OPERATOR REQUALIFICATION PROGRAM

SAN ONOFRE NUCLEAR GENERATING STATION UNIT 1

Revision 2
July 1980

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LICENSED NRC OPERATOR REQUALIFICATION PROGRAM

1.0 INTRODUCTION

It is the intent of the Southern California Edison Company to maintain the highest degree of proficiency and competence of all licensed operating personnel and to meet NRC requirements for operator license renewal as outlined in 10 CFR 55. To this end, the licensed NRC operator requalification program has been developed.

The program will be conducted for a continuous period not to exceed two years and upon conclusion shall be promptly followed, pursuant to a continuous schedule, by successive requalification programs.

In accordance with 10 CFR 50.54 (i-1), no changes shall be made in this program without prior approval by the NRC.

The Plant Manager is responsible for the implementation and coordination of the Operator Requalification Program.

2.0 GENERAL

The following items will be included in the requalification program.

2.1 Annual written evaluation examinations.

2.2 Regularly scheduled lectures.

2.3 Assigned individual study.

2.4 On the job training - this will include reactor operations, such as reactor startups, shutdowns and power changes.

2.5 Simulation of emergency or abnormal conditions using the facility's control panel.

2.6 Annual simulator training at a simulator that parallels San Onofre Unit 1 with control manipulations of evolutions and emergencies similar to those experienced at San Onofre.

3.0 PROGRAM

The program is conducted in two phases.

3.1 Phase 1 - On Shift Training

This portion of the training program consists of on the job training, reading assignments and simulation of emergency and abnormal conditions.

3.0 PROGRAM (Continued)

3.1 Phase 1 - On Shift Training (Continued)

3.1.1 On The Job Training

Each licensed operator and senior operator shall, as normal operations permit, perform or direct, as applicable, a combination of control manipulations during each two year requalification program to demonstrate their knowledge of the reactivity control systems.

3.1.2 Licensed Operator Manipulations

As a minimum each licensed operator shall manipulate the controls through 10 reactivity changes. The following manipulations are acceptable, however those marked with an asterisk are required to be performed annually.

*a. Reactor startup to point of adding nuclear heat i.e., reactivity feedback from heat up is observed and heat up rate established.

b. Plant shutdown.

c. Boration or dilution during power operation.

d. Power changes of 10% in manual rod control.

e. Reactor power changes of 10% or greater on load limit control.

*f. Manual control of steam generator level during start-up or shutdown.

An appropriate simulator may be used to satisfy the requirements for control manipulations.

3.0 PROGRAM (Continued)

3.1 Phase 1 - On Shift Training (Continued)

3.1.3 Licensed Senior Operator Manipulations

As a minimum, each licensed senior operator shall manipulate the controls or direct the activities of operators during 10 plant control manipulations as described in section 3.1.2 above. An appropriate simulator may be used to meet this requirement.

3.1.4 Reading Assignments

On-shift assignments will be self-study sessions conducted on a regular basis. All licensed operating personnel will have an outline of material to study. It will be each individual's responsibility to study the material and prepare himself for examination. The operating supervisor will monitor the study periods and aid in answering questions that may arise.

Reading assignments are given on the following material:

Procedure Review

a. Operating Instructions, including Emergency Instructions

b. Station Orders

c. Division Orders

d. Dispatchers Bulletins

e. Quality Assurance Procedures pertaining to operations

Systems Review

a. System Piping and Instrument Diagrams

b. Electrical one line and Elementary Diagrams

c. Instrument Set Point Data

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3.0 PROGRAM (Continued)

3.1.4 Reading Assignments (Continued)

Supplementary Reading

a. Abnormal Occurrence Reports

b. Radiation Protection Manual

c. Facility Design Changes

d. Fire Prevention Manual

e. Facility License Changes

f. Procedure Changes.

Acknowledment of Information, Form PSSD 121, attached, is utilized as a record of review of the recurring portions the reading assignments.

3.1.5 Simulation of Emergency or abnormal Conditions

Control manipulations during the below listed abnorma or emergency instructions must be walked through with evaluated by a member of the training staff. See Se 5.2. Actual manipulation of the controls is not re An appropriate simulator may be used to satisfy the quirements for control manipulations. In addition manipulations indicated with an asterisk are requi performed on an annual basis.

*a. Loss of Coolant including:

1. Steam Generator tube leak

2. Large LOCA

3. Small LOCA - including leak-rate determ

4. Loss of subcooling, i.e., saturated RC

3.0 PROGRAM (Continued)

3.1.5 Simulation of Emergency or Abnormal Conditions (Continued)

*b. Loss of coolant flow and/or natural circulation.

c. Loss of instrument air

d. Loss of electrical power - including:

1. Loss of offsite power

2. Loss of vital or utility bus

e. Loss of condenser vacuum

f. Loss of residual heat removal

g. Loss of salt water cooling

h. Loss of component cooling water

i. Loss of normal feedwater

*j. Loss of all feedwater (normal and auxiliary)

k. Rod drop or stuck rod

l. Inability to move control rods

m. Emergency boration

n. High coolant activity

o. Turbine trip

p. Malfunction of CVCS

q. Reactor trip

r. Main steam line break (inside and outside containment)

s. NIS failure

t. Rod control malfunction

u. Reactor control and protection system malfunction

3.0 PROGRAM (Continued)

3.2 Phase 2 / Formal Instruction

All licensed operators and senior operators will have an outline of the course of study that will be followed in Phase 2.

3.2.1 Lecture Series

Lectures are normally conducted off shift throughout the two year period. Emphasis will be placed on those areas where the annual operator and senior operator evaluation examinations indicate a need for increased coverage in the following areas:

a. Thermodynamics, heat transfer, fluid flow.

b. Accident mitigation including with a degraded core.

c. Theory and principles of operation.

d. General and specific plant operating characteristics.

e. Plant instrumentation and control systems.

f. Plant protection systems.

g. Engineered safety systems.

h. Normal, abnormal and emergency operating procedures.

i. Radiation control and safety, including hands on training in radiation and airborne monitoring equipment.

j. Technical specifications.

k. Applicable portions of title 10, chapter 1, Code of Federal Regulations.

l. Special lectures on major upcoming events, i.e., refuelings or major maintenance outages.

3.0 PROGRAM (Continued)

3.3 Reactor Emergency and Transient Operation Review

A book of reactor transient curves will be available to licensed operators. The transient curves will provide the operators with actual data which have been generated as a result of emergency or transient conditions which have been experienced on the San Onofre reactor.

This presentation displays a true picture of what actually occurred with various parameters of the system during the transient.

Careful study of these curves will provide operating personnel with confidence in what they can expect to see during various situations. Also, the parameters which should be "keyed" on will be readily apparent.

The presentation is composed of actual recorded indications of system parameters during the transients. The cause of the problem, what is occurring at various points in time, courses of action which were taken, and their results will be explained. Recommendations of proper action to be taken are included.

Examples of the type of incidents presented are: Steam generator high level trip with subsequent safety injection, dropped control rod subgroup, full load trip, etc. These reactor transient curves will be added to as further data is generated.

In addition, transient analysis curves from the Final Safety Analysis report will be studied during phase 2. Reactivity fault analysis and mechanical malfunction analysis will be covered. Comparisons with actual transient curves will be made where data is available.

The information contained in these transient curves will be included as test material on the annual examination.

3.4 Training Aids

Films, videotapes and other training aids will be used to supplement the pre-planned lectures when appropriate. However, these aids will not be used as a substitute for "live" instruction.

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4.0 OPERATION RECORD

The purpose of the operation record is to provide a means of documenting individual operating experience. This information is a very important and necessary part of reactor operator license renewal applications.

Each licensed operator will be responsible for maintaining his own record. Below are examples of the type of significant operations or functions which should be recorded. Observation as well as direct participation should be included.

a. Criticalities

b. Load and reactivity changes - magnitude and time

c. Startups and shutdowns or any significant part thereof

d. Manual reactor control time

e. Emergency operations

f. Physics testing

g. Refueling operations

The operation record will be maintained in the Control Room and Wat
Engineer's Training Book. The operation records will be audited o
regular basis by the Training Supervisor to insure that adequate r
are being maintained.

5.0 EXAMINATIONS

5.1 Written Examinations

5.1.1 Written reactor operator and senior reactor op
tions will be administered annually. The resu
examinations shall be used in determining whi
in section 3.0, require special emphasis dur
year cycle of the retraining program. The e
be similar in length and nature to NRC exam

5.1.2 Periodic written examinations will be admi
each retraining cycle.

5.1.3 All written examinations will be graded
dual's training file for audit by the N
tained for 2 years from date of record

5.0 EXAMINATIONS (Continued)

5.1 Written Examinations (Continued)

5.1.4 An overall grade of 80% with no one section less than 70% on the annual examination is considered acceptable. Any licensed operator or senior operator failing to meet this criterion shall be removed from licensed duties and assigned to accelerated training. The scope and duration of the accelerated program will be based on the individual's deficiencies. The individual will be assigned licensed duties after completing the course and satisfactorily passing an examination covering the required subjects.

5.1.5 All licensed operating personnel should attend off-shift lectures.

5.1.6 A grade of 80% on the periodic examinations is considered acceptable. Any licensed operator or senior operator failing to meet this criterion will be required to repeat the month's reading assignment, and be retested in the deficient areas. Special tutoring by the individual's immediate supervisor or the training instructor will be provided if necessary.

5.2 Oral Examinations and Evaluations

Periodic oral examinations will be administered throughout each retraining cycle. These examinations will cover simulated abnormal or emergency operations. The results are recorded on the Emergency or Abnormal Operating Evaluation Form (PSSD 255), attached, and maintained in the individual's training file. Periodic evaluations of licensed operators normal activities is observed by his supervisors on a day to day basis and is documented in his periodic performance evaluation report in addition to his performance on the annual examination.

6.0 EXEMPTIONS

6.1 Licensed Staff Personnel

Licensed staff personnel may be excused from participation in some sections of the retraining program. However, as a minimum, these individuals must:

6.0 EXEMPTIONS (Continued)

6.1 Licensed Staff Personnel (Continued)

a. Be administered the annual written examination and participate in the lecture series based on the results thereof.

b. Manipulate the controls or supervise the manipulation of the controls through 10 reactivity changes, step f. below can be used to meet this requirement.

c. Systematically review design changes, procedure changes and facility changes.

d. Systematically review the contents of all abnormal and emergency procedures on a regularly scheduled basis.

e. Be systematically evaluated regarding actions to be taken during simulated abnormal and emergency conditions by a walk through of procedural steps, step f. below can be used to meet this requirement.

f. Participate in the annual simulator requalification program.

6.2 Training Personnel

Licensed instructors shall participate in this requalification program. Licensed personnel who are responsible for writing, grading and approving examinations will be exempted from taking those examinations.

MJK/sf

ACKNOWLEDGEMENT OF INFORMATION

DATE: _____

DIVISION ORDER	OPERATING INSTRUCTIONS	STATION ORDER	DISPATCHER'S BULLETIN	ACCIDENT REPORT	T.I.D.

Other: _____

Please indicate by your initials that you have read the attached information.

WATCH ENGINEERS

1. _____ 3. _____ 5. _____
2. _____ 4. _____

OPERATING FOREMEN

TRAINING ADMNSTR, UNIT 1

1. _____

CONTROL OPERATORS

7. _____ 9. _____
8. _____ 11. _____

ASSISTANT CONTROL OPERATORS

12. _____ 19. _____
13. _____ 20. _____
21. _____
22. _____

16. _____
17. _____
18. _____

PLANT EQUIPMENT OPERATORS

1. _____ 6. _____
7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

EMERGENCY OR ABNORMAL OPERATING EVALUATION FORM

A. Procedure's Title and Number (circle one)

B. Operator's Name R.O. S.R.O.

C. Date and Time

I. Event

a. Knows the event(s) that requires use of this procedure. P F S G O

b. Comment:

II. Symptoms

a. Familiar with the indications which lead to or results in the event. P F S G O

b. Comment:

III. Automatic Action

a. Knows automatic action that occurs as the result of the event. P F S G O

b. Knows sequence of automatic action P F S G O

c. Comment:

IV. Manual Action

a. Knows manual action required as the result of the event. P F S G O

b. Response to event:

1. Knowledge of action sequence P F S G O

2. Knowledge of equipment & controls P F S G O

c. Comments:

V. Subsequent Action

a. Familiar with final plant status and subsequent action. P F S G O

b. Comment:

VI. Actual Transient Data Reviewed YES NO

Overall Evaluation

Recommendation

_____

Evaluating Supervisor

Action

_____

Training Supervisor