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Operator Requalification Program

University of Illinois TRIGA/LOPRA

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OPERATOR REQUALIFICATION PROGRAM

The following is a general outline designed to meet the requalification requirements of 10CFR55 dated 1-1-89. The term "operator" is generally meant to include both senior operators and operators.

General Provisions

A. Implementation: A program of continuous training of personnel who have a current Senior Operator or Operator license will be followed.

B. Administration:

1. The Reactor Supervisor, or a designated alternate, is in charge of supervising the program and specifying scheduled times for meetings and tests.

2. Records on attendance to lecture or discussion periods are recorded for each meeting. Evaluations of individual performance will be included in an individual summary.

3. The individual in charge of the evaluation is exempt from taking tests for the purpose of the individual evaluation.

Requalification Program

A. Operation

(1) Each licensee shall actively perform the functions of an operator or senior operator for a minimum of four hours per calendar quarter. These functions shall include, but not be limited to: completion of the daily checklist, startup from shutdown to 15 watts, changes in power level above 10 kilowatts in both natural and forced convective cooling, operation of either square wave or pulsed transients, and the shutdown of the reactor with the completion of the shutdown checklist.

(2) If paragraph (1) of this section is not met then the Reactor Supervisor, or his designated alternate, shall verify that the operator's license is current and valid. The operator shall also complete a minimum of six hours of operations under the supervision of an operator or senior operator as appropriate. During this period the operator shall perform all requirements of paragraph (1).

(3) An annual operating test shall be administered by the Reactor Supervisor, or his designated alternate, on each operator such that the requirements of 10CFR55.45(a)2 thru 13 are met (see attachment A). A written evaluation shall be documented. If the examiner deems it necessary an upgrading program shall be developed to correct any deficiencies.

B. Lecture and Discussion Periods

(1) An annual review of the emergency procedures, abnormal occurrences, emergency plans and the building security plan shall be made.

(2) As changes occur each licensed operator shall be made cognizant of facility design changes, facility procedure changes, approved experiments, and facility license changes.

(3) Each licensed operator shall demonstrate satisfactory understanding of the operation of the apparatus and mechanisms associated with the control manipulations required during the annual operating test and knows the operating procedures in each area.

(4) Lectures shall be given in those areas where examinations and operator experience have indicated that emphasis in scope and depth of coverage is needed for all operators. The Reactor Supervisor is responsible for identifying such areas.

D. Evaluation

(1) A comprehensive requalification exam similar in scope to the NRC licensing exam shall be given such that the knowledge requirements for licensing are met. Evaluation of examination results shall be as follows:

(i) Less than 70% on the overall examination will result in a termination of any licensed duties until the ability of the individual is shown to be adequate from further examinations after the completion of an upgrading program.

(ii) Less than 80% in any area on the exam will require that the operator participate in an upgrading program.

F. On-The-Job Training

Each licensed operator or senior operator of the facility shall manipulate the plant controls during the term of the operator's license. These manipulations shall consist of the control manipulations and plant evolutions required by 10CFR55.59(a)(3) as they are applicable to plant design. Items (A) through (L) are required on an annual basis, all other items must be performed on a two year cycle (see Attachment B).

E. Upgrading

In the event that an upgrading program is necessary for an operator due to results of the annual operating exam or the biennial written exam then a written accelerated training program shall be developed. This training program shall address the deficiencies that were noted and shall specify requirements for completion of the upgrading program.

F. Records

(1) The following records shall be kept for the period of each individual operators license.

(i) Copies of written exams administered and answers given.
(ii) Annual evaluations/operating tests.
(iii) Upgrading programs issued to a specific operator to correct deficiencies.
(iv) Lecture and discussion periods including attendance and subject material covered.

Attachment A

The following is a list of those items required to be covered on the annual operating test by 10CFR55.45(a)2 thru 13 dated 1-1-89.

(2) Manipulate the console controls as required to operate the facility between shutdown and designated power levels.

(3) Identify the annunciators and condition-indicating signals and perform appropriate remedial actions where appropriate.

(4) Identify the instrumentation systems and the significance of facility instrument readings.

(5) Observe and safely control the operating behavior characteristics of the facility.

(6) Perform control manipulations required to obtain desired operating results during normal, abnormal, and emergency conditions.

(7) Safely operate the facility's head removal systems, including primary coolant, emergency coolant, and decay heat removal systems, and identify the relations of the proper operation of these systems to the operation of the facility.

(8) 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.

(9) Demonstrate or describe the use and function of the facility's radiation monitoring systems, including fixed radiation moritors and alarms, portable survey instruments, and personnel monitoring equipment.

(10) 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.

Attachment A

(11) 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.

(12) Demonstrate the knowledge and ability as appropriate to the assigned position to assume the responsibilities associated with the safe operation of the facility.

(13) 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.

Attachment B

The following is a list of those items required to be covered by 10CFR55.59(a)(3), dated 1-1-89, during the requalification period. Items (A) through (L) must be performed on an annual basis, all other items must be performed on a two-year cycle. Items with an asterisk are not applicable to the TRIGA/LOPRA facility.

(A) Plant or reactor startups to include a range that reactivity feedback from nuclear heat addition is noticeable and a heatup rate is established.

(B) Plant shutdown.

* (C) Manual control of steam generators or feedwater or both during startup and shutdown.

* (D) Boration or dilution during power operation.

(E) Significant (>10%) power changes in manual rod control or recirculation flow.

* (F) Reactor power change of 10 percent or greater where load change is performed with load limit control or where flux, temperature, or speed control is on manual (for HTGR).

(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.

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

(J) Loss of core coolant flow/natural circulation.

* (K) Loss of feedwater (normal and emergency).

(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.

Attachment B

* (O) Loss of normal feedwater or normal feedwater system failure.

* (P) Loss of condenser vacuum.

(Q) Loss of protective system channel.

(R) Mispositioned control rod or rods (or rod drops).

(S) Inability to drive control rods.

(T) Conditions requiring use of emergency boration or standby liquid control system.

(U) Fuel cladding failure or high activity in reactor coolant or offgas.

* (V) Turbine or generator trip.

(W) Malfunction of an automatic control system that affects reactivity.

(X) Malfunction of reactor coolant pressure/volume control system.

(Y) Reactor trip.

* (Z) Main steam line break (inside or outside containment).

(AA) A nuclear instrumentation failure.