CP&L

H. B. ROBINSON

SEG PLANT

TITLE

H. B. ROBINSON SEG PLANT

INSTRUCTORS REQUALIFICATION PROGRAM

TRAINING INSTRUCTION 902

REVISION 0

REV.	APPROVED BY	DATE	REV.	APPROVED BY	DATE	REV.	APPROVED BY	DATE

Recommend By: C Bolton 5-21-80
DATE

Approved By: W L Stanley Jr 5/25/80
DATE

1.0 PURPOSE:

To ensure that the instructors in the H. B. Robinson Training Subunit remain up-to-date on the current operating history of Unit 2, the current problems or significant events, and changes to plant operating manuals.

2.0 PROCEDURE:

The steps listed below will be followed to ensure that the purpose of this instruction is fulfilled.

a. Current Operating History

1. Licensed instructors will review the Unit 2 Control Operator's Logbook and the Unit 2 Shift Foreman's Logbook on a biweekly basis to ensure that they are kept up-to-date. The individual will initial the logbooks of the present shift on duty signifying that he has reviewed all shifts up to and including the present shift. The date and time of the review will be logged on the staff control room time sheets.

2. Non-licensed instructors will biweekly visit the subunit(s) of their expertise to ensure they are up-to-date on the current operating history.

b. Instructors will review all plant License Event Reports (LER's) and Plant Operating Experiences (POE's) in accordance with TI-303. The Training Supervisor's signature on the Employee Information Route Sheet signifies that all instructors have reviewed the LER or POE.

c. Permanent changes to the Plant Operating Manuals and Instructions, are reviewed in accordance with TI-303. Applicable changes and modifications will be reviewed by all instructors. The Training Supervisor's signature on the Employee Information Route Sheet

2.0 PROCEDURE: (Continued)

signifies that all instructors have reviewed the subject change.

3.0 RESPONSIBILITY:

a. The individual instructor will be responsible for the timely reviews required by this procedure.

b. The Training Supervisor will be responsible for:

1. The maintenance of documentation

2. Periodically reviewing that the individual instructors are complying with this instruction

4.0 DOCUMENTATION:

The reviews required by this procedure will be documented on the following forms:

a. Attachment (1) TI-303, Employee Information Route Sheet

b. The data on the staff control room time sheet will be annually transferred to Attachment (8) TI-200, Yearly Summary of Experience and Training SRO, RO, and Replacement Candidates.

Volume 1, Administrative Instructions
Section 10
Paragraph 10.2

H. B. ROBINSON UNIT NO. 2

LICENSE DPR-23

10.2 OPERATOR REQUALIFICATION PROGRAM

May 15, 1980
rmd

Rev. 69

H. B. ROBINSON'S OPERATOR REQUALIFICATION PROGRAM

H. B. Robinson's Requalification Program is designed to ensure that all licensed reactor operators and senior reactor operators will maintain proficiency in their assigned plant operating tasks. Further, it is expected that participation in this program will allow all licensed personnel to meet or exceed the requirements set forth by USNRC operator licensing group.

The following is a detailed summary of the H. B. Robinson's Operator Requalification Program which will be conducted to fulfill the requirements of 10 CFR 55. The full program will be implemented in such a manner as to minimize scheduling difficulties that will be incurred by plant management. It is the intention of CP&L to have a continuing training program between the time each annual examination is given. This consists of 2-4 months of formal lectures given weekly, if plant operation allows, a simulator training program, continuing with on-shift training through the remainder of the year. This will exclude the 1-3 months that the plant is down for maintenance and refueling.

The entire Requalification Program will be conducted in two (2) phases:

1. Retraining on-site, and
2. Operator evaluation

The Training Supervisor will be responsible for the scheduling and supervision of all training.

PHASE I - RETRAINING ON-SITE

The on-site portion of the Requalification Program will consist of approximately 120 hours of instruction. This instruction will be given in two (2) parts:

1. Formal classroom lectures, and
2. On-shift training

The scheduling on-site will be such that every licensed operator will have the opportunity to attend all lectures. The following is an outline of what subjects may be covered in each of these parts, but not necessarily in the order stated.

1. Formal Classroom Lectures

    a. Theory and Principles of Operations

        1) Atomic and nuclear physics
        2) Subcritical multiplication
        3) Xenon and samarium effects
        4) Rod worth
        5) Boron worth
        6) Coefficients and defects
            a) Moderator temperature
            b) Fuel temperature
            c) Voids

d) Pressure
e) Redistribution
f) Power

7) Shutdown margin
8) Rod insertion limits

b. General and Specific Plant Operating Characteristics

1) Normal plant transients
   a) Rod worth curves
   b) Xenon transients
   c) Step load changes
2) Safety analysis
   a) Review of minor accidents
   b) Review of major accidents

c. Plant Instrumentation and Control Systems

1) Excore nuclear instrumentation
2) Incore nuclear instrumentation
3) Full length rod control
4) Rod position indication
5) Pressurizer pressure control
6) Pressurizer level control
7) Make-up water control
8) Steam dump control
9) Steam generator level control
10) Reactor protection system
11) Electrohydraulic control
12) All logics

d. Normal and Abnormal Procedures and Emergency Instructions

1) Engineered safety systems
2) Site emergency plan
3) Overall plant operating procedures

e. Radiation Control and Safety

1) Nuclear radiation
2) Biological effects of radiation
3) 10 CFR 20
4) Radiation protection manual
5) Radiation monitoring system
6) Radiation procedures

f. Technical Specifications

1) Safety limits, reactor core
2) Heatup and cooldown limits
3) Core power distribution
4) Discharge limits

g. Chemistry

1) Chemistry control
2) Radiation chemistry
3) Specifications and criteria

h. Quality Assurance Responsibilities

i. Heat Transfer, Fluid Flow, and Thermodynamics

1) Basic properties of fluids and matter
2) Fluid statics
3) Fluid dynamics
4) Heat transfer by conduction, convection, and radiation
5) Change of phase - Boiling
6) Burnout and flow instability
7) Reactor heat transfer limits

j. Mitigating Core Damage

1) Incore instrumentation
2) Excore nuclear instrumentation
3) Vital instrumentation
4) Primary chemistry
5) Radiation monitoring
6) Gas generation

Annually a comprehensive examination will be given to each licensed operator. From the results of this exam an annual schedule will be formulated using the above topics as a guide. If any licensed operator shows he is deficient in any of the categories on the exam he will be removed from licensed duties and placed in an accelerated requalification program using the following criteria:

1. If he scores less than 70% on any category, he will receive accelerated requalification in that category.

2. If he scores less than 80% overall, he will receive accelerated requalifications in all categories on which he scored less than 80%.

The accelerated program will continue until the licensee demonstrates that he is again proficient in the subject category(s). This will be determined by a written and/or oral examination.

Any operator who clearly shows he would have passed an NRC exam on a particular section (with an 80 percent or greater on that section) will be exempt from the lecture series on that section. If he scores less than 80% on a particular section, he will be required to attend a lecture series on that particular section. Upon completion of the classroom lectures a topical examination on that section will be given. A grade of 80% will be considered passing.

Certain licensed personnel, in the performance of their normal duties, may be very much involved with one or more of the areas covered in classroom lectures. These individuals would not be required to attend the applicable classroom lectures. In some cases, these individuals may be called upon to conduct lectures in their areas of expertise, i.e., Environmental and Radiation Control Supervisor for Radiation Control and Safety lectures.

2. On-Shift Training

On-shift training will be conducted in accordance with Volume 1, Administrative Procedures, Section 4.1.6, Shift Operations Readiness as described below:

"It is essential to individual and crew readiness that emphasis periodically be given to vital information on alarm settings, safety limits, abnormal condition symptoms for operation, operating sequences, and emergency immediate-action steps.

Individual reviews, instructional sessions, and where applicable, a walk-through of controls and instrumentation will be conducted with such duration and frequency that the information contained in the following volumes is covered once each quarter, with the exception of the 1-3 months during each operating cycle when the unit is being refueled:

a. Volume I - Administrative Procedures - Section 4
b. Volume V - Abnormal Procedures
c. Volume VI - Emergency Instructions
d. Volume VII - Precautions, Limitations, and Setpoints
e. Volume VIII - Radiation Control and Protection Manual
f. Volume XIII - Emergency Plan and Procedures

When covering the above six (6) volumes, the Technical Specifications, along with flow diagrams, logics, and functional diagrams will also be reviewed where applicable.

Before the end of every quarter (with the exception of the quarter in which the unit is being refueled), the Shift Foreman will submit to the Training Supervisor a report of the instructional sessions conducted during that quarter. The report will detail the information covered for each member of the shift operation crew, and will contain the Shift Foreman's judgment of each operator's familiarity with the information contained in the above volumes, as well as each operator's ability to take the required action.

The Training Supervisor will maintain a file of the reports filled out by the Shift Foremen. They will be used in compiling qualification information for NRC Reactor Operator license applications."

To insure that each licensed operator is cognizant of facility design changes, procedure changes, and facility license changes, significant safety related modifications or changes to procedures and license will be reviewed. This may be accomplished by group or individual review and documented in the training files. The staff personnel holding an NRC operator license will stand an average of four (4) hours watch in the control room per month. If he is regularly participating in a simulator training program, 75% of this time can be satisfied on the simulator. During this four (4) hours he will carry out those duties normally conducted by either the Shift Foreman or control room operator.

During all plant operations a record will be kept of any major reactivity changes a licensed operator will perform. The following control manipulations and plant evolutions are acceptable for meeting the reactivity control manipulations requirements of Appendix A, Paragraph 3.a of 10 CFR 55. The starred items shall be performed on an annual basis; all other items shall be performed on a

two-year cycle. Each individual shall perform or participate in a combination of reactivity control manipulations based on the availabiiity of plant equipment and systems. Personnel with senior operator licenses are credited with these manipulations if they direct or evaluate control manipulations as they are performed. Normal control manipulations, such as plant or reactor startups must be performed. Control manipulations during abnormal or emergency operations must be walked through with, and evaluated by, a member of the training staff at a minimum. An appropriate simulator may be used to satisfy the requirements for control manipulations during normal or abnormal and emergency conditions. The use of the Technical Specifications should be maximized during the simulator control manipulations.

*1. Plant or reactor startups to include a range that reactivity feedback from nuclear heat addition is noticeable.

2. Plant shutdown

*3. Manual control of feedwater during startup and shutdown.

4. Boration or dilution during power operation.

*5. Any significant (>10%) power changes in manual rod control.

*6. Loss of coolant including:

a. significant steam generator leak
b. inside and outside containment
c. large and small, including leak-rate determination
d. saturated reactor coolant response

7. Loss of instrument air

8. Loss of electrical power (and/or degraded power sources)

*9. Loss of core coolant flow/natural circulation

10. Loss of condenser vacuum

11. Loss of service water

12. Loss of shutdown cooling

13. Loss of component cooling system or cooling to an individual component

14. Loss of normal feedwater or normal feedwater system failure

*15. Loss of all feedwater (normal and emergency)

16. Loss of protective system channel

17. Mispositioned control rod(s) (or rod dropped)

18. Inability to drive control rods

19. Conditions requiring use of emergency boration

20. Fuel cladding failure or high activity in reactor coolant or waste gas system

21. Generator or turbine trip

22. Malfunction of automatic control system(s): rod control or boron concentration control

23. Malfunction of reactor coolant pressure/volume control system

24. Reactor trip

25. Main steam line break (inside or outside containment)

26. Nuclear instrumentation failure(s)

PHASE II OPERATOR EVALUATION

At the completion of Phase I each licensed operator will take a USNRC type comprehensive written examination. Periodically a CP&L instructor will conduct oral examinations on 1 or 2 licensed operators.

Annually, each licensed operator will attend a simulator training program if scheduling permits. Any licensed operator not attending the simulator training program will be given an oral examination which includes a walk-through of controls and indications. The simulator used will have a similar arrangement of instrumentation and controls and will reproduce the general operating characteristics of the Robinson Unit. The program will be concluded with evaluation of the licensed operator performance during abnormal/emergency conditions.

The following is a list of records to be kept in a personal file on each licensed operator:

1. Startup, Shutdown, and Reactivity Changes
2. Formal Lecture Attendance
3. On-Shift Training
4. Grade Sheet for Periodic Examinations
5. Evaluation Sheets for Written Comprehensive Examinations
6. Evaluation Sheets for Oral Examination
7. Evaluation from Simulator Staff
8. Additional Training

In a master file will be copies of all periodic examinations and a copy of all comprehensive examinations given.

Any licensed operator absent from the site for a period of four (4) months or longer will be given a written examination and/or an oral walk-through of the plant to determine if an accelerated training program is necessary prior to returning him to his normal duties.

NOTE: The term "licensed operator" means any person holding an NRC license to operate a nuclear power plant, whether it be senior reactor operator or reactor operator.