

**OVAMC TRIGA
Requalification Plan
License R-57**

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PART 5

OPERATOR REQUALIFICATION PLAN

1. INTRODUCTION

Reactor operator requalification applies to all the controls and some features of the TRIGA reactor at the Omaha Department of Veterans Affairs Medical Center (OVAMC) Research Reactor Facility. The purpose of this plan is to provide training of each individual that is to qualify for a license to operate or direct the operation of the TRIGA reactor. There are two license classes, one is an operator and the other is a senior operator. License qualification by written and operating test, and license issuance or removal, are the responsibility of the U.S. Nuclear Regulatory Commission. No rights of the license may be assigned or otherwise transferred and the licensee is subject to and shall observe all rules, regulations and orders of the Commission. Requalification training maintains the skills and knowledge of operators and senior operators during the period of the license. Training also provides for the initial license qualification.

1.1. Operator License Status

Active status of any licensee shall require the performance of the functions of an operator or senior operator for a minimum of four hours each calendar quarter. If the condition of an active license status is not met, the Director of the facility shall certify, (1) that the qualifications and status of the licensee are current and valid, and (2) that for recertification a minimum of six hours of license functions have been done. The license functions shall be done with supervision of the appropriate operator or senior operator. Otherwise the license status shall be inactive and no functions of the license shall be done.

1.2. Requalification Program Bases

Regulatory requirements and standards provide guidance for requalification training. Specific regulatory requirements are found in 10CFR55 for the licensing of operators and senior operators with regulations for requalification set forth in section 55.59. Standards for the selection and training of facility personnel and reactor operators are available in ANS 15-4. Specific regulations in the form of two sets of license conditions also apply to the facility personnel and reactor operators. One set of conditions for the facility license, 10 CFR 50.54, applies to facility personnel. The other set of conditions for individual licenses, 10 CFR 55.53 and 10CFR 55.21 applies to operators and senior operators. The following plan documents the requalification of operators and senior operators for the OVAMC TRIGA reactor facility.

2. Requalification Program

The requalification program consists of training personnel by lectures, instruction, discussion and self-study. At times the number of operators with licenses may be as few as 1 or 2. In these circumstances the application of discussion and self-study methods are necessary to accomplish the training process.

2.1. Schedule

Lectures from the requalification program topics and on-the-job training will be done on a two-year cycle for the completion of all requirements. The part of the program done each year will consist of six lectures, on-the-job training activities, and the performance of sixteen hours of license functions.

Lectures or instruction on the topics of the requalification program consist of eight topics shown in section 2.2 and also referenced in 10 CFR 55.59 (c)(2). Three lectures will be given each six months so that during the year there is an average of one topic presentation every two months. Each of the eight topics will occur during the two-year cycle with four topics each year. The other two lectures each year are available for special subjects, repeat subjects or review.

On-the-job training relies on specific reactor control manipulations to be performed on a timely basis. These control manipulations will consist of items specified in section 2.3.1 and section 2.3.2 [referenced in 10 CFR 55.59 (c)(3)(i)] to be performed annually and on a two-year basis respectively. A program of less than two years duration may accelerate the training of persons for new operator certification.

2.2. List of Subjects

- 2.2.1. (A) Theory and principles of operation.
- 2.2.2. (B) General and specific plant operating characteristics
- 2.2.3. (C) Plant instrumentation and control systems.
- 2.2.4. (D) Plant protection systems and Engineered safety systems.
- 2.2.5. (E) Normal, abnormal, and emergency operating procedures.
- 2.2.6. (F) Radiation control and safety.
- 2.2.7. (G) Technical specifications.
- 2.2.8. (H) Applicable portions of Title 10, Chapter 1, Code of Federal Regulations.

2.3. On-the-job-training:

2.3.1. List of annual training tasks; (must be done annually):

2.3.1.1. Plant or reactor startups to a power of at least 5 kW.

2.3.1.2. Plant shutdown.

2.3.1.3. Significant (>10 percent) power changes in manual rod control.

2.3.1.4. Loss of coolant inside or outside primary confinement.

2.3.1.5. Loss of electrical power (or degraded power sources).

2.3.1.6. Loss of core coolant flow.

2.3.2. List of training tasks; system malfunctions (must be done on two-year basis):

2.3.2.1. Reactor trip.

2.3.2.2. A nuclear instrumentation failure.

2.3.2.3. Loss of protective system channel.

2.3.2.4. Control rod or drive failure such as rod position error, rod drop or stuck drive, mispositioned control rod or rods (or rod drops), inability to drive control rods.

2.3.2.5. Fuel cladding failure or high activity in reactor coolant or offgas.

2.3.2.6. Malfunction of automatic control system that affects reactivity.

2.3.3. On-the-job training will perform the following periodic training checks or functions:

2.3.3.1. Observation at least once each year of a satisfactory understanding of the reactivity control system and knowledge of operating procedures.

2.3.3.2. Each operator or senior operator will review facility design changes, procedure changes and license changes as they occur or once each 6 to 8 months.

2.3.3.3. A review of the contents of abnormal and emergency procedures will be done by

each operator or senior operator at 6 to 8 month intervals so that at least 3 reviews occur during the two-year training cycle.

2.4. Evaluation

An operating examination will be given annually. The operator will be required to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a representative sample from among items specified in Section 2.4. (1-12) as referenced in 10 CFR 55.45(a)(2-13).

Evaluation of license personnel depends on examination and periodic observation. The evaluation by written examination determines the knowledge level and requirements for retraining by a percentage test score. Other evaluations by visual observation assess the performance and competency with routine procedures and the skill at manipulating the controls of the reactor. A written exam will be given every two years.

The written examination will assess operator or senior operator knowledge of current training subjects and review requirements. A test with objective questions will assess the knowledge of a representative sample of items specified in 10 CFR 55.41 and 10CFR 55.43 for an operator and senior operator respectively.

The exam will have a 100-point basis with an average of 80% as the acceptance criteria. An overall score of less than 65% shall require an immediate evaluation of license duties. Proficiency by retraining shall demonstrate acceptance within 4 months or license duties shall suspend until proficiency is acceptable. A person that scores between 65%-80% shall retrain as necessary in those areas that written or oral exams indicate a deficiency.

A systematic observation of license activities, by a supervisory senior operator or a level of the facility management to which a supervisory operator is responsible will evaluate operator and senior operator performance. Visual observation of the performance in response to the conditions of sections 2.3.1 and 2.3.2 will provide the basis for judgement of the operator's skill. In the case of a senior operator the performance may be either direct actions or the direction of a response by another operator. Judgements of a person's skill or competency are subjective and may include general observations of performance at any time the person is responsible for license functions.

- 2.4.1. Manipulate the console controls as required to operate the facility between shutdown and designated power levels.**
- 2.4.2. Identify annunciators and condition-indicating signals and perform appropriate remedial actions where appropriate.**
- 2.4.3. Identify the instrumentation systems and the significance of facility instrument readings.**
- 2.4.4. Observe and safely control the operating behavior characteristics of the facility.**

- 2.4.5. Perform control manipulations required to obtain desired operating results during normal, abnormal, and emergency situations.
- 2.4.6. Safely operate the facility's heat cooling system and identify the relations of the proper operation of this system to the operation of the facility.
- 2.4.7. Safely operate the facility's auxiliary and emergency systems, including operation of those controls associated with plant equipment that could affect reactivity or the release of radioactive materials to the environment.
- 2.4.8. Demonstrate or describe the use and function of the facility's radiation monitoring systems, including fixed radiation monitors and alarms, portable survey instruments, and personnel monitoring equipment.
- 2.4.9. Demonstrate knowledge of significant radiation hazards, including permissible levels in excess of those authorized, and ability to perform other procedures to reduce excessive levels of radiation and to guard against personnel exposure.
- 2.4.10. Demonstrate knowledge of the emergency plan for the facility, including, as appropriate, the operator's or senior operator's responsibility to decide whether the plan should be executed and the duties under the plan assigned.
- 2.4.11. Demonstrate the knowledge and ability as appropriate to the assigned position to assume the responsibilities associated with the safe operation of the facility.
- 2.4.12. Demonstrate the applicant's ability to function within the control room team as appropriate to the assigned position, in such a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated.

2.5. Records

Records for each operator or senior operator will consist of the documentation for the requalification activities within the two year training cycle. The records will be kept until the completion of the next training cycle. A record for each operator includes at least the following information:

- 2.5.1. Attendance at training lecture or acceptable review of the material, including topic and date.

2.5.2. Completion, satisfactorily, of two on-the-job training events with performance evaluation, recording date and performance as excellent, average or poor.

2.5.3. Total number of reactor control system hours and energy production in each calendar quarter.

2.5.4. Scores of the written examination and copies of the exam questions, answers, and responses by personnel.

2.6. Exemption status for Reactor Supervisor

Exemption from operating and written examinations for the Reactor Supervisor (RS) will be allowed only when the RS is giving the examination. The RS will be required to take examinations on alternated iterations of the operating and written exams.