operators review all abnormal and emergency procedures, at least annually. The completed forms will be returned to the training coordinator for file in the individual's file.

3. The performance of all licensed individuals will be evaluated during actual or simulated abnormal and emergency plant conditions. This will be done to meet the requirement for systematic observation and evaluation which appears in Paragraph 4c of Appendix A of 10 CFR Part 55. This will be accomplished by oral examination in the case of simulated emergencies. These evaluations will be documented and placed in the individual's file.

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 familiarity with the control systems, during the two year duration of his license. Refer to Appendix A of this procedure for a listing of reactivity changes for which Yankee Rowe will take credit.

2. Reactivity manipulations will be documented by the training coordinator. This information will be incorporated into the individual's training records.

3. Each operator should make an effort to perform a variety of reactivity changes in lieu of the same reactivity change ten times.

E. Operating Experience

1. 10 CFR 55.31 requires satisfactory demonstration of knowledge and understanding of plant operation for any persons who have not actively performed operator or senior operator duties for a period of four months or longer.

2. Any individual absent from operating duties for a period of four months or longer will be given a written and/or an oral examination to determine any areas in which the individual needs accelerated training before resuming his normal duties.

3. The training coordinator shall ensure the individual who has been absent for four months or longer is made aware of procedure, design and license changes which have taken place in his absence.

F. Simulator Training

1. In the future, if plant operating history indicates a need for training under emergency or abnormal conditions a reactor simulator may be utilized.

2. This training, if used, will be used at least biennial for all licensed operators when the need for such training is indicated.

3. The training coordinator will be responsible for documentation of any individual's participation in simulator training.

G. Special Training Assignments

1. The training coordinator shall document special training assignments executed by licensed operators or senior operators, such as:

   a. In-plant assignment to another department.

   b. Off-site seminars or classes.

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APPENDIX "A"

SIGNIFICANT REACTIVITY CHANGES

1. Reactor startup to the point of adding heat.

2. Controlled reactor shutdown.

3. Manual control of steam generator levels during startups and shutdowns when power is less than 15%.

4. Operation of the turbine governor controls in manual during startups and for power changes equal to or greater than 10%.

5. Boration or dilution which changes boron concentration by at least 10 ppm.

6. Operation of the manipulator crane in the core during refueling.

7. Any power changes of 10% or more in manual rod control.

8. Manual rod control prior to and during generator synchronization.