

TENNESSEE VALLEY AUTHORITY

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FEB 17 1988

Mr. K. P. Barr, Acting Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. Barr:

In the Matter of) Docket Nos. 50-327, -328
Tennessee Valley Authority) 50-390, -391

TRANSFER OF LICENSED REACTOR OPERATORS FROM WATTS BAR NUCLEAR (WBN) PLANT TO
TRAIN FOR A REACTOR OPERATOR LICENSE ON SEQUOYAH NUCLEAR (SQN) PLANT

In our meeting in Atlanta on February 4, 1988, we discussed the proposed transfer of several licensed reactor operators from WBN to SQN. Pursuant to this meeting, we have reviewed the experience requirements for reactor operators contained in ANSI 3.1 (1981) as endorsed by Regulatory Guide 1.8 (1987). Understanding that these requirements will become effective March 31, 1988, we have reviewed the qualifications of those individuals scheduled to begin license training for SQN on February 15, 1988.

Our review identified that all qualification requirements will be met with the exception of the one-year facility experience requirement for individuals we propose to transfer from WBN. This also represents a deviation from the requirements of SQN's INPO-accredited program as described in Program Manual Procedure 0202.05, "Nuclear Plant Operator Training Program" (pages 82 through 96 enclosed) specifically section 6.3.3.a, "Experience." however, as described below, we believe the training these individuals have received in the WBN license training program, in addition to the training they will receive in the SQN license training program, represents sufficient experience and qualifications to deviate from those requirements.

We hereby request your concurrence with our proposal to deviate from the one-year facility experience requirement specified in ANSI 3.1 (1981), section 4.5.1.2.b for these individuals based upon the following qualifications.

Each reactor operator transferring from WBN to SQN:

1. Holds an NRC reactor operator license for WBN.
2. Has received eight weeks of on-the-job observation training at SQN during the WBN license training program.

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Mr. K. P. Barr

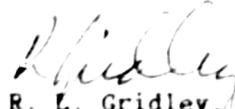
3. Has received seven weeks of SQN simulator training during the WBN license training program.
4. Will receive 17 weeks of SQN simulator training during the SQN license training program including two weeks of evaluation.
5. Will receive three months training as an extra operator on shift in the control room at SQN during the SQN license training program.

In addition, these individuals have considerable experience at WBN in both licensed and nonlicensed positions. Because WBN and SQN are of almost identical design, we request that this experience be credited as facility experience. NRC has previously recognized this similarity as evidenced by the waiver of the full examination process for WBN license candidates in the initial hold license examination given November 21-22, 1983.

If you have any further questions relative to this matter, please telephone C. H. Noe at (615) 874 1320.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


R. L. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosure

cc (Enclosure):

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Sequoyah Nuclear Plant
2600 Igou Ferry Road
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Watts Bar Nuclear Plant
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Spring City, Tennessee 37381

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Candidates shall be periodically evaluated by written examinations and oral/operational examinations on the simulator. At the end of this phase of training, each candidate is required to successfully complete a written and an oral certification examination.

Related technical training in the Certification program shall encompass the subjects detailed in the following regulatory documents as applicable to the facility and license sought (see attachment 8.1):

- a. 10 CFR 55.21, "Content of operator written examination"
- b. 10 CFR 55.23, "Scope of operator and senior operator operating tests" (RO level)
- c. NUREG-0737, Harold Denton's Letter, March 28, 1980, Enclosure 2, "Training in Heat Transfer, Fluid Flow, and Thermodynamics" and Enclosure 3, "Training Criteria for Mitigating Core Damage."

Emphasis shall be placed upon 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.²⁶ Training in accident and event diagnostics will be an integral part of the program.²⁷

During the RO Hot License Program, the RO trainee shall be assigned to a unit control room as an extra operator on shift for a period of at least 13 weeks.²⁸ The trainee shall be under the direct supervision of a licensed RO and the general supervision of the operator training group head and will only perform duties associated with control room activities. The trainee will be

²⁶NRC requirement NUREG-0737 Enclosure 3, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.c.

²⁷TVA commitment, Action Plan for Meeting, Industry Commitments made through NUMARC, November 20, 1984.

²⁸NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.b.



allowed to move between unit control rooms so as to receive the maximum amount of experience possible. While assigned to the control room, the trainee shall manipulate the controls of the facility during at least five significant reactivity changes, and every effort should be made to diversify reactivity changes.²⁹

Preliminary training shall be given to license candidates immediately prior to the NRC examination. In the Sequoyah program, the certified RO trainee will receive at least four weeks of preliminary 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 preliminary training consisting of system walkthrough and classroom instruction. Of this time, two weeks will be spent at the POTC for simulator training consisting of four hours of classroom and four hours of simulator per day. (This requirement will be modified upon receipt of a Watts Bar plant-referenced simulator). Related technical training shall consist of a review of the topics presented in the certification program. At the completion of the program, candidates are evaluated as to their competency to stand for the NRC examination.

6.3.3.3 Prerequisites for Enrollment

a. Experience

Applicants for RO licenses shall have a minimum of two years of power plant experience of which at least one year shall be nuclear power plant experience. The following may be considered as equivalent experience: The candidate demonstrates experience for one year as a licensed RO or SRO at another facility, or if the candidate demonstrates actual operating experience for one year in a position that is equivalent to a licensed operator or senior operator at military propulsion reactors. This experience may be substituted on a one-for-one basis.

²⁹NRC Requirement, NUREG-0094, Appendix F, Section C.4.

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Equivalent Navy ratings are (1) Propulsion Plant Watch Officer, (2) Engineering Watch Supervisor, (3) Engine Room Supervisor, (4) Reactor Operator, (5) Chief, Reactor Watch, (6) Engineering Officer of Watch, and (7) Propulsion Plant Watch Supervisor.³⁰

Of the one year of nuclear power plant experience, at least six months of nuclear power plant experience shall be at the facility for which the license is sought,³¹ and at least six months shall have been spent in the performance of duties as a nonlicensed operator.³²

The candidate shall have participated in reactor and plant operation at power levels up to at least 20-percent power operation.³³

Candidates entering the program shall have graduated from the NOTP or have equivalent experience and/or training and have served a minimum of 24 months performing the duties of an assistant unit operator or have equivalent experience.

b. Training

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

Applicants must have passed the preliminary portion of the Accrediting Examination for a Nuclear Plant Unit Operator.

³⁰NRC requirement, NUREG-1021, Standard EC-109, Section B.1.b.

³¹NRC requirement, NUREG-0094, Appendix F, Section C.2.

³²ANS 3.1, December 1981, Section 4.5.1.2b.

³³NRC requirement, NUREG-0094, Appendix F, Section C.3.



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c. Management Certification

NRC regulations require that applicants for RO licenses meet certain minimum requirements for training and experience as set forth in NRC regulations and standards. All NRC requirements shall be met by the RO license applicant and attested to by the Manager, ONP or his designated representative.³⁴

6.3.3.4 Evaluation and Documentation

The following constitutes the criteria for removal of a student from license training.³⁵

- 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 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 any TVA final written examination
- 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 license training pending further disciplinary action
- f. Unsatisfactory progress as determined by the Chief, Operator Training Branch or Plant Training Review Board

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

³⁵Letter from Darrell 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.



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During the plant control room portion of the Hot License Program, the following documentation is maintained:

- a. Time spent in thirteen weeks on shift
- b. Summary of activity during the 13-week training period
- c. Plant reactivity changes

During the certification and prelicense portions of the Hot License Program, the following documentation is maintained:

- a. Classroom evaluation with examinations and grades (certification only) and final written examination
- b. Trainee's attendance
- c. Training evaluation
- d. Individual participation in an educational activity

The simulator training evaluation for each trainee is reviewed by the appropriate simulator section supervisor, plant training group head and the Chief, Operator Training Branch, or a designated representative. If additional training is determined necessary, then the evaluation shall be reviewed by the Chief, Operator Training Branch or by the Plant Training Review Board. The amount of additional training will be determined by the board or the Chief, Operator Training Branch.

At the conclusion of the certification phase of the RO 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 shall be certified at the SRO level on the plant for which the candidate is applying for certification.



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At the conclusion of the prelicense training phase, a written examination in current NRC format and an oral audit shall be administered by TVA personnel.

A six-hour time limit shall be imposed for completion of the final written examinations.³⁶

The passing grade for the written examination shall be 80 percent overall and 70 percent in each category.³⁷

All applicants for RO license shall be required to be administered an operating test as well as the written examination.³⁸

Applicants shall grant permission to NRC to inform their facility management regarding the results of the examination.³⁹

Standard forms shall be used by the instructors to report evaluation of operator performance in the classroom and on the simulator. 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 license candidate (see note), results of evaluation, and documentation of any additional training administered in areas in which an operator has exhibited deficiencies.

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

³⁶Letter from Darrell G. Eisenhut, Director, Division of Licensing, NRC, to All Power Reactor Licensees and Applicants for Operating Licenses, December 16, 1981.

³⁷NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1, Harold B. Denton letter, Enclosure 1, Section B.1.d.

³⁸Ibid., Section B.1.e.

³⁹Ibid., Section B.1.f.



Refer to section 7.8 of this procedure for QA record requirements.

6.3.3.5 RO Hot License Program Outline (PWR)

A typical program outline is given below. The program or any segment thereof may be lengthened at the discretion of the plant operator training group head.

<u>No. of Weeks</u>		<u>Segment</u>
<u>Sequoyah</u>	<u>Watts Bar</u>	
16	16	License certification training
13	13	Control room on-shift training
4	8	Preliminary training
1	1	Oral audit evaluation
34	38	Total

6.3.4 SRO Hot License Program (PWR)

6.3.4.1 Program Objective

This program shall prepare candidates to obtain an NRC SRO license and assume the duties and responsibilities of the SRO-licensed positions required for the safe and efficient operation of TVA's PWR plants.

6.3.4.2 Program Requirements

This program shall consist of classroom lectures, simulator exercises, and control room on-shift training. The Sequoyah program shall be at least 20 weeks in length and the Watts Bar program at least 24 weeks. This program shall be conducted in two consecutive segments, which are (1) on-shift training and (2) preliminary training.



During the SRO Hot License Program, the SRO trainee shall be assigned to a unit control room as an extra person on shift for a period of at least thirteen weeks.⁴⁰ The trainee shall be under the direct supervision of a licensed SRO and under the general supervision of the operator training group head and will only perform duties associated with the SRO position. The trainee shall be allowed to move between unit control rooms and various plant areas to receive the maximum amount of experience possible.

If the candidate is exempt from the PO experience requirements, the candidate shall manipulate the controls of the facility during at least five significant reactivity changes, and every effort should be made to diversify reactivity changes⁴¹.

During the SRO Hot License Program, each candidate shall participate in one week of supervisory training which meets the requirements of section 5.2.1.8 of ANS 3.1, 1981 (refer to attachment 8.1).

Each SRO candidate shall attend prelicense training given immediately prior to the NRC license examination. The SRO prelicense program shall consist of (1) at least two weeks of SRO training, the content of which shall meet the requirements of section 5.2.1.6 of ANS 3.1, December 1981, and (2) RO and SRO integrated training for at least four weeks in the Sequoyah program and at least eight weeks in the Watts Bar program. The Sequoyah program consists of classroom lectures and simulator exercises. The

⁴⁰NRC requirement, NUREG-0737, Enclosure 2, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.b.

⁴¹NRC Requirement, NUREG-0094, Appendix F, Section C.4 (NUREG-1021, ES-109, D.2.d).



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simulator exercises are normally conducted for four hours and reinforced with classroom lectures of four hours per day. In the Watts Bar program, each candidate shall receive at least eight weeks of prelicense training consisting of system walkthroughs and classroom instruction. Of this time two weeks shall 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).

RO and SRO integrated training shall be administered as it allows each SRO candidate to function in a supervisory capacity during simulator operations and provides for review of general topics in the classroom.

At the conclusion of the program, candidates shall be evaluated as to their competency to stand for the NRC examination.

Related technical training in the SRO training program shall encompass the subjects detailed in the following regulatory documents as applicable to the facility and license sought (see attachment 8.1):

- a. 10 CFR 55.21, "Content of operator written examination"
- b. 10 CFR 55.22, "Content of senior operator written examination"
- c. 10 CFR 55.23, "Scope of operator and senior operator operating tests"
- d. NUREG-0737, Harold Denton's letter, March 28, 1980, Enclosure 2, "Training in Heat Transfer, Fluid Flow, and Thermodynamics" and Enclosure 3, "Training Criteria for Mitigating Core Damage"



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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.⁴²

Training in accident and event diagnostics will be an integral part of the program.⁴³

In the event that the prelicense portions of the license training program are being conducted concurrently with the license requalification program and one or more RO licensees are enrolled in the prelicense portion of an SRO license training program, the content of the license training program shall treat the same topics as the concurrent requalification program. If the licensee receives a satisfactory evaluation on the prelicense final examination, he is considered to have satisfactorily completed the requalification training program for that year and the prelicense examination shall stand as the TVA annual written and oral examination. However, in the event that the RO licensee does not receive a satisfactory evaluation on the TVA examination and has missed the requalification course and examination due to enrollment in the SRO license training program, he shall be removed from licensed duties, enrolled in accelerated retraining, and examined during the criteria for accelerated retraining before being allowed to resume licensed duties.

⁴²NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.2.c.

⁴³TVA commitment, "Action Plan for Meeting Industry Commitments Made Through NUMARC," November 20, 1984.

6.3.4.3 Prerequisites for Enrollment

a. Experience

Applicants for SRO licenses shall have four years of responsible power plant experience. Responsible power plant experience should be that obtained as a control room operator (fossil or nuclear) or as a power plant staff engineer involved in the day-to-day activities of the facility commencing with the final year of construction. A maximum of two years of 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. At least six months shall be at the plant for which he seeks a license.⁴⁴

Applicants for SRO licenses shall have been a reactor operator at the same facility for at least one year. The following may be considered as equivalent experience: The candidate demonstrates experience for one year as a licensed RO or SRO at another facility, or if the candidate demonstrates actual operating experience for one year in a position that is equivalent to a licensed operator or senior operator at military propulsion reactors. This experience may be substituted on a one-for-one basis.

Equivalent Navy ratings are (1) Propulsion Plant Watch Officer, (2) Engineering Watch Supervisor, (3) Engine Room Supervisor, (4) Reactor Operator, (5) Chief, Reactor Watch, (6) Engineering Officer of Watch, and (7) Propulsion Plant Watch Supervisor.⁴⁵

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

⁴⁵NRC requirement, NUREG-1021, Standard ES-109, Section C.1 b.



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- d. A score of less than 80 percent overall or less than 70 percent for an section of any TVA final written examination
- 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 license training pending further disciplinary action
- f. Unsatisfactory progress as determined by the Chief, Operator Training Branch or Plant Training Review Board

During the plant on-shift training portion of the Hot License Program, the following documentation is maintained:

- a. Time spent in thirteen weeks on shift
- b. Summary of activity during the thirteen-week training period
- c. Reactivity changes (only for those exempt from RO experience requirements)

During the prelicense portion of the Hot License Program, the following documentation is maintained:

- a. Final written examination
- b. Trainee's attendance
- c. Training evaluation
- d. Individual participation in an educational activity

The RO experience requirement may be waived in event the candidate holds a four-year degree in engineering or applied science, will participate in the equivalent of a Cold License SRO training program, and will spend thirteen weeks as an extra person on shift in training for an SRO position.⁴⁶ The candidate shall also have participated in reactor and plant operation up to at least 20-percent power operation.⁴⁷

b. Management Certification

NRC regulations require that applicants for SRO licenses meet certain minimum requirements for training and experience as set forth in NRC regulations and standards. All NRC requirements shall be met by the SRO license applicant and attested to by the Manager, ONP or his designated representative.⁴⁸

6.3.4.4 Evaluation and Documentation

The following constitutes the criteria for removal of a student from license training.⁴⁹

- 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 examinations.
- c. An overall weekly examination grade average of less than 80 percent

⁴⁶NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1.

⁴⁷NRC requirement, NUREG-0094, Appendix F, Section C.3

⁴⁸NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section A.3.

⁴⁹Letter from Darrell G. Eisenhut, Director, Division of Licensing, NRC, to All Power and Non-Power Reactor Licenses, Applicants for an Operating License and Holders of a Construction Permit (Generic Letter 83-17), April 8, 1983.



The simulator training evaluation for each trainee is reviewed by the appropriate simulator section supervisor, plant training group head supervisor, and the Chief, Operator Training Branch or a designated representative. If additional training is determined necessary, then the evaluation shall be reviewed by the Chief, Operator Training Branch or by the Plant Training Review Board. The amount of additional training will be established by the board or the Chief, Operator Training Branch.

At the conclusion of the prelicense training phase, a written examination in current NRC format and an oral audit shall be administered by TVA personnel.

A six-hour time limit shall be imposed for completion of the final written examinations.⁵⁰

The passing grade for the written examination shall be 80 percent overall and 70 percent in each category.⁵¹

All applicants for SRO licenses shall be required to be administered an operating test as well as a written examination.⁵²

Applicants shall grant permission to NRC to inform their facility management regarding the results of the examination.⁵³

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

⁵⁰Letter from Darrell G. Eisenhut, Director, Division of Licensing, NRC, to All Power Reactor Licensees and Applicants for Operating Licenses, December 16, 1981.

⁵¹NRC requirement, NUREG-0737, Enclosure 3, Section 1.A.2.1, Harold R. Denton letter, Enclosure 1, Section B.1.e.

⁵²Ibid., Section B.1.e

⁵³Ibid., Section B.1.f.



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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 license candidate (see note), results of evaluation, and documentation of any additional training administered in areas in which an operator has exhibited deficiencies.

Refer to section 7.1 of this procedure for QA record requirements.

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

6.3.4.5 SRO Hot License Program Outline (PWR)

A typical program outline is given below. The program or any segment thereof may be lengthened at the discretion of the plant operator training group head.

<u>No. of Weeks</u>		<u>Segment</u>
<u>Sequoyah</u>	<u>Watts Bar</u>	
13	13	Control room on-shift training
1	1	Supervisory training
2	2	SRO prelicense training
4	8	RO/SRO integrated prelicense training
<u>20</u>	<u>24</u>	Total