



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 56 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

V. LICENSE TRAINING PROGRAMS

A. General Information

1. Introduction

A training program and schedule shall be established for each nuclear plant to initially develop and maintain an organization fully qualified to be responsible for the operating and technical aspects of the nuclear plant involved. The program shall be formulated to provide the required training based on individual employee experience and intended position. The program shall also satisfy NRC licensing requirements. The training program shall be such that fully trained and qualified operating personnel are available in the necessary numbers at the time required. In all cases, the objective of training programs shall be to ensure safe and efficient operation of the facility. Training programs shall be kept up-to-date to reflect plant modifications and changes in procedures. A continuing program shall be used after plant startup for training of replacement personnel and for retraining to ensure that personnel remain proficient.

Training goals consistent with NRC licensing requirements shall be established for RO and SRO license applicants. Preparation of training programs shall cover the subject matter required in the program outlines to the extent necessary to assure that individuals meet the appropriate requirements and are adequately prepared for examination by NRC.

2. Positions requiring licensed personnel

The following individuals occupying permanent positions at each nuclear plant shall be required to hold an SRO license: operations supervisor, assistant operations supervisor, SE, and ASE. Unit operators shall hold an RO license. All license requirements must be fulfilled at the time of core loading or appointment to the permanent position.

Any individual holding a temporary position shall be responsible to the SE-SRO, and must coordinate with and keep informed the ASE-SRO on the licensed units of activities and system alignments required for the safe and efficient operation of the plant.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 57 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

POTC and facility instructors who teach systems, integrated responses, transient and simulator courses shall demonstrate their competence by successful completion of a senior operator examination and shall be enrolled in the appropriate requalification program.¹⁵ All POTC and facility instructors shall demonstrate their competence by successful completion of the program as described in Program Manual Procedure No. 0202.03, "Instructor Certification Program."

Engineering personnel who are candidates for SRO licenses shall meet all Federal regulations applicable to the issuance of such licenses. TVA shall consider such applications on a case-by-case basis.

3. Training for licensed personnel

The following pages of this document describe the various programs utilized in the training of personnel who will take NRC examinations seeking either RO or SRO licenses. These training programs are:

- a. Cold License Program (PWR)
- b. Hot License Programs (PWR)

- (1) RO
- (2) SRO

- c. Hot License Programs (BWR)

- (1) RO
- (2) SRO

- d. Requalification (BWR/PWR)

4. Operator license examinations or renewal applications shall be completed in accordance with Program Manual Procedure No. 0201.09, "Applications for NRC Operator License Examinations or Renewals". Any correspondence in regard to applications or renewals shall be processed only by NTB personnel.

¹⁵NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.d and e.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 58 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

B. Cold License Program (PWR)

1. Purpose

This program is designed to prepare candidates to operate TVA's nuclear power plants in a safe and efficient manner. This program also prepares the candidates to take NRC RO or SRO license examinations.

2. Description

The Cold License Program normally consists of six subprograms. The subprograms are:

a. Onsite training

- (1) Onsite lecture series¹⁶ - this is a combination of lectures and self study, designed to familiarize each candidate with the design criteria, operating characteristics, license requirements, and plant/equipment layout. Primary and secondary systems will be discussed in depth.

This phase of training will be conducted at the specific plant site by operators who have completed similar training, and by other qualified members of the plant staff, as necessary, on particular systems.

The minimum length of this training shall be five weeks.

- (2) Practical work assignments and onsite training¹⁷ - this is a combination work and training period which covers all systems, components, and administrative and operating procedures for the plant. Formal system lectures are supplemented by extensive construction site walkthroughs to observe systems and components during installation. During this period, operating procedures and detailed checklists will be prepared. It includes participation in the system checkouts and preoperational testing program and preparation of written operating instructions. The length of this period varies with the different job classifications. There are no documentation requirements for these assignments.

¹⁶ANS 3.1, December 17, 1981, Section 5.2.1.2.

¹⁷Ibid., Section 5.2.1.4.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 59 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

b. License certification training

The program is at least 12 weeks in length, and is comprised of classroom lectures and simulator operations. Written tests are administered periodically on the classroom work covered and tests are given on the simulator to check student progress. A review, a comprehensive written examination, and a certification oral and operating test are given at the end of the program. Satisfactory completion of the program meets one of the eligibility requirements needed to take an NRC cold license examination.

Related technical training for trainees in the Cold License Program should cover the following general subjects:¹⁸

- (1) Principles of reactor operation
- (2) Design features of the nuclear power plant involved
- (3) General operating characteristics of the nuclear plant involved
- (4) Instrumentation and control systems
- (5) Safety and emergency systems
- (6) Standard and emergency operating procedures
- (7) Radiation control and safety provisions
- (8) Reactor theory
- (9) Handling and disposal of, and hazards associated with, radioactive materials
- (10) Specific operating characteristics of the nuclear plant involved
- (11) Fuel handling and core parameters
- (12) Administrative procedures, conditions, and limitations
- (13) Fundamentals of heat transfer, thermodynamics, and fluid flow as related to transient analysis.

Emphasis shall be placed on reactor and plant transients and training in the use of installed plant systems to control or mitigate an accident in which the core is severely damaged.¹⁹

¹⁸ANS 3.1, December 17, 1981, Section 5.2.1.1. and 5.2.1.6.

¹⁹NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.c.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 60 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

c. Small reactor training

Each cold license candidate shall participate in a supervised program at a research or power reactor during which the individual shall perform 10 reactor startups. This training shall also include instructions, applications and hands-on experience relating to the following subjects:²⁰

(1) Principles of reactor operation

- (a) Atomic structure and radioactivity
- (b) Nuclear reaction and the fission process
- (c) Neutron behavior and control of the fission process
- (d) Core and Nuclear Steam Supply (NSS) characteristics thermal hydraulic design

(2) Reactor instrumentation and control systems

(3) Radiation control and safety provisions

Completion of this training is documented by the reactor facility and associated forms are sent to the POTC to be included in trainee's records.

This course is conducted at Oak Ridge National Laboratory or Georgia Institute of Technology.

d. Observation training at a comparable operating PWR plant

This is a formal, documented program conducted by TVA at an operating PWR. It consists of overall plant familiarization, system walkthroughs, participation in and observation of operating evolutions. All cold license applicants who have not previously held an operator's license at a comparable licensed reactor facility will participate in this program. Since all of the applicants will participate in system lectures at their own plant, this program will stress participation in observation of operating evolutions. The participants will be encouraged to learn the cause and means of correcting problems encountered with equipment similar to their plant. The progress of all participants in this program will be monitored by the training shift engineer or operator training section supervisor who will receive weekly reports of the time spent on particular systems for each week. The weekly time reports will be used to verify that all safety-related systems are studied during this program.

²⁰ANS 3.1, December 17, 1981, Section 5.2.1.1.

General Revision



MAR 15 1985

Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 61 DATE _____PROCEDURE
NO. _____ 0202.05

e. Training for Senior Operator Candidates

Senior candidates shall receive SRO/supervisory training. This training consists of the following topics:

- (1) SRO training²¹, review of:
 - (a) Reactor theory
 - (b) Handling and disposal of, and hazards associated with, radioactive materials
 - (c) Specific operating characteristics of the nuclear power plant involved
 - (d) Fuel handling and core parameters
 - (e) Administrative procedures, conditions, and limitations
 - (f) Chemistry and radiochemistry
 - (g) Operating philosophy, use of procedures, shift relief turnover, and verification of system status
 - (h) Fundamentals of heat transfer, thermodynamics, fluid flow, and dynamics as related to transient analysis
 - (i) Responsibilities during emergency conditions
- (2) Supervisory training²²
 - (a) Leadership
 - (b) Interpersonnel communication
 - (c) Command responsibilities and limits
 - (d) Motivation of personnel
 - (e) Problem analysis
 - (f) Decisional analysis
 - (g) Administrative requirements for the particular supervisory position

²¹ANS 3.1, December 17, 1981, Section 5.2.1.6.

²³ibid., Section 5.2.1.8.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 62 DATE MAR 15 1995

PROCEDURE
NO. 0202.05

f. Prelicense training

This program is delivered immediately prior to the NRC cold license examinations. The program consists of classroom training, simulator operations training, and plant walkthrough. The following subjects will be covered:

- (1) Plant procedures and their bases
- (2) Administrative Instructions (AIs)
- (3) Advanced transient and accident analysis
- (4) Radiological Emergency Plan (REP)
- (5) Radiation and environmental monitoring
- (6) Fuel handling
- (7) Technical Specifications
- (8) Unit startup to full power
- (9) Unit shutdown to cold shutdown conditions
- (10) Review of operating instructions and technical specifications
- (11) Plant instrumentation and control
- (12) Nuclear instrumentation
- (13) Plant transients and accident analysis
- (14) Xenon, delta flux, and quadrant power tilt calculations
- (15) Mitigation of accidents involving a degraded core
- (16) Health Physics
- (17) Fundamentals of heat transfer, thermodynamics, and fluid flow as related to transient analysis.
- (18) Nuclear theory review
- (19) Small and large loss-of-coolant accidents
- (20) Loss of secondary coolant
- (21) Safety injection termination
- (22) Natural circulation cooldown
- (23) Steam generator tube leaks

Following the completion of the prelicense program, NRC cold license examinations will be administered.

A five-day general review and operations refresher program shall be administered by the applicable simulator training section of the Operator Training Group on at least an annual basis for individuals when delays are encountered in plant startup and/or administering NRC exams.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 63 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

g. Cold License Program Outline

<u>No of Weeks</u>		<u>Location/Type</u>
<u>RO</u>	<u>SRO</u>	
5	5	Plant/Onsite Lecture Series
12	12	Plant/License Certification Training
1	1	Small Reactor Training
8	8	Observation at a Comparable PWR Plant
	1	SRO/Supervisory Training (POTC or plant)
1	1	POTC or Plant/TVA and NRC Examination
<u>27</u>	<u>28</u>	Total

Note: Segments of this program may be lengthened at the discretion of the plant training section supervisor or training shift engineer.

3. Prerequisites for entering the Cold License Program

NRC regulations require that applicants for reactor operator and senior reactor operator licenses meet certain minimum requirements of training and experience as set forth in NRC regulations and standards.

All NRC requirements shall be met by the RO and SRO applicant and the license renewal applicant and attested to by the Manager, Office of Nuclear Power, or his designated representative.²³

Applicants must have satisfactorily completed the NOTP or the following courses or equivalent prior to entering the Cold License Program: Basic Nuclear Course and Plant Technology Course or NPPFC.

Assistant unit operator applicants must have passed the preliminary portion of the nuclear UO accrediting examination.

²³NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.3.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 64 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

Applicants for RO licenses shall have two years of responsible power plant experience. One year of this experience shall be at the nuclear plant for which the applicant seeks a license. This one year of experience shall have included six months of plant operational duties as a nonlicensed operator.²⁴

Note: Precritical applicants will be required to meet unique qualifications designed to accommodate the fact that their facility has not yet been in operation.

Applicants for SRO licenses shall have four years of responsible power plant experience. A maximum of two 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 power plant experience.²⁵

During the two years, the individual shall have participated in RO activities at an operating nuclear power plant during the following periods:²⁶

- a. Six weeks operation above 20 percent power
- b. Startup from subcritical to 20 percent power (SE only)
- c. Shutdown from above 20 percent power to cold (less than 212°F) and subcritical (SE only)
- d. Startup preparations following a refueling outage (SE only)

4. Evaluation and documentation

Standard forms are used by the instructors to report evaluation of operator performance in the classroom and on the simulator.

The Certification and Prelicense final oral examinations should be administered by TVA personnel who have not been directly involved with the applicants as an instructor. The TVA examiner shall hold an SRO license or shall be certified at the SRO level on a plant similar to the plant for which the candidate is applying for a license.

²⁴NRC requirement, NUREG-1021, Standard ES-109, Section B.1.

²⁵NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.1.a.

²⁶ANS 3.1, December 17, 1981, Section 4.3.1.1.



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PROCEDURE
NO. 0202.05

The following constitutes the criteria for removal of a student from license training:²⁷

- a. Less than 70 percent on two consecutive written weekly examinations
- b. An average of less than 80 percent for five consecutive weeks on written weekly examinations
- c. An overall weekly examination grade average of less than 80 percent
- d. A score of less than 80 percent overall or less than 70 percent for any section of the TVA final written examination
- e. Use of unauthorized reference or instructional material during written examinations or receiving assistance from unauthorized personnel during written examinations is considered a violation of testing integrity and shall result in the immediate removal of the individual(s) from licensed operator training pending further disciplinary action.
- f. Unsatisfactory progress as determined by the Chief, Nuclear Training Branch or Plant Training Review Board.

Time limits shall be imposed for completion of the final written examinations as follows:²⁸

- a. Reactor Operator (RO) 6 hours
- b. Senior Reactor Operator (SRO) 6 hours

The passing grade for the written examination shall be 80 percent overall and 70 percent in each category.²⁹

All applicants for SRO licenses shall be required to be administered an operating test as well as the written examination.³⁰

Applicants shall grant permission to NRC to inform their facility management regarding the results of the examinations.³¹

²⁷Darrel G. Eisenhut, Director, Division of Licensing, NRC, to all Power and non-Power Reactor Licensees, Applicants for an Operating License, and Holders of a Construction Permit (Generic Letter 83-17), April 8, 1983.

²⁸Darrel G. Eisenhut, Director, Division of Licensing, NRC, to all Power Reactor Licensees and Applicants for Operating Licenses, December 16, 1981.

²⁹NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section B.1.d.

³⁰Ibid., Section B.1.e.

³¹Ibid., Enclosure 3, Section B.1.f.



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 66 DATE MAR 15 1985
PROCEDURE
NO. 0202.05

Records shall be maintained which include sufficiently detailed updated information to adequately document the participation record of each operator in training. The records shall contain copies of written examinations administered, the answer given by the licensee, results of evaluation, and documentation of any additional training administered in areas in which an operator has exhibited deficiencies.

Refer to part VII of this procedure for QA record requirements.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 67 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

C. Hot License Programs (PWR)

1. RO Hot License Program (PWR)

a. Purpose

The purpose of this program is to prepare candidates to operate TVA's nuclear plants in a safe and efficient manner. This program also prepares candidates for the RO hot license examination administered by NRC.

b. Description

The RO training is conducted at the assigned plant and at the POTC. The Sequoyah program is at least 30 weeks in length and the Watts Bar program at least 34 weeks.

Each RO candidate attends a 12-week license certification program, consisting of classroom lectures and simulator operations training. At the end of this phase of training, each candidate is required to successfully complete a written and an oral certification examination. The following technical topics are addressed during the RO Hot License Program, which are the same as those for the Cold License Program:

- (1) Principles of reactor operation
- (2) Design features of the nuclear power plant involved
- (3) General operating characteristics of the nuclear plant involved
- (4) Instrumentation and control systems
- (5) Safety and emergency systems
- (6) Standard and emergency operating procedures
- (7) Radiation control and safety provisions
- (8) Fundamentals of heat transfer, thermodynamics, and fluid flow as related to transient analysis³²

³²NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.c.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 68 DATE MAR 15 1985
PROCEDURE
NO. 0202.05

The certified RO trainee shall be assigned to a unit control room as an extra operator for observation and hands-on training for a period of three months.³³ The trainee shall be under the direct supervision of a licensed RO and will only perform duties associated with control room activities. The trainee will be allowed to move between unit control rooms and various plant areas so as to receive the maximum amount of experience possible.

In the Sequoyah program, the certified RO trainee will then return to the POTC and receive four weeks of prelicense training consisting of four hours of classroom and four hours of simulator operations per day. In the Watts Bar program, the certified RO trainee will then enter eight weeks of prelicense training consisting of system walkthroughs and classroom instruction. Of this time, two weeks will be at the POTC for simulator training consisting of four hours classroom and four hours simulator instruction per day. (This requirement will be modified upon receipt of a Watts Bar plan' referenced simulator.) Related technical training for candidates at the RO level should cover a review of the following subjects:

- (1) Unit startup to full power
- (2) Unit shutdown to cold shutdown conditions
- (3) Review of operating instructions and technical specifications
- (4) Plant instrumentation and control
- (5) Nuclear instrumentation
- (6) Plant transients and accident analysis
- (7) Xenon, delta flux, and quadrant power tilt calculations
- (8) Mitigation of accidents involving a degraded core
- (9) Health Physics
- (10) Fundamentals of heat transfer, thermodynamics, and fluid flow as related to transient analysis
- (11) Nuclear theory review
- (12) Small and large loss-of-coolant accidents
- (13) Loss of secondary coolant
- (14) Safety injection termination
- (15) Natural circulation cooldown
- (16) Steam generator tube leaks

³³NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.b.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 69 DATE _____
PROCEDURE
NO. 0202.05

c. Prerequisites

NRC regulations require that RO applicants meet certain minimum requirements of training and experience as set forth in NRC regulations and standards.

All NRC requirements shall be met by the RO license applicant and shall be attested to by the Manager, Office of Nuclear Power, or a designated representative.³⁴

Candidates entering the program will have graduated from the NOTP or have equivalent experience and have served a minimum of 12 months in grade as an accredited AUO.

Applicants must have satisfactorily completed the NOTP or the following courses or equivalent prior to entering the Hot License Program: Basic Nuclear Course and Plant Technology Course or the NPPFC.

Assistant unit operator applicants must have passed the preliminary portion of the nuclear UO accrediting examination.

At least six months of the nuclear power plant experience shall be at the plant for which he seeks a license.³⁵

d. Evaluation and documentation

- (1) The following constitutes the criteria for removal of a student from license training:³⁶
 - (a) Less than 70 percent on two consecutive written weekly examinations
 - (b) An average of less than 80 percent for five consecutive weeks on written weekly examinations
 - (c) An overall weekly examination grade average of less than 80 percent
 - (d) A score of less than 80 percent overall, or less than 70 percent for any section of the TVA final written examination

³⁴NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.3.

³⁵NRC requirement, NUREG-1021, Standard ES-109, Section B.1.b.

³⁶Darrell G. Eisenhut, Director of Licensing, NRC, to all Power and non-Power Reactor Licensees, Applicants for an Operating License and Holders of a Construction Permit (Generic Letter 83-17), April 8, 1983.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 70 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

- (e) Use of unauthorized reference or instructional material during examinations or receiving assistance from unauthorized personnel during written examinations is considered a violation of testing integrity and shall result in the immediate removal of the individual(s) from licensed operator training pending further disciplinary action.
 - (f) Unsatisfactory progress as determined by the Chief, Nuclear Training Branch or Plant Training Review Board.
- (2) During the plant portion of the RO Hot License Program, the following documentation is maintained for each trainee:
- (a) Time spent in three months' training on shift
 - (b) Summary of activity during the three months' training period
 - (c) Plant reactivity changes
- (3) During the license certification and the prelicense training portions of the RO Hot License Program, the following documentation is completed:
- (a) Classroom evaluation with examinations and grades (certification only) and final written examination
 - (b) Training evaluation
 - (c) Trainee's attendance
 - (d) Individual participation in an educational activity
- (4) The simulator training evaluation for each trainee is reviewed by the appropriate simulator section supervisor, the plant training section supervisor or training shift engineer, and the Supervisor, Operator Training Group, or a designated representative. If additional training is determined necessary, then the evaluation shall be reviewed by the Chief, Nuclear Training Branch and by the Plant Training Review Board. The amount of additional training will be established by the board or the Chief, Nuclear Training Branch.

General Revision

Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PROCEDURE

NO. 0202.05

- (5) At the conclusion of the certification training phase of the RO Hot License Program, a certification written and oral examination shall be administered in the same format as currently used by NRC. The oral examination should be administered by TVA personnel who have not been directly involved with the applicant's training. The TVA examiner shall hold an SRO license or be certified at the SRO level on the plant for which the candidate is applying for certification.
- (6) At the conclusion of the prelicense training phase of the RO Hot License Program, a final written examination in NRC format and an oral audit shall be administered by TVA personnel prior to the NRC license examination.
- (7) A six-hour time limit shall be imposed for completion of the final certification and also for the final RO prelicense written examination.³⁷

The passing grade for the written examination shall be 80 percent overall and 70 percent in each category.³⁸

All applicants for RO licenses shall be required to be administered an operating test as well as the written examination.³⁹

Applicants shall grant permission to NRC to inform their facility management regarding the results of the examination.⁴⁰

³⁷Darrel G. Eisenhut, Director, Division of Licensing, NRC, to all Power Reactor Licensees and Applicants for Operating Licenses, December 16, 1981.

³⁸NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section B.1.d.

³⁹Ibid., Section B.1.e.

⁴⁰Ibid., Section B.1.f.



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 72 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

Records shall be maintained which include sufficiently detailed, updated information to adequately document the participation record of each operator in training. The records shall contain copies of written examinations administered, the answers given by the licensee, results of evaluations, and documentation of any additional training administered in areas in which an operator has exhibited deficiencies.

Refer to part VII of this procedure for QA record requirements.

e. RO Hot-License Program outline (PWR)

<u>No. of weeks</u>		<u>Location/Type</u>
<u>Sequoyah</u>	<u>Watts Bar</u>	
12	12	POTC/License certification training
13	13	Plant control room observation
4	8	Plant or POTC prelicense training
<u>1</u>	<u>1</u>	POTC or plant/TVA and NRC examinations
<u>30</u>	<u>34</u>	

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 73 DATE MAR 15 1995

PROCEDURE
NO. 0202.05

2. SRO Hot License Program (PWR)

a. Purpose

The purpose of this program is to prepare candidates to operate TVA's nuclear plants in a safe and efficient manner. This program also prepares individuals to take the SRO examination administered by NRC.

b. Description

The SRO training is conducted at the assigned plant and at the POTC. The Sequoyah program is at least 21 weeks in length and the Watts Bar program at least 25 weeks.

Each SRO candidate shall be assigned to a unit control room as an extra man on shift for observation and hands-on training for a period of three months.⁴¹ The trainee will be under the direct supervision of a licensed SRO and shall perform duties associated with control room activities. The trainee will be allowed to move between unit control rooms and various plant areas so as to receive the maximum amount of experience possible.

Upon completion of observation and hands-on training, each SRO candidate shall receive three weeks of SRO/supervisory training, after which the SRO candidate is enrolled in prelicense training. In the Sequoyah program, the candidate participates in four weeks of RO and SRO integrated training conducted at the POTC. In the Watts Bar program, the SRO candidate receives eight weeks of prelicense training consisting of system walkthroughs and classroom instruction. Of this time two weeks will be spent at the POTC for integrated RO and SRO simulator training (this requirement will be modified upon receipt of a Watts Bar plant-referenced simulator).

The use of RO and SRO integrated training is desirable, for it allows each SRO candidate to function in a supervisory capacity during simulator operations and allows for review of general topics in the classroom.

⁴¹NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.a.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 74 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

The three-week SRO/supervisory training phase consists of the following topics:

- (1) SRO training⁴², Review of
 - (a) Reactor theory
 - (b) Handling and disposal of, and hazards associated with, radioactive materials
 - (c) Specific operating characteristics of the nuclear power plant involved
 - (d) Fuel handling and core parameters
 - (e) Administrative procedures, conditions, and limitations
 - (f) Chemistry and radiochemistry
 - (g) Operating philosophy, use of procedures, shift relief turnover, and verification of system status
 - (h) Fundamentals of heat transfer, thermodynamics, fluid flow, and dynamics as related to transient analysis
 - (i) Responsibilities during emergency conditions

- (2) Supervisory training⁴³
 - (a) Leadership
 - (b) Interpersonnel communication
 - (c) Command responsibilities and limits
 - (d) Motivation of personnel
 - (e) Problem analysis
 - (f) Decisional analysis
 - (g) Administrative requirements for the particular supervisory position

Emphasis shall be placed on reactor and plant transients and training in the use of installed plant systems to control or mitigate an accident in which the core is severely damaged.⁴⁴

The plant walkthrough and integrated training phase consists of topics previously described in the RO Hot License Program. After successful completion of SRO prelicense training, each candidate takes the NRC SRO hot license examination.

⁴²ANS 3.1, December 17, 1981, Section 5.2.1.6.

⁴³Ibid., Section 5.2.1.8.

⁴⁴NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.c.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 75 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

c. Prerequisites

Applicants for SRO licenses shall have four years of responsible power plant experience. A maximum of two 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 power plant experience.⁴⁵

Applicants for SRO licenses shall have held an RO license for one year and shall hold a current RO license.⁴⁶

NRC regulations require that applicants for RO and SRO licenses meet certain minimum requirements of training and experience as set forth in various NRC regulations and standards.

All NRC requirements shall be met by the RO and SRO license applicant and the license renewal applicant and attested to by the Manager, Office of Nuclear Power, or a designated representative.⁴⁷

d. Evaluation and documentation

(1) The following constitutes the criteria for removal of a student from license training:⁴⁸

- (a) Less than 70 percent on two consecutive written weekly examinations
- (b) An average of less than 80 percent for five consecutive weeks on written weekly examinations
- (c) An overall weekly examination average of less than 80 percent
- (d) A score of less than 80 percent overall, or less than 70 percent for any section of the TVA final written examination

⁴⁵NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.1.a.

⁴⁶Ibid., Section A.1.b.

⁴⁷Ibid., Section A.3.

⁴⁸Darrell G. Eisenhut, Director of Licensing, NRC, to all Power and non-Power Reactor Licensees, Applicants for an Operating License and Holders of a Construction Permit (Generic Letter 83-17), April 8, 1983.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 76 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

- (e) Use of unauthorized reference or instructional material during written examinations or receiving assistance from unauthorized personnel during written examinations is considered a violation of testing integrity and shall result in the immediate removal of the individual(s) from licensed operator training pending further disciplinary action.
 - (f) Unsatisfactory progress as determined by the Chief, Nuclear Training Branch or Plant Training Review Board.
- (2) During the plant portion of the SRO Hot License Program, the following documentation is maintained for each trainee.
- (a) Time spent in three months' training on shift
 - (b) Summary of activity during the three months' training period
 - (c) Plant reactivity changes
- (3) During the prelicense training portion of the SRO Hot License Program the following documentation is completed:
- (a) Final written examination
 - (b) Training evaluation
 - (c) Trainees' attendance
 - (d) Individual participation in an educational activity
- (4) The simulator training evaluation for each trainee is reviewed by the appropriate simulator section supervisor, the plant training section supervisor or training shift engineer, and the Supervisor, Operator Training Group or a designated representative. If additional training is determined necessary, then the evaluation shall be reviewed by the Chief, Nuclear Training Branch and by the Plant Training Review Board. The amount of additional training will be established by the board or the Chief, Nuclear Training Branch.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 77 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

- (5) At the conclusion of the prelicense training phase of the SRO Hot License Program, a written examination in current NRC format and an oral audit shall be administered by TVA personnel prior to the NRC license examination.
- (6) A six-hour time limit shall be imposed for completion of the final SRO written examinations.⁴⁹

The passing grade for the written examination shall be 80 percent overall and 70 percent in each category.⁵⁰

All applicants for SRO licenses shall be required to be administered an operating test as well as the written examination.⁵¹

Applicants shall grant permission to NRC to inform their facility management regarding the results of the examinations.⁵²

Records shall be maintained which include sufficiently detailed, updated information to adequately document the participation record of each operator in training. The records shall contain copies of written examinations administered, the answers given by the licensee, results of evaluations, and documentation of any additional training administered in areas in which an operator has exhibited deficiencies.

Refer to part VII of this procedure for QA record requirements.

⁴⁹Darrel G. Eisenhut, Director, Division of Licensing, NRC, to All Power Reactor Licensees and Applicants for Operating Licenses, December 16, 1981.

⁵⁰NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section B.1.d.

⁵¹Ibid., Section B.1.e.

⁵²Ibid., Section B.1.f

General Revision



MAR 15 1985

PAGE 78 DATE _____

Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PROCEDURE
NO. 0202.05

e. SRO Hot License Program outline - PWR

<u>No. of weeks</u>		<u>Location/Type</u>
<u>Sequoyah</u>	<u>Watts Bar</u>	
13	13	Plant control room observation
3	3	SRO/Supervisory training
4	8	Plant or POTC prelicense training
<u>1</u>	<u>1</u>	Plant and POTC/TVA and NRC examination
21	25	Total

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 79 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

D. Hot License Program (BWR)

1. RO Hot License Program (BWR)

a. Purpose

The purpose of this program is to prepare candidates to operate TVA's BWR plant in a safe and efficient manner. This program also prepares candidates for the RO hot license examination administered by NRC.

b. Description

The RO training is at least a 30-week program which is conducted at the assigned plant and simulator.

The plant portion of the Hot License Program is conducted in the control room, classroom, and throughout the plant.

The simulator portions of the Hot License Program are conducted in the classroom and simulator control room.

Related technical training for trainees in the Hot License Program at the RO level is as follows:

- (1) Principles of reactor operation
- (2) Design features of the nuclear plant involved
- (3) General operating characteristics of the nuclear plant involved
- (4) Instrumentation and control systems
- (5) Safety and emergency systems
- (6) Standard and emergency operating procedures
- (7) Radiation control and safety provisions
- (8) Fundamentals of heat transfer, thermodynamics, fluid flow, and dynamics as related to transient analysis⁵³

The RO trainee shall be assigned to a unit control room as an extra operator for observation and hands-on training for a period of three months.⁵⁴ The trainee shall be under the direct supervision of a licensed RO and will only perform duties associated with control room activities. The trainee will be allowed to move between unit control rooms and various plant areas so as to receive the maximum amount of experience possible.

⁵³NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.c.

⁵⁴Ibid., Section A.2.b.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 80 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

The RO trainee will receive at least five weeks of prelicense training consisting of four hours of classroom and four hours of simulator operations per day. Related technical training for candidates at the RO level should cover a review of the following subjects:

- (1) Unit startup to full power
- (2) Unit shutdown to cold shutdown conditions
- (3) Review of operating instructions and technical specifications
- (4) Plant instrumentation and control
- (5) Nuclear instrumentation
- (6) Plant transients and accident analysis
- (7) Operations involving possible core damage
- (8) Health Physics
- (9) Reactor heat transfer and fluid flow
- (10) Nuclear theory review
- (11) Small and large loss of coolant accidents

c. Prerequisites

NRC regulations require that RO applicants meet certain minimum requirements of training and experience as set forth in NRC regulations and standards.

All NRC requirements shall be met by the RO license applicant and shall be attested to by the Manager, Office of Nuclear Power, or a designated representative.⁵⁵

Candidates entering the program will have graduated from the NOTP or have equivalent experience and have served a minimum of 12 months in grade as an accredited AUO.

Applicants must have satisfactorily completed the NOTP or the following courses or equivalent prior to entering the Hot License Program: Basic Nuclear Course and Plant Technology Course or the NPPFC.

Assistant unit operator applicants must have passed the preliminary portion of the nuclear UO accrediting examination.

At least six months of the nuclear power plant experience shall be at the plant for which he seeks a license.⁵⁶

⁵⁵NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.3

⁵⁶NRC requirement, NUREG-1021, Standard ES-109, Section B.1.b.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 81 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

d. Evaluation and documentation

- (1) The following constitutes the criteria for removal of a student from license training:⁵⁷
 - (a) Less than 70 percent on two consecutive written weekly examinations
 - (b) An average of less than 80 percent for five consecutive weeks on written weekly examinations
 - (c) An overall weekly examination grade average of less than 80 percent
 - (d) A score of less than 80 percent overall, or less than 70 percent for any section of the TVA final written examination
 - (e) Use of unauthorized reference or instructional material during written examinations or receiving assistance from unauthorized personnel during written examinations is considered a violation of testing integrity and shall result in the immediate removal of the individual(s) from licensed operator training pending further disciplinary action.
 - (f) Unsatisfactory progress as determined by the Chief, Nuclear Training Branch or Plant Training Review Board.

- (2) During the plant portion of the Hot License Program, the following documentation is maintained:
 - (a) Copies of examinations and grades
 - (b) Control room evaluation
 - (c) Trainee's attendance
 - (d) Plant reactivity changes
 - (e) Individual participation in an educational activity

⁵⁷Darrell G. Eisenhut, Director of Licensing, NRC, to all Power and non-Power Reactor Licensees, Applicants for an Operating License and Holders of a Construction Permit (Generic Letter 83-17) April 8, 1983.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 82 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

- (3) During the simulator portion of the Hot License Program, the following documentation is completed:
 - (a) Copies of examinations and grades
 - (b) Trainee's attendance
 - (c) Training evaluation sheet
 - (d) Individual participation in an educational activity
- (4) The simulator training evaluation for each trainee is reviewed by the appropriate simulator section supervisor, plant training section supervisor, and the Supervisor, Operator Training Group, or a designated representative. If additional training is determined necessary, then the evaluation shall be reviewed by the Chief, Nuclear Training Branch and by the Plant Training Review Board. The amount of additional training will be established by the board or the Chief, Nuclear Training Branch.
- (5) At the conclusion of the certification training phase of the SRO Hot License Program, a certification examination should be administered by TVA personnel who have not been directly involved with the applicant's training. The TVA examiner shall hold an SRO license or be certified at the SRO level on the plant for which the candidate is applying for certification.
- (6) At the conclusion of the prelicense training phase of the RO Hot License Program, a written examination in current NRC format and an oral audit shall be administered by TVA personnel prior to the NRC examination.
- (7) A six-hour time limit shall be imposed for completion of the final RO written certification and also for the prelicense examinations.⁵⁸

⁵⁸Darrel G. Eisenhut, Director, Division of Licensing, NRC, to all Power Reactor Licensees and Applicants for Operating Licenses, December 16, 1981.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 83 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

The passing grade for the written examination shall be 80 percent overall and 70 percent in each category.⁵⁹

All applicants for RO licenses shall be required to be administered an operating test as well as the written examination.⁶⁰

Applicants shall grant permission to NRC to inform their facility management regarding the results of the examination.⁶¹

Records shall be maintained which include sufficiently detailed, updated information to adequately document the participation record of each operator in training. The records shall contain copies of written examinations administered, the answers given by the licensee, results of evaluations, and documentation of any additional training administered in areas in which an operator has exhibited deficiencies.

Refer to part VII of this procedure for QA record requirements.

e. RO Hot License Program outline (BWR)

<u>No. of Weeks</u>	<u>Location/Type</u>
13	Plant control room
10	Plant classroom
5	Simulator and classroom
1	Plant walkthrough
1	Plant classroom review/NRC
	Exams
<u>30</u>	Total

⁵⁹NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1., Harold R. Denton letter, Enclosure 1, Section B.1.d.

⁶⁰NRC requirement, NUREG-1021, Standard ES-301, Section B

⁶¹NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1., Harold R. Denton letter, Enclosure 1, Section B.1.f.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 84 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

2. SRO Hot License Program (BWR)

a. Purpose

The purpose of this program is to prepare candidates to operate TVA's BWR plant in a safe and efficient manner. This program also prepares the candidate to take the SRO hot license examination administered by NRC.

b. Description

The SRO training is at least a 27-week program which is conducted at the assigned plant and simulator.

The plant portion of the Hot License Program is conducted in the control room and classroom and throughout the plant.

The simulator portions of the Hot License Program are conducted in the classroom and the simulator control room.

The SRO trainee shall have three months of shift training as an extra man on shift.⁶² The trainee shall be under the direct supervision of a licensed SRO and will perform duties associated with the SRO position. The trainee will be allowed to move between unit control rooms and various plant areas so as to receive the maximum amount of experience possible.

Related technical training for the trainees at the SRO level covers the following general subjects:⁶³

- (1) Reactor theory
- (2) Handling and disposal of, and hazards associated with, radioactive material
- (3) Specific operating characteristics of the nuclear plant involved
- (4) Fuel handling and core parameters
- (5) Administrative procedures, conditions, and limitations
- (6) Chemistry and radiochemistry
- (7) Operating philosophy, use of procedures, shift and relief turnover, and verification of system status
- (8) Fundamentals of heat transfer, thermodynamics, fluid flow, and dynamics as related to transient analysis
- (9) Responsibilities during emergency conditions

⁶²NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.a.

⁶³ANS 3.1, December 17, 1981, Section 5.2.1.6.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 85 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

Emphasis shall be placed on reactor and plant transients and training in the use of installed plant systems to control or mitigate an accident in which the core is severely damaged.⁶⁴

Included in the 27-week SRO training program is one week of supervisory training consisting of the following topics:⁶⁵

- (1) Leadership
- (2) Interpersonnel communication
- (3) Command responsibilities and limits
- (4) Motivation of personnel
- (5) Problem analysis
- (6) Decisional analysis
- (7) Administrative requirements for the particular supervisory position

c. Prerequisites

Applicants for SRO licenses shall have four years of responsible power plant experience. A maximum of two 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 power plant experience.⁶⁶

Applicants for SRO licenses shall have held an RO license for one year and shall hold a current RO license.⁶⁷

NRC regulations require that applicants for reactor operator and senior reactor operator licenses meet certain minimum requirements of training and experience as set forth in various NRC regulations and standards.

All NRC requirements shall be met by the RO and SRO license applicant and the license renewal applicant and attested to by the Manager, Office of Nuclear Power, or a designated representative.⁶⁸

⁶⁴NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.c.

⁶⁵ANS 3.1, December 17, 1981, Section 5.2.1.8.

⁶⁶NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Sections A.1.a.

⁶⁷Ibid., Section A.1.b.

⁶⁸Ibid., Section A.3.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 86 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

d. Evaluation and documentation

- (1) The following constitutes the criteria for removal of a student from license training:⁶⁹
 - (a) Less than 70 percent on two consecutive written weekly examinations
 - (b) An average of less than 80 percent for five consecutive weeks on written weekly examinations
 - (c) An overall weekly examination grade of less than 80 percent
 - (d) A score of less than 80 percent overall, or less than 70 percent for any section of the TVA final written examination
 - (e) Use of unauthorized reference or instructional material during written examinations or receiving assistance from unauthorized personnel during written examinations is considered a violation of testing integrity and shall result in the immediate removal of the individual(s) from licensed operator training pending further disciplinary action.
 - (f) Unsatisfactory progress as determined by the Chief, Nuclear Training Branch or the Plant Training Review Board.
- (2) During the plant portion of the Hot License Program, the following documentation is maintained for each trainee:
 - (a) Control room evaluation with copies of examinations and grades
 - (b) SRO evaluation
 - (c) Trainee's attendance
 - (d) Individual participation in an educational activity

⁶⁹Darrell G. Eisenhut, Director of Licensing, NRC, to all Power and non-Power Reactor Licensees, Applicants for an Operating License and Holders of a Construction Permit (Generic Letter 83-17) April 8, 1983.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 87 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

- (3) During the simulator portion of the Hot License Program, the following documentation is completed:
 - (a) Copies of examinations and grades
 - (b) Trainee's attendance
 - (c) Training evaluation
 - (d) Individual participation in an educational activity
- (4) The simulator training evaluation for each trainee is reviewed by the appropriate simulator section supervisor, plant training section supervisor and the Supervisor, Operator Training Group, or a designated representative. If additional training is determined necessary, then the evaluation shall be reviewed by the Chief, Nuclear Training Branch and by the Plant Training Review Board. The amount of additional training will be established by the board or the Chief, Nuclear Training Branch.
- (5) At the conclusion of the certification training phase of the SRO Hot License Program, a certification examination should be administered by TVA personnel who have not been directly involved with the applicant's training. The TVA examiner shall hold an SRO license or be certified at the SRO level on the plant for which the candidate is applying for certification.
- (6) At the conclusion of the prelicense training phase of the SRO hot license program, a written examination in current NRC format and oral audit shall be administered by TVA personnel prior to the NRC license examination.
- (7) A six-hour time limit shall be imposed for completion of the final SRO certification and also for the prelicense examination.⁷⁰

The passing grade for the written examination shall be 80 percent overall and 70 percent in each category.⁷¹

All applicants for SRO licenses shall be required to be administered an operating test as well as the written examination.⁷²

⁷⁰Darrel G. Eisenhut, Director, Division of Licensing, NRC, to all Power Reactor Licensees and Applicants for Operating Licenses, December 16, 1981.

⁷¹NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section B.i.d.

⁷²Ibid., Section B.1.e.

General Revision



MAR 15 1985

Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 88 DATE _____

PROCEDURE
NO. 0202.05

Applicants shall grant permission to NRC to inform their facility management regarding the results of the examination.⁷³

Records shall be maintained which include sufficiently detailed, updated information to adequately document the participation record of each operator in training. The records shall contain copies of written examinations administered, the answers given by the licensee, results of evaluations, and documentation of any additional training administered in areas in which an operator has exhibited deficiencies.

Refer to part VII of this procedure for QA record requirements.

e. SRO Hot License Program outline (BWR)

<u>No. of Weeks</u>	<u>Location/Type</u>
13	Plant control room
10	Plant classroom
1	Simulator
1	Plant walkthrough
1	Plant classroom review/NRC exams
1	Supervisory training
<u>27</u>	Total

⁷³NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section B.1.f.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 89 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

E. Requalification Program

1. Purpose

The purpose of the Requalification Program is to provide the licensed individuals of TVA's nuclear plants a review of various technical aspects, operating characteristics, abnormalities, and major transients on the nuclear units and to provide hands-on experience in manipulating or directing the manipulation of the plant controls in response to any unit conditions.

This program provides a means for all licensed individuals to maintain a high level of competence in their license activities.

This program satisfies all of the NRC requirements for requalification training.

2. Description

The overall requalification program consists of two distinct phases. One deals with a formal lecture and simulator training series, a minimum of four weeks in length, delivered annually by simulator and plant instructors. The other deals with various OJT requirements performed over a two-year cycle at each plant.

A licensee is required to attend a minimum of 32 hours during each of his or her scheduled requalification weeks.

During the annual classroom sessions, preplanned lectures shall be conducted. Topics of discussion during the preplanned lectures shall be selected from those listed below, in areas where annual operator and senior operator written examinations indicate that emphasis in scope and depth of review coverage is needed.⁷⁴

⁷⁴NRC requirements, Items a through i 10 CFR 55, January 1984 Appendix A.2; Items j through l, NUREG-0737, Enclosure 2, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section C.1.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 90 DATE MAR 15 1995

PROCEDURE
NO. 0202.05

- a. Theory and principles of nuclear power plant operation
- b. General and specific plant operating characteristics
- c. Plant instrumentation and control systems
- d. Plant protection systems
- e. Engineered safeguards systems
- f. Normal, abnormal, and emergency operating procedures
- g. Radiation control and safety
- h. Technical Specifications
- i. Applicable portions of NRC rules and regulations
- j. Fundamentals of heat transfer, thermodynamics, fluid flow, and dynamics as related to transient analysis.
- k. Mitigation of accidents involving a degraded core
- l. Licensee Event Reports (LER), Significant Operating Event Reports (SOER) and Significant Event Reports (SER)
- m. Radiological Emergency Plan

Emphasis shall be placed on reactor and plant transients.

During simulator training, preplanned simulator exercises shall be conducted which include selected reactivity control manipulations in order to satisfy the requirements of 10 CFR 55, Appendix A.3.2 and NUREG-0737. TVA's simulators reproduce the facilities' operating characteristics with a high degree of fidelity, and the arrangement of the instrumentation and controls either exactly duplicates or is very similar to the facilities involved. These reactivity control manipulations shall be used to satisfy in whole or in part the requirement that during the two-year requalification cycle each licensed RO shall manipulate the plant controls, and each licensed SRO shall manipulate the controls or direct the activity of individuals during plant control manipulations through at least ten reactivity control manipulations that demonstrate skill and/or familiarity with the reactivity control systems. These manipulations shall consist of some combination of reactor startups, reactor shutdowns, or other control manipulations.⁷⁵

The Onshift Retraining for Licensed Personnel, consists of various OJT requirements performed over a two-year cycle.⁷⁶ The requirements are:

- a. Informing operations personnel of nuclear operating experience, facility design changes, and facility license/Technical Specification changes.

⁷⁵NRC requirement, 10 CFR 55, Appendix A.3.a.

⁷⁶Ibid., Appendix A.1.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 91 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

- b. Monthly review of plant operating instructions.
- c. Plant operating instruction revision/review
- d. Onsite Group Training. (PWR)
Supplemental Training (BWR)
- e. Licensed operator performance evaluations.
- f. Shift reactivity changes.

To satisfy these requirements the following actions are taken:

At licensed facilities, each licensed RO and SRO shall be supplied periodically with design changes, procedure changes and facility license changes. Each licensee shall be required to read and initial a documentation sheet attesting to the review of these changes. This documentation sheet shall be placed in the plant files.⁷⁷

Each BWR licensee shall be supplied monthly with a list of emergency operating instructions and the abnormal section of operating instructions. The plant training section supervisor shall see that each licensee reviews these instructions.⁷⁸

Each PWR licensee shall be supplied monthly with a list of emergency operating instructions and abnormal operating instructions. Each PWR training section supervisor or training shift engineer shall see that each licensee reviews these instructions.⁷⁹

Each licensee (BWR and PWR), after reviewing the assigned instructions, shall initial the documentation sheet. The documentation sheet shall be kept in the respective plant files.

⁷⁷NRC requirement, 10 CFR 55, Appendix A, paragraph 3.c.

⁷⁸Ibid., Appendix A.3.d.

⁷⁹Ibid.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 92 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

Onsite group training or supplemental training is the responsibility of the plant training section supervisor or training shift engineer, and may be used to discuss any of the following topics:⁸⁰

- a. Licensee Event Reports
- b. Power Reactor Event Reports (NRC)
- c. Appropriate clearing house releases
- d. Significant changes to Standard Practices and Operations Section Letters
- e. Changes to Technical Specifications
- f. Recent equipment problems
- g. Operator errors
- h. General plant status
- i. Other miscellaneous items as identified by the Operations Supervisor, training section supervisor or training shift engineer
- j. Time may be used for monthly review of EOIs and AOI/abnormal section of OIs.

Each licensed operator who is assigned shift duties shall receive a performance evaluation by systematic observation and evaluation of shift operations. Coordination of this effort, distribution of forms, maintenance of evaluations status, and retention of documentation shall be the responsibility of the plant training SE or operator training section supervisor.

Each licensed reactor operator and senior reactor operator shall manipulate the plant controls during the term of their license such that they perform 10 reactivity control manipulations. The SE of each shift crew is responsible for verification of reactivity control manipulations for his shift. The training section supervisor or training shift engineer is responsible for tracking of reactivity changes and retention of documentation in the training files. The operator shall also receive credit toward this requirement by conducting reactivity control manipulations on the simulator for his plant.⁸¹

⁸⁰NRC requirement, 10 CFR 55, Appendix A, paragraph 2.
⁸¹Ibid., paragraph 3.a.



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 93 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

3.1 Control manipulations

The following control manipulations and plant evolutions,⁸² where applicable to BWR and/or PWR plant design, are acceptable for meeting the reactivity control manipulations required by Appendix A, paragraph 3.a. of 10 CFR Part 55, January 1984. Multiple failure casualties shall be included in the programs. Each individual shall perform or participate in a combination of reactivity control manipulations which may be performed as part of normal plant evolutions. Those manipulations which are not performed at the plant shall be performed on the simulator. Personnel with SRO licenses are credited with these activities if they direct or evaluate control manipulations as they are performed.

The items indicated by a plus sign (+) shall be performed on an annual basis; all other items shall be performed over the two-year requalification cycle. The plant training section supervisor or training shift engineer and the associated simulator section supervisor are responsible for ensuring these items are completed properly; the malfunction listing/initial condition listing for each simulator shall be encoded in order to show which malfunctions or evolutions will satisfy each of the listed items.

- + a. Plant or reactor startups to include a range that reactivity feedback from nuclear heat addition is noticeable and heatup rate is established
- b. Plant shutdown
- + c. Manual control of steam generators and/or feedwater during startup and shutdown
- d. Boration and/or dilution during power operation
- + e. Any significant (10 percent) power changes in manual rod control or recirculation flow
- f. Any reactor power change of 10 percent or greater where load change is performed with load limit control or speed control is on manual

⁸²NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 4, and 10 CFR 55 Appendix A, paragraph 3.a.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PROCEDURE
NO. 0202.05

- +g. Loss of coolant including:
 - (1) Significant PWR steam generator leaks
 - (2) Inside and outside primary containment
 - (3) Large and small, including leak-rate determination
 - (4) Saturated reactor coolant response (PWR)
- h. Loss of instrument air (if simulated plant specific)
- i. Loss of electrical power (and/or degraded power sources)
- +j. Loss of core coolant flow/natural circulation
- k. Loss of condenser vacuum
- l. Loss of service water if required for safety
- m. Loss of shutdown cooling
- n. Loss of component cooling system or cooling to an individual component
- o. Loss of normal feedwater or normal feedwater system failure
- +p. Loss of all feedwater (normal and emergency)
- q. Loss of protective system channel(s)
- r. Mispositioned control rod or rods (or rod drops)
- s. Inability to drive control rods
- t. Conditions requiring use of emergency boration or liquid control system
- u. Fuel cladding failure or high activity in reactor coolant or off-gas
- v. Turbine or generator trip
- w. Malfunction of automatic control system(s) which affects reactivity
- x. Malfunction of reactor coolant pressure/volume control system
- y. Reactor trip
- z. Main steam line break (inside or outside containment)
- aa. Nuclear instrumentation failure(s)

Any licensee who is away from license duties for a period of four months or longer shall be given a minimum of 40 hours to review all instructions and plant status changes. This review shall include facility design, procedure and license changes which have occurred during the licensee's absence.

A written and/or oral evaluation shall be conducted and the same criteria that is used for the annual evaluation shall apply. The plant training section supervisor or training shift engineer shall be responsible for the evaluation.

When the plant training section supervisor or training shift engineer determines the licensee's knowledge and understanding of the facility operation and administration are satisfactory, they shall notify the Plant Training Review Board, which will then recommend to the Commission via the Nuclear Training Branch that he be allowed to resume license activities.⁸³

⁸³NRC requirement, 10 CFR 55, January 1984, paragraph 55.31(e).



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 95 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

3.2 In order to maintain familiarity with various provisions to safely shut down the reactor from outside the main control room, the following shall be included as part of the annual retraining plan for each licensed individual.⁸⁴

- a. Training sessions shall be conducted that discuss proper utilization of backup controls.
- b. Annually a training session shall include at least a discussion of the procedure for abandonment of the main control room and a walkthrough operation of the auxiliary (backup) control room.

4. Prerequisites

Individuals attending the requalification program should have an NRC RO or SRO license, and shall be enrolled in appropriate requalification programs to assure they are cognizant of current operating history, problems, and changes to procedures and administrative limitations.

5. Evaluation and documentation

Licensed personnel shall receive the following evaluations during requalification training:

- a. Proctored written examinations shall be given at the end of week 1 and 2 (simulator) requalification training. An average grade of less than 80% for week 1 or week 2 requires a repeat of lecture attendance for the entire week and a retake of all examinations administered during that week. A grade of less than 70% on any examination section requires a repeat of that lecture and that examination section.⁸⁵

⁸⁴NRC requirement, 10 CFR 55, January 1981, paragraph 55.21(h) and 55.23(f).

⁸⁵NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section C.2.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 96 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

- b. Separate proctored RO and SRO written examinations shall be administered annually to the respective licensed operators.⁸⁶

The annual written RO and SRO examinations shall each have a six-hour time limit. Examination formats shall be similar to the format currently used by NRC.

A score of 70 percent in each category of the annual written examination is considered passing; however, an average score of 80 percent or above for all categories of the examination must be maintained by the licensee.⁸⁷ If a licensee scores below 70 percent on any category or averages below 80 percent overall, the licensee shall be removed from licensed duties and placed in accelerated retraining.

Any licensee assigned to accelerated retraining shall achieve a score equal to or greater than 70 percent on any category and an overall score equal to or greater than 80 percent before resuming the duties of the licensed position. Approval by the Plant Training Review Board after review of the training and examination is required before the licensee may reassume the duties of the licensed position.

Unproctored examinations, take-home examinations and on-shift tests allow ample opportunity for cheating which could go undetected and, therefore, are not an acceptable means for certifying individual performance. Portions of examinations may be conducted in an open-book format (e.g., use of steam tables on thermodynamics problems); however, adequate monitoring provisions shall be made by the proctor to ensure that persons being evaluated are working independently and are using only authorized instructional or reference materials.⁸⁸

⁸⁶NRC requirement, 10 CFR 55, Appendix A, paragraph 4.a.

⁸⁷NRC requirement, NUREG-0737, Enclosure 3, Section I.A.2.1, Harold R. Denton letter, Enclosure 1, Section B.1.d.

⁸⁸Darrell G. Eisenhut, Director, Division of Licensing, to all Power and non-Power Licensees, Applicants for an Operating License and Holders of a Construction Permit (Generic Letter 83-17), April 8, 1983.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 97 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

- c. At the conclusion of the simulator portion of the Requalification Program an oral/operational examination will be administered to each licensed operator. This examination will be based on specific simulator exercises to be performed which will provide an indication of operator knowledge of plant response during varying conditions. The operators will receive a pass/fail grade on the overall examination.

The results of the oral/operational examination shall be reviewed by the appropriate simulator section supervisor, the plant training section supervisor or training shift engineer, and the Supervisor, Operator Training Group or a designated representative. If additional training is determined necessary, then the evaluation shall be reviewed by the Chief, Nuclear Training Branch and by the Plant Training Review Board. The amount of additional training will be established by the board or the Chief, Nuclear Training Branch.

- d. The requalification program shall include systematic observation and evaluation of the performance and competency of licensed operators and senior operators by supervisors and/or training staff members including evaluation of actions taken or to be taken during actual or simulated abnormal and emergency conditions.⁸⁹
- e. If the evaluation is unsatisfactory as described in paragraph "d" above, the amount of additional training shall be determined by the Plant Training Review Board or Chief, Nuclear Training Branch. Refer to part VII of this procedure for QA record requirements.

⁸⁹NRC requirement, 10 CFR 55, Appendix A, paragraph 4.e.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 98 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

The following methods are used to document the various component parts of the requalification program:

- a. A training evaluation form is used to document classroom and simulator training. The form allows the instructor to evaluate each operator in class participation and performance during simulator exercises. A separate form is used to document the annual oral/operational examination. At the end of each training week the training evaluation form is reviewed, signed by the instructor(s), simulator section supervisor, and the Supervisor, Operator Training Group, and is officially transmitted to the appropriate plant for review and retention.
- b. At each plant, the signature sheets and/or initial sheets used to acknowledge review and understanding of materials shall be retained by the plant training section supervisor or training SE. These shall serve as documentation of review of revisions to procedures, facility design changes, facility license changes, and monthly procedure review.
- c. The plant training section supervisor or training SE shall coordinate the distribution, conduct, and retention of annual operator evaluations.
- d. Records of the requalification program shall be maintained for a period of at least two years from the date of the recorded event to document the participation of each licensed operator and senior operator in the requalification program. These QA records shall contain copies of written examinations administered, the answers given by the licensee, results of evaluations and documentation of any additional training administered in areas in which an operator or senior operator has exhibited deficiencies. Refer to part VII of this procedure for QA record requirements.

General Revision

Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 09 DATE MAR 15 1995

PROCEDURE
NO. 0202.05

Specific topics to be covered in requalification training will be selected during semi-annual meetings between each plant training section supervisor or plant training SE, operations section supervisor, and the applicable simulator staff. The responsibilities for material development and the development schedule will be established during the semiannual meeting. Selection of topics will be accomplished utilizing the general guidance offered by regulatory documents, pertinent industry current events, vendor bulletins, plant modifications, and by a review of past training records to determine indications of difficulties. Included in the topics shall be the evaluation of instructors, materials and simulator exercises. All materials shall be developed, reviewed, and approved in accordance with Program Manual Procedure No. 0202.01, "Training Development and Utilization." Minutes of these semi-annual meetings shall be taken and maintained on file.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 100 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

F. Refresher course

1. Purpose

There are several applications for the refresher program. Three of the applications are as follows:

- a. To serve as a final review for operators who have completed all required training for cold licensing, but due to delays, sufficient time has elapsed to warrant refresher training prior to taking the NRC cold license examination.
- b. To provide a refresher program for the licensed operator who has been away from licensed activities for a considerable time and, in the judgement of the Plant Training Review Board, needs training prior to resuming license activities.
- c. To provide a program for management and engineering personnel who are limited by their normal duties and need to periodically refresh themselves on plant operations.

2. Description

Plant technology and operation of the BWR or PWR plant are taught through a combination of classroom instruction and hands-on experience using the appropriate simulator.

This is a 40-hour program divided between the classroom and the simulator control room.

3. Prerequisites

All trainees shall have received prior training in nuclear power plant operations and be knowledgeable of the plant for which the training is conducted.

4. Evaluation and documentation

Written examinations shall be administered on material covered.

All simulator exercises for operators shall be evaluated.

All evaluation forms shall be routed to the appropriate simulator section supervisor for review, then to the Supervisor, Operator Training Group, or a designated representative for review. Upon review, the documentation forms are forwarded to the trainee's plant to be filed with the in-plant training records. Refer to part VII of this procedure for QA record requirements.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 101 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

VI. REVIEW OF NUCLEAR OPERATOR TRAINING PROGRAMS AND RELATED MATERIALS

A. Program Review

The Nuclear Operator Training Programs, nonlicensed and licensed, and related implementing procedures shall be reviewed by the Supervisor, Operator Training Group, or his designated representative to ensure that all requirements of this procedure are being met. This review shall occur annually, as a minimum. Program review shall also occur any time a significant decrease in the success rate of the participants in a specific program is indicated by results of examinations administered by TVA or NRC. Implementing procedure review shall occur annually, or any time significant revisions are made which affect program administration or content.

To support this review process, each nuclear plant training section supervisor or training shift engineer, each POTC simulator training section supervisor, and the POTC student training unit supervisor shall submit the following information annually (or upon request) to the Supervisor, Operator Training Group:

1. Annual training delivery schedules (initial and as-taught) for all portions of operator programs conducted at the POTC and at each individual plant site. These schedules shall be compared to the requirements stated in this procedure to ensure consistency.
2. Copies of standard practices or section instruction letters which describe the content and administration of operator programs. These procedures shall be compared to the requirements stated in this procedure to ensure consistency and to evaluate the need for revisions.

B. Material Review

Materials utilized to present lessons or exercises associated with operator training programs shall be developed by qualified personnel, reviewed for technical accuracy and approved by unit and section supervisors; reviewed for consistency with current educational standards and approved by the Instructor Certification and Staff Development Unit Supervisor and submitted to the Supervisor, Operator Training Group and the Chief, Nuclear Training Branch for approval in accordance with Program Manual Procedure No. 0202.01, "Training Development and Utilization."

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 102 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

Revisions to the materials shall occur based on:

1. Major plant/system/component modifications which change the skills required to perform the operator tasks. The determination of impact of the modifications shall be the responsibility of the plant training section supervisor or training SE.
2. Major operating instruction revisions, which change tasks required to be accomplished by the operators. The determination of impact of the instruction revision shall be the responsibility of the plant training section supervisor or training SE.
3. Feedback from personnel participating in programs. Feedback shall be solicited from students, reviewed by unit/section supervisors and evaluated for possible revision to materials.

Revisions to materials shall be made by qualified personnel, then reviewed and approved for technical accuracy by unit and section supervisors; reviewed for consistency with current educational standards and approved by the Instructor Certification and Staff Development Unit Supervisor and submitted to the Supervisor, Operator Training Group; and the Chief, Nuclear Training Branch for review and approval in accordance with Program Manual Procedure No. 0202.01, "Training Development and Utilization."

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 103 DATE MAR 15 1995

PROCEDURE
NO. 0202.05

VII. DOCUMENTATION OF TRAINING RECORDS

This section serves to implement Quality Assurance requirements as contained in NQAM, Part III, Section 4.1 for the retention and storage of training records maintained by the Operator Training Group. Detailed below are the records which document each training program, how the records are maintained, the retention period for each record, and the storage location.

A. NUCLEAR OPERATOR TRAINING PROGRAM

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453	QA Record-- NQAM Part III, Section 4.1	Lifetime	POTC Training Record and PHR
2. TVA Form 3031	Support Documen- tation (non-QA document)	6 years	POTC/Plant training file
3. TVA Form 7860	QA Record-- NQAM Part III, Section 4.1	6 years*	POTC/Plant training file
4. Step written examinations	QA Record-- NQAM Part III, Section 4.1	6 years*	POTC/Plant training file
5. Step oral examinations	QA Record-- NQAM Part III, Section 4.1	6 years*	POTC/Plant training file
6. Written examination grades	Support Documen- tation (non-QA document)	6 years	POTC/Plant training file
7. Failed written examinations and answer keys	Support Documen- tation (non-QA document)	6 years	POTC/Plant training file
8. Lesson plans	Original master and history of revisions	Lifetime	POTC/Plant training file

*Retained six years past employee's termination.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 104 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

A. NUCLEAR OPERATOR TRAINING PROGRAM (Continued)

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
9. Oral examination questions	Support Documentation (non-QA document)	Lifetime	POTC/Plant training file
10. Walkthrough examinations	Support Documentation (non-QA document)	6 years	Plant training file

B. NUCLEAR POWER PLANT FUNDAMENTALS COURSE

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record	Support Documentation (non-QA document)	6 years	Plant training file
3. Written examination master copies	Support Documentation (non-QA document)	6 years	Plant training file
4. Lesson plans	Original master and history of revisions	6 years	Plant training file
5. Examination scores (Weekly and final)	Support Documentation (non-QA document)	6 years	Plant training file
6. Final written examinations (Reactor theory and operation)	Support Documentation (non-QA document)	6 years	Plant training file

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 105 DATE _____
PROCEDURE
NO. 0202.05

C. PLANT SPECIFIC TRAINING

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record (as applicable)	Support Documen- tation (non-QA document)	6 years	Plant training file
3. Written exam- ination master copies	Support Documen- tation (non-QA document)	6 years	Plant training file
4. Checkoff list master copies	Support Documen- tation (non-QA document)	6 years	Plant training file
5. Oral examination master copies	Support Documen- tation (non-QA document)	6 years	Plant training file
6. Checkoff lists, individual	Support Documen- tation (non-QA document)	6 years	Plant training file
7. Examination scores (Weekly and final)	Support Documen- tation (non-QA document)	6 years	Plant training file
8. Oral examinations, individual	Support Documen- tation (non-QA document)	6 years	Plant training file

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 106 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

D. ASSISTANT UNIT OPERATOR REQUALIFICATION PROGRAM

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record	Support Documen- tation (non-QA document)	6 years	Plant training file
3. Written exam- ination master copies	Support Documen- tation (non-QA document)	6 years	Plant training office
4. Lesson plans	Original master and history of revisions	6 years	Plant training file
5. Examination scores	Support Documen- tation (non-QA document)	6 years	Plant training file

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 107 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

E. ELECTRICAL UPGRADE TRAINING PROGRAM

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453 (steps IIA, IIB, and III)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record	Support Documentation (non-QA document)	6 years	Plant training file
3. TVA Form 7860	Support Documentation (non-QA document)	6 years*	Plant training file
4. Written examinations	Support Documentation (non-QA document)	6 years	Plant training file
5. Oral examinations	Support Documentation (non-QA document)	6 years	Plant training file
6. Written examination grades	Support Documentation (non-QA document)	6 years	Plant training file
7. Failed written examinations (originals) and answer keys	Support Documentation (non-QA document)	6 years	Plant training file
8. Lesson plans	Original master and history of revisions	Lifetime	Plant training file
9. Oral examination questions	Support Documentation (non-QA document)	Lifetime	Plant training file

NOTE: Step 1 of Electrical Upgrade training is part of the NOTP administered at the POTC and is documented on the 1453 issued at the completion of the NOTP. The other steps are taught at the trainee's assigned plant and the documentation is retained there.

*Retain 6 years past employee's termination (NOTP students).

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PROCEDURE
NO. 0202.05

F. FUEL HANDLING AND INSPECTION CERTIFICATION

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. Letter of certification/recertification (Inspection Section 4.1 or handling)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record (if applicable)	Support documentation (non-QA document)	6 years	Plant training file

G. BASIC NUCLEAR AND PLANT TECHNOLOGY*

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record	Support documentation (non-QA document)	6 years	Plant training file
3. Examination scores	Support documentation (non-QA document)	6 years	Plant training file

*No longer part of the operator training curriculum.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 109 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

H. COLD AND HOT LICENSE TRAINING PROGRAMS

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453 (Each subprogram as applicable)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record (Each subprogram as applicable)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
3. Written examinations (originals)	Support Documentation (non-QA document)	Lifetime	Plant training file
4. Oral examinations (originals)	Support Documentation (non-QA document)	Lifetime	Plant training file
5. Written examinations (Individual weekly and final)*	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
6. Oral examinations (Individual finals)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
7. Lesson plans	Original master and history of revisions	Lifetime	Plant training file
8. Observation log/ summary of activities	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file

*Prelicense weekly examinations are given as practice for the NRC examination and are therefore not documented. The final examinations are retained as documentation.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 110 DATE MAR 15 1995

PROCEDURE
NO. 0202.05

H. COLD AND HOT LICENSE TRAINING PROGRAMS (Continued)

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
9. Small reactor training report (Cold license only)**	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
10. Classroom evaluation (Certification only)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
11. Training evaluation (plant and/or simulator)***	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file

**Issued by contracted training organization.

***For simulator, includes systems and/or malfunctions exercise and reactivity changes. Plant reactivity changes are documented in the plant control room evaluation. An SRO evaluation is included for SRO candidates.

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 111 DATE MAR 15 1985

PROCEDURE
NO. 0202.05

I. REQUALIFICATION TRAINING PROGRAM

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453 (Each segment)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
3. Written exam- inations (originals)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
4. Oral exam- inations (originals)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
5. Written exam- inations (Individual weekly and final)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
6. Oral examinations (Periodic audit and final)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
7. Training evaluation	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
8. Requalification manual	Original master and history of revisions	Lifetime	Plant training office
9. Signature/initial sheets	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file

General Revision



Title: NUCLEAR PLANT OPERATOR TRAINING PROGRAMS
(Formerly Procedure No. 2.2.5)

PAGE 112 DATE MAR 15 1995

PROCEDURE
NO. 0202.05

J. REFRESHER TRAINING PROGRAM

<u>TYPE OF DOCUMENT</u>	<u>HOW MAINTAINED</u>	<u>RETENTION PERIOD</u>	<u>STORAGE LOCATION</u>
1. TVA Form 1453	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
2. Attendance Record	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
3. Written exam- inations (originals)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
4. Oral exam- inations (originals)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
5. Written exam- inations (Individual)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
6. Oral exam- inations (Individual final if applicable)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file
7. Training evaluation (classroom and simulator)	QA Record-- NQAM Part III, Section 4.1	Lifetime	Plant training file

General Revision