

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8611190291 DOC. DATE: 86/11/13 NOTARIZED: NO DOCKET #
 FACIL: 50-000 Generic Docket 05000000
 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269
 50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270
 50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287
 50-369 William B. McGuire Nuclear Station, Unit 1, Duke Powe 05000369
 50-370 William B. McGuire Nuclear Station, Unit 2, Duke Powe 05000370
 50-413 Catawba Nuclear Station, Unit 1, Duke Power Co. 05000413
 50-414 Catawba Nuclear Station, Unit 2, Duke Power Co. 05000414

AUTH. NAME AUTHOR AFFILIATION
 TUCKER, H. B. Duke Power Co.
 RECIP. NAME RECIPIENT AFFILIATION
 DENTON, H. R. Office of Nuclear Reactor Regulation, Director (post 851125
 YOUNGBLOOD, B. J. PWR Project Directorate 4

SUBJECT: Forwards response to 861001 request for addl info re
 operator replacement & requalifucation training programs.
 Revised employee training & qualifications sys stds 303.0,
 304.0 & 306.0 also encl.

DISTRIBUTION CODE: M003D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 22
 TITLE: Operator Requalification Program

NOTES: AEOD/Ornstein: 1cy. S. West, NRR: 1cy. 05000269
 AEOD/Ornstein: 1cy. S. West, NRR: 1cy. 05000270
 AEOD/Ornstein: 1cy. S. West, NRR: 1cy. 05000287
 LPDR 2cys AMDTS to FSAR. ASLB 1cy. 05000413
 LPDR 2cys AMDTS to FSAR. ASLB 1cy. 05000414

RECIPIENT ID CODE/NAME	COPIES		RECIPIENT ID CODE/NAME	COPIES	
	LTTR	ENCL		LTTR	ENCL
PWR-B PD6 LA	1	0	PWR-A PD4 LA	1	0
PWR-B PD6 PD	1	1	PWR-A PD4 PD	1	1
PWR-A PD4	1	1	NICOLARAS, H	1	1
HOOD, D	1	1	JABBOUR, K	1	1

INTERNAL: ACRS	08	10	10	AEOD/PTB	1	1
NRR/DHFT/HFIB		1	1	NRR/DHFT/MTB	1	1
REG FILE	04	1	1	RGN2	1	1
EXTERNAL: LPDR	03	3	3	NRC PDR	02	1
NSIC	05	1	1			

NOTES: 5 5

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

November 13, 1986

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTENTION: B.J. Youngblood, Director
PWR Project Directorate #4

Subject: Oconee Nuclear Station
Docket Nos. 50-269, 50-270, 50-287
McGuire Nuclear Station
Docket Nos. 50-369 and 50-370
Catawba Nuclear Station
Docket Nos. 50-413 and 50-414

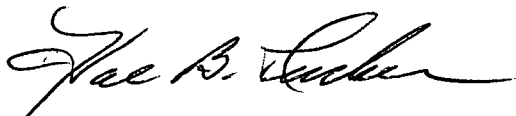
Dear Mr. Denton:

Mr. B.J. Youngblood's letter of October 1, 1986 requested additional information regarding operator replacement and requalification training programs at the Duke Power nuclear stations. These program descriptions, in the form of three ETQS Standards, were submitted for NRC review in my letter dated August 15, 1986. Attached to this letter are the Duke responses to each of the items identified in the October 1, 1986 request. Also included are revised copies of the three standards listed below.

1. ETQS Standard 303.0, License Preparatory Reactor Operator Program
2. ETQS Standard 304.0, License Preparatory Senior Reactor Operator Program
3. ETQS Standard 306.0, Periodic Training Licensed Operator Requalification

Changes to these standards were made in conjunction with responding to the NRC staff questions. These changes clarify some concerns expressed in the NRC statements. Pending NRC approval, these programs are currently scheduled to become effective January 1, 1987.

Very truly yours,



Hal B. Tucker

M003
11

JSW/84/1cm
8611170291-861113
PDR ADDCK 05000269
V PDR

Mr. Harold R. Denton
November 13, 1986
Page 2

Attachment

xc: NRC Resident Inspector
Oconee Nuclear Station

NRC Resident Inspector
McGuire Nuclear Station

NRC Resident Inspector
Catawba Nuclear Station

Dr. J. Nelson Grace, Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta St., NW, Suite 3100
Atlanta, Georgia 30323

Ms. Helen Pastis
Office of Nuclear Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. K.N. Jabbour
Office of Nuclear Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Darl Hood, Project Manager
Office of Nuclear Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

CONCERN 1.1

License Preparatory Reactor Operator Program

The licensee should describe the proposed subject matter and duration of each course or topic covered as part of the 8 weeks of classroom training for reactor operator's license candidates to demonstrate coverage of topics as described in 10 CFR 55 and as required by NUREG-0737.

RESPONSE:

These topics and durations are listed in a training catalog for each station. Our ability to utilize the systematic approach to training makes it necessary to maintain separate catalogs for each station.

The following subjects are being taught at all three nuclear stations and are submitted in response to this request:

1. Reactor Theory
2. Thermodynamics
3. Chemistry
4. Health Physics
5. Administrative
6. Electrical
7. Primary and Secondary systems
8. Instrumentation and Controls
9. Procedures
10. Transients and Accidents
11. Fuel Handling

CONCERN 1.2

License Preparatory Senior Reactor Operator Program

The licensee should describe the proposed subject matter and duration of each course or topic covered as part of the 6 weeks of classroom training and the 4 weeks of simulator training for senior operator's license candidates. Explain whether the scope of simulator training for senior operator trainees has been reduced from 5 weeks of simulator training previously offered.

RESPONSE:

The subjects listed in 1.1 apply to both RO and SRO license classroom training. Simulator training duration was not reduced to four (4) weeks, and should be listed as five (5) weeks. The following subjects are covered:

1. Simulator Familiarization
2. Normal Operations
3. Abnormal Operations
4. Emergency Operations
5. Nuclear Operator Team Training

CONCERN 2.1

License Operator Regualification Training

The licensee should state the criteria for selection of topics for the Fundamentals Review Lecture Series and the Operational Proficiency Lecture Series and whether the topics as described in 10 CFR 55, Appendix A are always included in regualification lectures for all licensed operators.

RESPONSE:

In the Standard 306 page 2 under C, third paragraph - Delete "and other pertinent data used by the training Instructors" and Add - "and task related training based on FREQUENCY (how often performed), IMPORTANCE (seriousness of consequences to reactor safety) and DIFFICULTY and 10 CFR 55, Appendix A as required.

CONCERN 2.2

The licensee should describe how the results of written evaluation examinations given at the conclusion of each training segment will be used rather than an annual comprehensive written examination to determine areas in which retraining is needed to upgrade licensed operator and senior operator knowledge as required by 10 CFR 55, Appendix A.

RESPONSE:

Refer to P7 Item VI A, 3. and Item VI B, 3. and P4 Item III F, (3rd Paragraph) of ETQS Standard 306.0.

CONCERN 2.3

The licensee should describe plans for limiting exemptions from segment training, rotating assignments, or other means for instructors to fulfill all requirements for participation in the regualification program (including lectures, on-the-job training, and evaluation) in order to renew licenses.

RESPONSE:

Standard 306 page 3, D. fourth paragraph. Delete - "are not required to attend the segment training but"

CONCERN 2.4

The licensee should describe how senior reactor operator trainees who do not obtain a senior reactor operator's license can meet requirements for extensively performing the functions of an operator if they have been exempt from participation in licensed operator regualification training while in senior reactor operator training.

RESPONSE:

SRO license candidates are informed of all operational proficiency review material for license operators. They are also involved with extensive simulator training on other than just normal plant operations. They also have at least 480 hours as an extra person on shift during their license training phase, and they are actively engaged in license duties during this time.

CONCERN 2.5

The licensee should describe plans to rotate assignments for instructors who conduct simulator training so that a limited number of exemptions are granted from control manipulations and performance evaluations and so that no licensed or certified instructor is continually exempted from participation in all parts of the required regualification training program.

RESPONSE:

Licensed Simulator Instructors evaluate and critique a significant number of control manipulations at a higher degree of involvement than that required of the licensed operator trainee in simulator regual training. As such, he is involved in repeating these control manipulations with many training groups as the Instructor, and would not significantly benefit from performing or directing the manipulations he has taught in regual. Otherwise, Instructors are not exempted.

CONCERN 2.6

The licensee should describe how the operational review portion of the regualification training will be evaluated if an annual written examination is not administered as described in Section III.F. of the regualification program standard.

RESPONSE:

P6 V Operational Review. Add NOTE: (After 2nd paragraph) In the event segmented exams are used in place of an annual comprehensive written exam (see Section III F, 3rd paragraph) the effectiveness of the operational review will be evaluated by testing on each segment exam.

CONCERN 2.7

The licensee should describe how the 10 reactivity control manipulations will be accomplished by all licensed operators and senior operators during the term of their licenses, as required by 10 CFR 55, Appendix A, and how these activities will be documented.

RESPONSE:

Please refer to NOTE on page 6 which reflects annual and 2 year requirements. This requirement is for 32 manipulations each 2 year period which is more than 10 per license term.

Simulator training records will provide documentation for these activities.

NUCLEAR PRODUCTION DEPARTMENT
EMPLOYEE TRAINING & QUALIFICATIONS SYSTEM

STANDARD #: 303.0

SUBJECT: LICENSE PREPARATORY REACTOR OPERATOR PROGRAM

PAGE #: 1 REVISION #: 1 DATE REVISED 11/29/86 DATE EFFECTIVE

I. OBJECTIVE

This standard describes the training and qualifications appropriate to the responsibilities of the individuals designated as Reactor Operator Candidate.

II. BACKGROUND

Operator license training is a requirement of 10 CFR 55. The Operator Licensing Program is designed to provide the trainee with the necessary knowledge and training to become a competent operator. This program will be conducted on a continuing basis as the needs for replacement training demand. This program will include the use of lectures, on-the-job training, simulator training, and audit examinations.

III. EDUCATION REQUIREMENTS

The minimum educational requirements for operator license candidates will be a high school diploma or equivalent.

IV. EXPERIENCE REQUIREMENTS

RO license candidates will have a minimum of 2 years of power plant experience or related technical training of which at least 1 year shall be nuclear plant experience (excluding time in license training) with a minimum of 6 months at the nuclear station for which the individual is to be licensed.

V. TRAINING AND QUALIFICATIONS

Training and qualification of operator trainees consists of classroom training, on-the-job training, reactivity changes, simulator training, team skills training, and review & evaluation. Figure 303.0-1 summarizes entry-level prerequisites, experience and training criteria and applicability for reactor operator candidates.

A. Classroom Training

A minimum of 8 weeks classroom training will be provided at all three nuclear stations consisting of the following topics:

1. Reactor Theory
2. Thermodynamics
3. Chemistry
4. Health Physics
5. Administrative
6. Electrical
7. Primary and Secondary systems
8. Instrumentation and Controls
9. Procedures
10. Transients and Accidents
11. Fuel Handling

B. On-the-Job Training

The program will include a minimum of 480 hours training on shift as an extra person in the control room and will include the manipulation of nuclear power plant controls during day-to-day operation. This phase of training will include completion of the RO License Training Task List.

C. Reactivity Changes

The trainee shall perform 5 reactivity changes at the nuclear station from the list below. Every effort will be made to diversify these reactivity changes.

1. Plant or reactor startup and power escalation to a range where reactivity feedback from nuclear heat addition is noticeable.
2. Normal plant shutdown to source range indication.
3. Manual control of steam generator water level and/or feedwater flow during plant startup and/or shutdown.
4. Boration and/or Dilution during power operation.
5. Reactor power change of 10% or greater where rod control is in manual, or where feedwater flow is controlled manually.
6. Reactor power change of 10% or greater where load change is performed with the turbine controls in manual.
7. Operation of turbine controls in manual during turbine startup.
8. Decay Heat Removal System operation.
9. Operation of Manipulator Crane to change core geometry during refueling over the core.

D. Simulator Training

Each trainee will participate in a minimum of 8 weeks of simulator training during which the trainee will respond to normal, abnormal, and emergency conditions as listed in Enclosure 4 of Harold Denton's March 28, 1980 letter.

The Simulator Instructional Staff will evaluate trainee performance.

E. Team Skills Training

Training in understanding human behavior, communications, diagnostic skills & problem solving, and stress management is provided to all RO license candidates. This training includes simulator practical exercises involving trainee response to varying situations and a critique of videotaped responses. This topic is approximately one week in duration.

F. Review and Evaluation

A period of approximately one week will be utilized for administration of an audit written and oral examination to evaluate the trainee's ability to successfully complete the licensing examination and a period for review. Examination and results of the audit examination will be documented in the individual's training file. If evaluation by management determines a need for additional training prior to the NRC licensing examination date, a reassignment for future license training will be made.

VI. RECORDS

Training records for each individual will be maintained and shall contain the following:

- A. Written examination results including trainee's responses
- B. On-the-job training documentation
- C. Records of reactivity changes
- D. Evaluations made by training staff
- E. Startup certification*
- F. Documentation of training participation

* as applicable

OPERATIONS ETQS
REACTOR OPERATOR CANDIDATES

LICENSING CRITERIA

APPLICABILITY

Experience:

RO

2 years Power Plant (Naval or other)	X
1 year Nuclear Plant	X
0.5 year Nuclear Plant to be licensed	X

Training:

Complete Initial/Basic Operator Training requirements	X
Complete Introduction to Systems Specific course	X
Complete minimum 8 weeks classroom training	X
Complete 480 hours as extra person in Control Room	X
Complete 5 reactivity changes on the plant	X
Complete startup certification*	X
Complete minimum 8 weeks simulator training	X
Complete RO License Training Task List	X
Complete NLO Operator Qual Program	X

Education:

High School diploma or equivalent	X
-----------------------------------	---

* as applicable

NUCLEAR PRODUCTION DEPARTMENT
EMPLOYEE TRAINING & QUALIFICATIONS SYSTEM

STANDARD #: 304.0

SUBJECT: LICENSE PREPARATORY SENIOR REACTOR OPERATOR PROGRAM

PAGE #: 1 REVISION #: 1 DATE REVISED 11/29/86 DATE EFFECTIVE _____

I. OBJECTIVE

This standard describes the training and qualifications appropriate to the responsibilities of the individuals designated as Senior Reactor Operator Candidate.

II. BACKGROUND

Operator license training is a requirement of 10 CFR 55. The Operator Licensing Program is designed to provide the trainee with the necessary knowledge and training to become a competent operator. This program will be conducted on a continuing basis as the needs for replacement training demand. This program will include the use of lectures, on-the-job training, simulator training, and audit examinations.

III. EDUCATION REQUIREMENTS

The minimum educational requirements for senior operator license candidates will be a 4 year degree in Engineering or Applied Science or have experience for 1 year as a licensed reactor operator or senior reactor operator at a nuclear power plant. Actual operating experience for 1 year in a position that is equivalent to a licensed operator or senior reactor operator at military propulsion reactors may be substituted on a one-for-one basis. Navy ratings that are considered equivalent are (1) Propulsion Plant Watch Officer, (2) Engineering Watch Supervisor, (3) Engine Room Supervisor, (4) Reactor Operator, (5) Chief, Reactor Watch, (6) Engineering Officer of Watch, and (7) Propulsion Plant Watch Supervisor.

IV. EXPERIENCE REQUIREMENTS

SRO license candidates shall have 4 years of responsible power plant experience. A maximum of 2 years power plant experience may be fulfilled by academic or related technical training, on a one-for-one time basis. Two years shall be nuclear plant experience. At least 6 months of nuclear power plant experience shall be at the nuclear station for which the individual is to be licensed.

V. TRAINING AND QUALIFICATIONS

Training and qualification of senior operator trainees consists of classroom training on-the-job training, simulator training, team skills training and review & evaluation. This training may be conducted concurrent with the License Preparatory Reactor Operator Training Program as necessary to assure adequate station operating staff. Figure 304.0-1 summarizes entry-level prerequisites, experience and training criteria and applicability for senior reactor operator candidates.

A. Classroom Training

A minimum of 6 weeks training will be provided consisting of the topics listed in the Production Training Services Catalog Section 9.0, Operations. Catalog subsections are specific for each nuclear station. Training will be approached from a supervisory aspect with course length beyond the minimum determined by experience and depth of knowledge of the trainees. The following subjects are being taught at all three nuclear stations:

1. Reactor Theory
2. Thermodynamics
3. Chemistry
4. Health Physics
5. Administrative
6. Electrical
7. Primary and Secondary systems
8. Instrumentation and Controls
9. Procedures
10. Transients and Accidents
11. Fuel Handling

B. On-the-Job Training

The program will include a minimum of 480 hours training on shift as an extra person. This phase of training will include completion of the SRO License Training Task List. SRO candidates not previously licensed will complete the RO License Training Task List and perform 5 reactivity changes as described in the License Preparatory Reactor Operator Program.

C. Simulator Training

Each trainee will participate in a minimum of 5 weeks of simulator training during which emphasis will be placed on the administrative, technical, and leadership roles of a Senior Reactor Operator.

The following subjects are covered:

1. Simulator Familiarization
2. Normal Operations
3. Abnormal Operations
4. Emergency Operations
5. Nuclear Operator Team Training

The Simulator Instructional Staff will evaluate trainee performance.

D. Team Skills Training

Training in understanding human behavior, communications, diagnostic skills & problem solving, leadership and stress management is provided to all SRO license candidates. This training includes simulator practical exercises involving trainee response to varying situations and a critique of video taped responses. This topic is approximately one week in duration.

E. Review and Evaluation

A period of approximately one week will be utilized for administration of an audit written and oral examination given to evaluate the trainee's ability to successfully complete the licensing examination and a period for review. Examination and results of the audit examination will be documented in the individual's training file. If evaluation by management determines a need for additional training prior to the NRC licensing examination date, a reassignment for future license training will be made.

VI. RECORDS

Training records for each individual will be maintained and shall contain the following:

- A. Written examination results including trainee's responses
- B. On-the-job training documentation
- C. Records of reactivity changes*
- D. Evaluations made by training staff
- E. Startup certification *
- F. Documentation of training participation

* as applicable

OPERATIONS ETQS
SENIOR REACTOR OPERATOR CANDIDATES

LICENSING CRITERIA

APPLICABILITY

<u>Experience:</u>	<u>SRO</u> <u>DEGREED</u>	
4 years Power Plant (Naval or other)	X**	X**
2 years Nuclear Plant	X	X
1 year as licensed RO or SRO	X	
0.5 year Nuclear Plant to be licensed	X	X

Training:

Complete Initial/Basic Operator Training requirements	X	X
Complete Introduction to Systems Specific course	X	X
Complete minimum 6 weeks classroom training	X	X
Complete 480 hours as extra person on shift	X	X
Complete 5 reactivity changes on the plant*	X	X
Complete startup certification*	X	X
Complete minimum 5 weeks simulator training	X	X
Complete RO License Training Task List*	X	X
Complete SRO License Training Task List	X	X

Education:

4 year degree Engineering or Applied Science		X
High School diploma or equivalent	X	X

* as applicable

** A maximum of 2 years power plant experience may be fulfilled by academic or related technical training on a one-for-one time basis excluding time spent in SRO training. (Denton's letter March 28, 1980)

NUCLEAR PRODUCTION DEPARTMENT
EMPLOYEE TRAINING & QUALIFICATIONS SYSTEM

STANDARD #: 306.0

SUBJECT: PERIODIC TRAINING LICENSED OPERATOR REQUALIFICATION

PAGE #: 1 REVISION #: 1 DATE REVISED 11/29/86 DATE EFFECTIVE

I. OBJECTIVE

This standard describes the training necessary to maintain the qualifications appropriate to the responsibilities of individual's designated as Reactor Operators and Senior Reactor Operators.

II. BACKGROUND

10 CFR 55, Appendix A requires all licensed operators to participate in an approved requalification program. The requalification program for Duke Power Company's nuclear stations is designed to maintain and demonstrate the continued competence of all licensed operators. This program will be conducted on an annual basis and will include a comprehensive written examination, formal requalification lectures, simulator training, and simulator examinations.

III. LECTURE SERIES

The continuing training program for operators shall include planned training sessions conducted on a regular and continuing basis. The training sessions should include two types of lecture series as follows:

A. Fundamentals Review Lecture Series

The Fundamentals Review Lecture Series covers areas in which the knowledge required is infrequently used but important to a safe and reliable operation. The Fundamentals Review Lecture topics should include review of the following:

1. Reactor Theory and Principles of Operations - including core parameters
2. Heat Transfer, Coolant Flow and Thermodynamics
3. Features of Facility Design - including plant systems
4. General and Specific Plant Operating Characteristics - including expected response to equipment failures
5. Plant Instrumentation and Control Systems
6. Plant Protection Systems
7. Engineered Safety Systems

8. Radiation Control and Safety and Plant Chemistry
9. Applicable Portions of Title 10, Chapter I, Code of Federal Regulations
10. Fuel Handling
11. Transient and Accident Analysis

B. Operational Proficiency Lecture Series

The Operational Proficiency Lecture topics are selected to ensure review of essential plant operational guidelines and to ensure operational changes and experiences are integrated into the training. Operational Proficiency Lecture topics should include the following:

1. Normal, Abnormal and Emergency Operating Procedures
2. Critical Safety Functions Monitoring
3. Prevention and Mitigation of Core Damage
4. Technical Specifications
5. Administrative Procedures, Conditions and Limitations
6. Major Operational Evolutions
7. Facility Design and Licensing Changes
8. Procedures Changes
9. Related Nuclear Industry and In-house Operating Experiences

C. Lecture Series Selection

Lessons to be selected for the Fundamentals Review Lecture Series should be from those listed in the Production Training Services Catalog Section 9.0, Operations.

Topics presented in the Operational Proficiency Lecture Series should include, as appropriate, the topics listed in Section III.B of this standard unless the applicable information is covered in another appropriate manner.

The scope and depth of the lecture series should be determined by operating experience, feedback on licensee's job performance, simulator evaluations, general results of the comprehensive annual examination or the segmented annual examination, task related training based on FREQUENCY (how often performed), IMPORTANCE (seriousness of consequences to reactor safety) and DIFFICULTY and 10CFR55, Appendix A as required.

D. Planned Lecture Schedule

The Planned Lecture Series should be scheduled on an annual basis. Lectures may be deferred due to unanticipated events but should be conducted as soon as possible.

It should include separate training segments typically involving 100 contact hours annually of instruction divided among the program topics and appropriately scheduled throughout the year. Study periods should be scheduled in conjunction with planned lecture series to provide trainees an opportunity to reinforce the lecture series learning experience and to study new or additional material.

Lectures, seminars, discussions, problem solving sessions, examinations and self study periods that include an available instructor are considered contact hours under this definition. (Self study with an available instructor should not constitute more than 20% of the 100 contact hours required by this standard.)

Licensed Training Staff shall participate in appropriate sections of requalification to assure they are cognizant of current operating history, plant problems, station modifications, changes to procedures, etc., and will participate in the portion of the segmented exams that pertain to these areas.

E. Lecture Series Evaluation

The lecture series should be evaluated by conducting evaluations of trainee's knowledge as compared to the course learning objectives.

After each lecture or each group of lectures all trainees should take a written examination covering the lecture topics. The examination should contain questions related to the lesson plan objectives covered during the lecture. All lecture topics covered during the training session should be represented by questions in the examinations.

Examinations should be evaluated and a grade determined for each trainee. Performance standards for Lecture Series Evaluation and required retraining are described in Section VI of this standard. Up to two licensed instructors may be exempted from each examination segment by virtue of preparing and grading the exam.

F. Annual Requalification Examination

To determine each licensed operator's knowledge of topics covered in the continuing training program and provide a basis for determining areas in which retraining is needed, an annual requalification examination shall be given.

The annual examination should be given to all licensed personnel prior to the completion of each annual continuing training program cycle and should consist of a simulator performance evaluation utilizing the Accident Assessment Examination and a written examination covering the material presented in the fundamentals review lecture series and the operational proficiency lecture series. Up to two licensed instructors may be exempted from each examination segment by virtue of preparing and grading the exam.

If the reactor operator and the senior reactor operator training programs are INPO accredited and a plant referenced simulator is used, the primary means of measuring operator knowledge and skills should be the simulator Accident Assessment Examination. In this case, comprehensive written exams given at the conclusion of each training segment would serve as a means of measuring training effectiveness for material presented in each segment rather than an annual comprehensive written examination given at the completion of all lecture series attendance. Up to two licensed instructors may be exempted from each examination segment by virtue of preparing and grading the exam.

Licensed Reactor Operators who are enrolled in the License Preparatory Senior Reactor Operator Program will be exempted from all Requalification Training required for the duration of their SRO Training. Licensed individuals who successfully complete the NRC License Examination within 6 months prior to an annual requalification written examination may be exempted from taking that examination and the simulator examination.

All other licensed operators regardless of job title shall complete annual examinations.

IV. SKILLS TRAINING AND EVALUATION

Each individual shall demonstrate competency by participating in reactivity manipulations and plant evolutions during nuclear plant simulator exercises to the extent not provided by actual plant operation. During simulator exercises the scenarios should emphasize the importance of team work, diagnostic skills, appropriate response to plant conditions, ability to use procedures and compliance with the unit's Technical Specifications.

A. Reactivity Manipulations

Annually each licensed operator shall participate in a variety of reactivity control manipulations. These include normal, abnormal and emergency evolutions as listed below and other evolutions identified as needed to improve performance.

- *1. Plant or Reactor startups to include a range that reactivity feedback from nuclear heat addition is noticeable and heatup rate is established.
2. Plant shutdown

- *3. Manual control of steam generators and/or feedwater during startup and shutdown.
- 4. Boration and/or dilution during power operations.
- *5. Any significant (greater than 10%) power changes in manual rod control.
- *6. Loss of coolant including:
 - a. significant steam generator leaks
 - b. inside and outside primary 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 if required for safety
- 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 or rods (or rod drops)
- 18. Inability to drive control rods
- 19. Conditions requiring use of emergency boration or standby liquid control system
- 20. Fuel cladding failure or high activity in reactor coolant or offgas.
- 21. Turbine or generator trip
- 22. Malfunction of automatic control system(s) which affect activity.

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)

* Note: Required annually; all others required every two years.

Operating crews should be trained as a team including technical advisors or other support personnel who are assigned responsibilities on the shift operations team during emergencies or plant transients.

Each licensed operator shall complete nuclear plant simulator sessions involving at least 20 hours on an annual basis. Post exercise critiques conducted at the simulator may be considered as part of the direct interaction session. Instructors who conduct Licensed Requalification Simulator Training or License Preparatory Simulator Training are considered to meet the requirements of this section for the Reactivity Manipulations they have taught.

B. Simulator Performance Evaluations

The annual evaluation of performance should be conducted by using the plant simulator. Simulator performance evaluations should be conducted utilizing an Accident Assessment Examination.

The technique requires freezing the simulator at predetermined points to allow trainees to collect data of the status of the plant. This data is then used as references from which to answer written examination questions. The level of questioning should be consistent with the individual's job requirements. The questions should be based upon continuing training program learning objectives.

V. OPERATIONAL REVIEW

Operational Review provides a system for review of selected operational experiences and changes to existing operating guidance and equipment.

Technical Specifications, selected operating procedures, emergency procedures and abnormal procedures will be reviewed according to a formal schedule. The effectiveness of this review will be evaluated by testing on the annual written examination.

NOTE: In the event segmented exams are used in place of an annual comprehensive written exam (see Section III F, 3rd paragraph) the effectiveness of the operational review will be evaluated by testing on each segment exam.

Applicable changes to operating procedures, facility design changes and revision to technical specifications will be reviewed in a timely fashion consistent with the significance of impact on reactor safety. If the significance of the changes requires training, the station Operations Group will determine the method of coverage (i.e., short term resolution through on-shift initiated training or long term resolution through the requalification program).

VI. SPECIAL RETRAINING PROGRAMS

Special retraining programs for licensed individuals may be required to refresh and upgrade knowledge skills related to licensed duties.

A. Remedial Requalification Program

The remedial requalification program is for individuals having identified deficiencies requiring assignment to a special retraining effort. Licensed individuals meeting one or more of the following criteria should be assigned to a remedial requal session.

1. Less than 80% on the annual simulator performance Accident Assessment Examination.
2. Less than 70% on the lecture series exams.
3. Less than 80% on the individual category of the annual segmented requalification written examination.

Item 3 above only applies if comprehensive written exams given at the conclusion of each training segment would serve as a means of measuring training effectiveness for material presented in each segment rather than an annual comprehensive written exam given at the completion of all lecture series attendance.

Examination categories in which performance standards were not met should be covered in the program.

The remedial requalification program may involve a variety of training exercises including planned lectures, directed self study and skills training exercises on the plant simulator. Program durations should be dictated by the extent of training required to improve trainee performance.

Successful completion of the remedial requalification training should be determined by administering an examination. The examination format should be similar to the original examination. Successful completion of the remedial examination is required based on the applicable criteria listed above.

In the event that this standard is not met, the Senior Instructor shall provide a recommendation to plant management regarding the individual's removal from licensed duties and/or additional upgrading efforts to be considered. If appropriate another remedial requalification program should be structured to correct the deficiency.

B. Temporary Removal from Licensed Duties

The removal from licensed duties is for individuals having significant identified deficiencies requiring assignment to a special retraining effort to enable the individual to increase his knowledge level for that area in a timely fashion.

Licensed individuals meeting one or more of the following criteria should be removed from licensed duties and enrolled in a remedial retraining program.

1. Significant licensed duty performance deficiencies identified by the Operations Superintendent.
2. Less than 70% on the annual simulator performance Accident Assessment Examination.
3. Less than 70% on an individual category or less than 80% overall on the annual requalification written examination

The removal from licensed duties should commence within one day of identifying the deficiency.

The remedial retraining program may involve a variety of training exercises including planned lectures, directed self study and skills training exercises on the plant simulator. Examination categories in areas in which performance standards were not met should be covered in the program. Program durations should be dictated by the extent of training required to improve trainee performance.

Successful completion of the remedial retraining shall be determined by administering an examination. The examination format should be similar to the original examination. Successful completion of the remedial examination is required based on the applicable criteria listed above.

In the event these standards are not met the individual's suitability for returning to licensing duties will be reviewed by the Operations Superintendent. The training instructor should provide a recommendation to plant management regarding the individual's permanent removal from licensed duties or additional upgrading efforts to be considered. If appropriate, another Remedial Requalification training program should be structured to correct the deficiencies.

VII. EVALUATION

The performance and competency of operators will be evaluated by several means.

1. Operators will be evaluated on their knowledge concerning material presented in the Fundamentals Review Lecture Series and Operational Proficiency Lecture Series by the annual written examination.
2. The performance during simulator training of licensed operators and senior operators will be evaluated by a simulator performance evaluation Accident Assessment examination.
3. At least annually, each Shift Supervisor will submit a performance appraisal to the Operations Superintendent evaluating the performance of each licensed operator under his/her supervision during normal and abnormal operating conditions. However, deficiencies in performance of license duties shall be evaluated in a more timely manner and depending on severity, recommendations made to the Operations Superintendent for resolution.
4. The Operations Superintendent or designee shall review these reports. On the basis of the evaluations and recommendations submitted, the Operations Superintendent or designee will recommend special training classes and if necessary removal from shift duties pending satisfactory resolution through training of identified deficiencies.
5. Prior to the license renewal, the Operations Superintendent or designee will review each operator's performance and competency based on the above information. Based on this review, a recommendation for license renewal or for specialized training prior to license renewal will be made.

VIII. REQUALIFICATION PROGRAM RECORDS

Records of individuals performance in the requalification program shall be maintained in an auditable manner. Records will be maintained that contain the following:

1. Written examination results including trainee's responses
2. Written examination questions and answer keys
3. Lecture series attendance records
4. Records of the number and type of reactivity changes
5. Simulator attendance records
6. Operational review documentation