

**UNIVERSITY OF FLORIDA TRAINING REACTOR
OPERATOR REQUALIFICATION AND
RECERTIFICATION TRAINING PROGRAM PLAN**

JULY 1999 through JUNE 2001

Submitted by

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MAY 14, 1999

OPERATOR REQUALIFICATION AND RECERTIFICATION

TRAINING PROGRAM PLAN

(July 1999 through June 2001)

1.0 GENERAL

A training program for the periodic requalification of UFTR operators shall be conducted in accordance with the requirements established by this document. The requalification and recertification training for UFTR personnel meets or exceeds the requalification training requirements established by 10 CFR 55 and the ANSI/ANS-15.4-1988 standard entitled, "Selection and Training of Personnel for Research Reactors."

The objectives of this program are to refresh in areas of infrequent operation, to review facility and procedure changes, to address subject matters not usually reinforced by direct use, and to improve in areas of performance or knowledge weakness. The Program is designed to evaluate an operator's knowledge and proficiency for his duties and to provide and assure retraining where necessary in order to assure improvement. Emphasis is on those subjects considered necessary for continued proficiency. In addition, the Program takes into consideration the specialized nature and mode of operation of the UFTR as well as the background, skill, degree of responsibility, and participation of certified personnel in related facility activities. The Program also reflects facility modifications and changes in procedures.

Responsibility for the administration of the program shall rest with the Director of Nuclear Facilities for the Department of Nuclear and Radiological Engineering and his/her duly designated representative. Requalification examinations shall be administered by one knowledgeable of facility operation and applicable subject matter.

All licensed and certified operators are required to participate in all phases of this program except where specifically exempted. Normally exemptions are allowed only for the individual responsible to produce and administer the examinations. Persons in training for an operator's license also participate in the requalification program. An operator receiving a license during a requalification period is required to complete only those portions occurring after the effective date of the license received.

The requalification training program effective at the UFTR shall consist of ten 10) component areas described in the following sections and listed in Table 1. The requirements that must be met in order to complete the requalification program successfully are delineated in these sections.

REV 1, 12/91
REV 3, 5/97
REV 4, 5/99

Table 1

**Operator Requalification and Recertification Program
Requirement Areas**

1. Requalification Schedule
2. Lectures, Reviews and Examinations
3. Operations and Checkouts
4. Emergency Drills
5. Absence from Authorized Activities
6. Evaluation and Retraining of Operators
7. Certification
8. Requalification Documentation and Records
9. Requalification Document Review and Audit
10. References

1.1 REQUALIFICATION SCHEDULE

The UFTR requalification and recertification training program shall be conducted biennially and shall be followed by successive two-year programs. To assure that the program is effective, the various requirements should be executed according to the time schedules outlined in this program guide. The current two-year Requalification Training Schedule (July 1999 - June 2001) is contained in Appendix A of this Program Plan.

1.2 LECTURES, REVIEWS AND EXAMINATIONS

1.2.1 Lectures

The requalification and recertification training program is divided into the group of topics listed below in Table 2, for which preplanned training or preparation is scheduled. The schedule is set up so that the entire program covering the topics listed in Table 2 is completed over the two year period.

REV 1, 12/91
REV 2, 5/93
REV 3, 5/97
REV 4, 5/99

Table 2

Requalification Training Lecture Program Topics

1. Nuclear Theory and Principles of Operation
2. Design and Operating Characteristics
3. Instrumentation and Control Systems
4. Reactor Protection System
5. Normal, Abnormal and Emergency Operating Procedures
(all procedures are covered once in the two-year period,
independent of special training on significant changes and
independent of emergency drills)
6. Radiation Control and Safety
7. Technical Specifications and Applicable Portions of Title 10,
Code of Federal Regulations
8. Emergency Plan
9. Security Plan (including security response procedures)

Self-study methods are also considered to be an adequate and appropriate training method for the lecture program topics when learning objectives are properly measured by examination or documentation of expertise. Self-study methods are especially advised in combination with lectures.

1.2.2 Examinations

1.2.2.1 Lecture Program Topics

An examination shall be administered at the end of each lecture session listed in Table 2; each examination should be administered no later than four weeks after the lecture or review session. For designated cases, a final examination covering all topics in a series of lectures may be substituted for individual examinations. Results of the certified individual's evaluation from the examinations is used as one input to determine the operator's proficiency, weakness or deficiency.

Examination is encouraged but not required for training sessions given but not required by this program.

The individual responsible for developing the examinations for the requalification program may be exempted from the examination. This exemption should be rotated among the eligible staff members as appropriate.

1.2.2.2 Biennial Comprehensive Examination

A comprehensive requalification written examination shall be required for all operators on a biennial schedule. A lecture may be given prior to this examination but is not required.

1.2.2.3 Annual Operations Test

Each reactor operator and senior reactor operator is required to take an annual operations test to demonstrate operational proficiency and understanding of system responses. This examination is administered by a designated Senior Reactor Operator.

1.2.2.4 Annual Walk-through Examination

Each licensed Reactor Operator and Senior Reactor Operator shall demonstrate satisfactory understanding of the operation of the facility systems, operating procedures and license as well as facility procedure and license changes during an annual walk-through examination administered by a designated Senior Reactor Operator.

1.2.3 Fuel Handling

Practical training in fuel handling shall be conducted biennially. Prior to any refueling operation and/or fuel handling operation, a special training session shall be held discussing/practicing the required operations and reviewing procedures to assure proficiency of all personnel involved, including emergency actions. This training may be credited as the required biennial fuel handling practical training.

1.2.4 Procedure/Technical Specifications Changes

Any changes in procedures, technical specifications, regulations, as well as any change with safety significance to the facility shall be reviewed by every licensed operator. Any procedural changes will be distributed directly to all licensed reactor operators and discussed as needed. Furthermore, a written

monthly report summarizing the activities in the reactor facility, including modifications, maintenance, results of calibrations and tests, as well as significant occurrences such as potential violations, failures of systems, etc. will be made available as required reading for all licensed operators.

1.2.5 Required Reading List

Documents, letters and memos pertinent to operational safety shall be maintained in the Required Reading List prior to permanent filing. Each operator is responsible for reviewing the list periodically and in a timely manner to remain current with the information contained in the Required Reading List. This reading list will be indexed with a master listing with spaces provided for initials of all required readers. This list should be reviewed at intervals not to exceed one month; when an item has been reviewed, the proper initials should be affixed to acknowledge completion of review.

1.2.6 Yearly Review

A yearly review of facility operations, maintenance, modifications, etc. is conducted with the operating staff by the Director of Nuclear Facilities or the Reactor Manager using the UFTR Annual Report as a basis for the review. More frequent reviews may be conducted as appropriate.

1.3 REQUALIFICATION OPERATIONS AND CHECKOUTS

1.3.1 Reactivity Control Manipulations

Over the two year requalification period, each certified individual shall perform at least ten reactivity control manipulations in any combination of reactor startups, shutdowns, or significant reactivity changes.

1.3.2 Schedule of Operations and Checkouts

To insure operator proficiency over a range of ordinary operations, the following schedule of operations and checkouts shall be maintained by all licensed operators when the reactor is operable.

1.3.2.1 Startups and Shutdowns

Each licensed operator shall perform at least one reactor startup quarterly at intervals not to exceed four months. This operation shall include at least one additional reactivity manipulation on a quarterly basis.

1.3.2.2 Daily Checkouts

Each licensed operator shall perform at least one daily checkout quarterly at intervals not to exceed four months.

1.3.2.3 Weekly Checkouts

Each licensed operator shall perform at least one weekly checkout semi-annually at intervals not to exceed eight months.

1.3.2.4 Quarterly Licensed Activities

To maintain certification, each licensed reactor operator shall exercise his/her operator's license for a minimum of four (4) hours of licensed activities during each calendar quarter.

1.3.2.5 Remediation Requirements

Any operator who fails to perform the required licensed activities listed in Section 1.3.2.1 through 1.3.2.4 must receive supervised practical training to meet each of these requirements prior to resuming solo operation for certified activities. In particular, if the requirement to exercise the operator's license for a minimum of four (4) hours of licensed activities during each calendar quarter is not met, then the license becomes inactive; prior to reactivation of the license (recertification), the Reactor Manager or alternate must verify that qualifications are current and the operator must perform six (6) hours of licensed activities under the direction of a licensed operator or senior reactor operator.

1.3.2.6 On-the-Job Training

The specific operational practices delineated in this Training Program Plan including the annual operations test, the annual walk-through examination, and the requirements for conducting facility checkouts, startups, shutdowns, reactivity manipulations including at least four (4) hours of certified activities per calendar quarter constitute the bulk of the operator on-the-job training requirements. In addition, the biennial fuel handling training as well as semi-annual training on emergency response equipment, quarterly emergency drills, and annual special equipment training are also considered a major portion of the practical on-the-job training and are considered adequate to assure safe operation of the facility.

1.3.3 Credit for Reactivity Control Manipulations

For the purpose of meeting minimum requalification and recertification requirements, other than the four (4) hours of licensed activities required per Section 1.3.2.4, each licensed operator may take credit only for reactivity control manipulations which they perform themselves. For senior reactor operators, direct supervision of these operations may be considered equivalent to actual performance.

1.3.4 Records

It is the responsibility of each operator to insure that Requalification Training Program's training requirements are met and logged in the operator's Requalification Notebook. Each operator shall also be responsible to ensure that monthly operating hours are logged in the same notebook.

1.4 EMERGENCY DRILLS

1.4.1 Scheduling and Participation

Emergency drills shall be held quarterly, per UFTR Technical Specifications Section 4.2.6(3). At least once per year these drills shall involve the participation of the University Police Department, the Gainesville Fire Department and other emergency assistance teams as appropriate for the drill in question. Each operator is required to participate in two emergency drills per year at intervals not to exceed eight months.

Any operator failing to meet this two-drill requirement must receive special training on proper response to emergencies and must receive a documented review of the last drill missed as well as a walk-through of the facility related to proper emergency responses. This remediation shall be conducted prior to performing certified activities.

1.4.2 Postdrill Critique

A review of the drill and applicable emergency procedures shall be performed with all certified individuals within 30 days after completion of the drill. This review should include any deficiencies as well as recommendations for improvement and is normally conducted immediately after the drill for all operators and other staff and radiation control personnel involved in the drill. Nonparticipating certified individuals may perform this review using the drill record in the required reading file or participate in a special training session. Documentation is provided via initials in the Required Reading List or on forms documenting special training sessions.

1.5 ABSENCE FROM AUTHORIZED ACTIVITIES

An operator who has not been actively performing certified functions for a period in excess of four months shall be required to demonstrate to the Reactor Manager or duly authorized representative that his/her knowledge and understanding of the operation and administration of the facility are satisfactory before returning to certified duties. This shall be accomplished through an interview and evaluation or a written, oral or operational examination or a suitable combination thereof. Any deficiencies uncovered must be corrected before the individual resumes performance of certified functions.

1.6 EVALUATION AND RETRAINING OF OPERATORS

1.6.1 Grade Requirements

The acceptance criterion on all graded examinations shall be 80%; all operators are required to complete each examination satisfactorily according to the following requirements:

- 1.6.1.1 A score on the written or other examinations equal to or greater than 80% may require no additional training. Nevertheless, the results of all examinations to include missed questions should be reviewed with the operator to assure proper understanding.
- 1.6.1.2 A score on the written or other examination in the range of 65%-79% requires additional training in those areas or topics where weaknesses or deficiencies are indicated. This retraining and retesting shall be completed within 60 days from the date the examination was administered and prior to the candidate being recertified. In this case the candidate need not be removed from licensed duties subject to the evaluation of the Reactor Manager or his/her duly authorized representative.
- 1.6.1.3 A score on the written or other examination of less than 65% requires that an evaluation be performed by the Facility Director or designated representative within one month. The evaluation shall determine if the deficiencies require that the individual's certification be withdrawn pending completion of any accelerated retraining effort. The evaluation shall take into account the individual's past performance record, the supervisor's evaluation, and past test scores as well as current deficiencies. Additional oral or operational examinations may also be given to aid in the evaluation. In any case certification shall be withdrawn within four months if the candidate does not achieve passing scores after reexamination.

1.6.2 Accelerated Training

Accelerated training programs shall be completed within four months following the grading of an examination. Furthermore, within one month after the grading of the examination, there shall be an evaluation by the Reactor Manager or a designated representative to determine if the deficiencies uncovered warrant withdrawal of the individual's certification pending completion of the accelerated training program. The evaluation shall consider the individual's past performance record, the supervisor's evaluation and past test scores as well as current deficiencies. Additional oral or operational exams may also be given to aid in the evaluation.

1.6.3 Additional Training Requirements

Additional training shall be provided whenever needed to correct weaknesses or deficiencies uncovered. Such additional training shall be completed prior to the conclusion of the specific requalification program or application for renewal of operator's license, whichever occurs first.

Additional appropriate training requirements in the form of formal lectures, tutoring, self-study or on-the-job training shall be based on the results of examinations conducted.

1.6.4 Deficiencies Affecting Safety

Regardless of the score, if the individual's test indicates a deficiency in a critical area that affects safety, training shall be promptly administered to correct the deficiency or the operator will be removed from performing certified duties in the affected area until the deficiency is corrected.

1.6.5 Evaluation Via Annual Examinations

The annual operations test and the annual walk-through examination are key factors in evaluating the continued competence of the certified operator both for demonstrating operational proficiency and understanding of system responses and for demonstrating overall satisfactory understanding of the operations of the facility, operating procedures and facility license changes. The results of these two examinations should be utilized as primary input for evaluating operator performance for recertification purposes.

1.6.6 Biennial Evaluations

An in-depth evaluation of the operating performance of each licensed operator shall be performed and documented biennially as a minimum by a summary and judgmental statements. The operational evaluation provides an estimate of the knowledge, competence and dexterity of the operator to operate the reactor safely and to take appropriate actions in response to abnormal and emergency situations that may arise. Additional operational training shall be provided to correct performance weaknesses that may be identified.

The biennial evaluation shall include results from the written examinations, the annual operations test, the annual walk-through examination and other on-the-job evaluation of operational proficiency as well as any other available indications of the operator's capability to discharge his/her duties in a safe and competent manner including participation in practical and special training, instructional activities and other work activities.

1.6.7 Additional Evaluations

An evaluation shall be made of an operator at any time his/her physical or mental condition appears impaired in a manner that his/her performance of duties as an operator appears to be affected. Any exemplary performances or additional duties performed by an operator should be noted in his/her Qualification Folder/Notebook to aid later evaluations.

1.7 RECERTIFICATION

1.7.1 Certified individuals who have successfully completed the requalification program may be recertified by the Facility Director or designated alternate.

1.7.2 All certified individuals must be cognizant of facility technical specifications, design and procedure changes in a timely manner.

1.8 REQUALIFICATION DOCUMENTATION AND RECORDS

1.8.1 Operator Requalification Records

Operator requalification records shall be kept to assure that all the requirements of the "UFTR Operator Requalification and Recertification Program Plan" are met.

Each operator shall have an individual folder or notebook containing signature blocks for lectures attended, prepared or assigned self-study sessions, reactivity manipulations performed, weekly and daily checkouts performed, and quarterly drills participated in by the operator. The notebook shall also contain copies of written examinations administered, the answers given by the operator, results of any evaluations and documentation of any additional training administered in areas in which an operator has exhibited deficiencies. The performance of, or participation in, special training such as for fuel handling, use of emergency equipment, crane operation, etc., should also be logged in the applicable Requalification Notebook.

1.8.2 Requalification Training Manual

A Master Requalification Training Manual will be used to organize training requirements; this manual shall contain a schedule of all required lectures, reviews, emergency drills, and other exercises. The date the item is performed shall be indicated in this manual. A section of this manual shall be designated to contain completed training items, attendance sheets, master copies of tests given and lecture outlines if available.

A separate section of this manual shall also indicate operator license amendment commitments and the dates for each including relicensure dates for all licensed operators.

1.8.3 Records Retention

Required documents and records pertaining to the Requalification and Recertification Program shall be maintained at the UFTR as part of the facility records for at least six years. Per 10 CFR 55.59(5)(i), these records including the master training file shall be retained for each reactor operator or senior reactor operator until the respective operator's license is renewed or surrendered.

1.9 REQUALIFICATION DOCUMENT REVIEW AND AUDIT

The individual Requalification Folders or Notebooks shall be reviewed on a semi-annual basis, at intervals not to exceed eight (8) months, by a designated Senior Reactor Operator and shall be noted by the inclusion of the SRO's dated signature. Any deficiencies noted during the review shall be brought to the attention of the Director of Nuclear Facilities or the Reactor Manager who will then insure that appropriate corrective action is taken.

An audit of requalification program records shall be conducted by the Reactor Safety Review Subcommittee (RSRS) biennially at intervals not to exceed thirty (30) months. Such an audit should be performed annually at intervals not to exceed fifteen (15) months. All such audits shall be documented by the RSRS via its audit report or equivalent document.

1.10 REFERENCES

- 1.10.1 Title 10 Code of Federal Regulations, Part 55, "Operators' Licenses."
- 1.10.2 American National Standard ANSI/ANS-15.4-1988, "Selection and Training of Personnel for Research Reactors."

APPENDIX A

UFTR REQUALIFICATION TRAINING PROGRAM SCHEDULE

1999-00 UFTR REQUALIFICATION TRAINING SCHEDULE

JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
	(L) Design and Operating Characteristics	(P) EMERGENCY DRILL	(P) Emergency Equipment Training	(L) Nuclear Theory and Principles of Operation	(P) EMERGENCY DRILL (involves outside agencies as appropriate)
			(P) Special Equipment Training (Rabbit System, Overhead Crane)		(L) Security Plan
					(I/P) Annual Operations Test
JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
	(L) Normal, Abnormal and Emergency Procedures	(P) EMERGENCY DRILL	(L) Reactor Protection System	(I) Operator Walk-through Exams	(P) EMERGENCY DRILL
	(P) Fuel Handling Training		(P) Emergency Equipment Training		
	(S) Annual Report Review				

(P) - PRACTICAL TRAINING

(S) - STAFF TRAINING

(I) - INDIVIDUAL TRAINING

(L) LECTURE/EXAM

2000-01 UFTR REQUALIFICATION TRAINING SCHEDULE

JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
(L) Instrumentation and Control Systems	(L) Radiation Control and Safety	(P) EMERGENCY DRILL	(L) Technical Specifications		(L) Emergency Plan
			(P) Emergency Equipment Training		(P) EMERGENCY DRILL (involves outside agencies as appropriate)
			(P) Special Equipment Training (Rabbit System, Overhead Crane)		(L/P) Annual Operations Test
JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
	(I) Operator Walk-through Exams	(P) EMERGENCY DRILL	(P) Emergency Equipment Training		(P) EMERGENCY DRILL
	(S) Annual Report Review				BIENNIAL COMPREHENSIVE EXAM

(P) - PRACTICAL TRAINING

(S) - STAFF TRAINING

(I) - INDIVIDUAL TRAINING

(L) LECTURE/EXAM