

November 28, 2017

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

10 CFR 50.4, Written Communications
UFTR Operating License R-56, Docket 50-83

Subject: **Response to Request for Additional Information Regarding the Operator
Requalification Program for the University of Florida Training Reactor**

By letter dated November 1, 2017, the NRC requested additional information on the operator requalification program that the UFTR submitted on July 25, 2017 (ML17206A378).

Attached are the RAI responses as well as the revised UFTR Operator Training and Requalification Program.

This submittal has been reviewed and approved by UFTR management and by the Reactor Safety Review Subcommittee.

I declare under penalty of perjury that the foregoing and attached are true and correct to my knowledge.

Executed on November 28, 2017.



Brian Shea
Reactor Manager

cc: NRC, Duane Hardesty
 NRC, Paulette Torres

RAI-1

The regulations in Title 10 of the Code of Federal Regulations (10 CFR) 55.59, “Requalification,” paragraph (c)(3)(iv) states “Each licensed operator and senior operator reviews the contents of all abnormal and emergency procedures on a regularly scheduled basis.” OTRP Section 1.4, “Emergency Drills,” discuss the scheduling and participation of licensed operators during an emergency drill but does not address the requirement stated in 10 CFR 55.59(c)(3)(iv). Revise the OTRP to include the requirements stated in 10 CFR 55.59(c)(3)(iv), or justify why the current plan is acceptable.

Response – Section 1.2.6 has been added to the OTRP to specify the abnormal and emergency procedure content review.

RAI-2

The regulations in 10 CFR 55.59(a)(2)(i) states “The written examination will sample the items specified in §§ 55.41 and 55.43 of this part, to the extent applicable to the facility, the licensee, and any limitation of the license under § 55.53(c) of this part.” OTRP Section 1.2.2.2, “Biennial Comprehensive Written Exam,” and Section 1.2.2.3, “Annual Operations Test,” does not discuss how the facility will examine the operator knowledge specific for licensed reactor operators and licensed senior reactor operators in a written exam as stated in 10 CFR 55.41 and 10 CFR 50.43. Revise the OTRP to ensure that the requirements specified in 10 CFR 55.59(a)(2)(i) are met, or justify why the current plan is acceptable.

Response – Sections 1.2.2.2 and 1.2.2.3 of the OTRP have been revised.

RAI-3

OTRP Section 1.8.3, “Records Retention,” states “Records pertaining to this program shall be maintained in accordance with 10 CFR 55.59(5) and Technical Specification 6.8.” The correct reference is 10 CFR 55.59(c)(5). Review and revise the OTRP to address this typographical error, or justify why the current plan is acceptable.

Response – The typographical error has been corrected.

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

College of Engineering

University of Florida

November 2017

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 training and requalification program for UFTR operators meets or exceeds the requalification training requirements established by 10 CFR 55 and aligns closely with ANSI/ANS-15.4-2016, Selection and Training of Personnel for Research Reactors, and NRC Regulatory Issue Summary 2003-10, Licensed Operator Requalification Training: Written Examination Frequency.

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 and to provide retraining where necessary in order to ensure 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 in related facility activities.

Responsibility for the administration of the program shall rest with the Facility Director or his/her duly designated representative.

All licensed 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 exams. Persons in training for an operator's license also participate in the requalification program.

1.1 REQUALIFICATION SCHEDULE

The program is conducted over a continuous period not to exceed 24 months promptly followed by successive 24-month program cycles. A Master Requalification Training Binder contains a schedule of required lectures, reviews, emergency drills, and other exercises as described later in Section 1.8.2. An operator receiving a license during a requalification period is required to complete only those portions occurring after the effective date of the license.

1.2 LECTURES, REVIEWS AND EXAMS

1.2.1 Lectures

The program is divided into the group of lecture topics listed below in Table 1.

Table 1
Requalification Program Lecture 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
6. Radiation Control
7. Technical Specifications and Applicable Portions of Title 10, Code of Federal Regulations
8. Emergency Plan
9. Security Procedures

Self-study is also considered to be an adequate and appropriate training method for the lecture topics since the learning objectives are measured by exam. Self-study methods are especially advised in combination with lectures.

1.2.2 Exams

The individual responsible for developing the exams may be exempted from the exam. This exemption should be rotated among the eligible staff members as appropriate.

1.2.2.1 Lecture Program Topics

An exam shall be administered at the end of each lecture session by someone knowledgeable of the applicable subject matter. For designated cases, a final exam covering all topics in a series of lectures may be substituted for individual exams. Results of exams are used as one input to determine the operator's proficiency, weakness or deficiency. Exams are encouraged but not required for training sessions given but not required by this program.

1.2.2.2 Biennial Comprehensive Written Exam

A comprehensive written exam shall be required for each licensed operator as part of each 24-month cycle. The comprehensive written exam shall sample the topics listed in Table 1.

Although comprehensive written exams are generally conducted on 24-month intervals, their timing may be adjusted somewhat near the end of each 24-month requalification cycle to accommodate outages and other events. For certain individual licensed operators, the adjustments may cause the testing interval between successive comprehensive written exams to exceed 24 months. This is acceptable, as long as each licensed operator takes a comprehensive written exam during each 24-month requalification cycle (Ref. 1.10-5).

Test writing responsibilities should be assigned (where possible) so that no individual licensed operator is exempt from taking the biennial comprehensive written exam more than once in sequential training cycles.

1.2.2.3 Annual Operations Test

An operations test, administered by a senior operator, to demonstrate operational proficiency and understanding of system responses shall be required for each licensed operator on an annual basis. At least five tasks shall be performed and evaluated to include a reactor startup and shutdown. The other three or more tasks may include the daily surveillance, the weekly surveillance, reactivity changes, power changes, full power operation or other licensed activities. Performance of these tasks may be actual or simulated.

Although annual operations tests will generally be conducted on 12-month intervals, their timing may be adjusted somewhat near the end of each 12-month period to accommodate outages and other events. For certain individual licensed operators, the adjustments may cause the testing interval between successive operations tests to exceed 12 months. This is acceptable, as long as each licensed operator takes two annual operations tests during each 24-month requalification cycle.

Test administration responsibilities should be assigned (where possible) so that no individual senior operator is exempt from taking the operations test more than once in any single training cycle.

1.2.2.4 Annual Walkthrough Exam

A walkthrough exam, administered by a senior operator, to demonstrate satisfactory understanding of the facility systems, procedures, and licensing basis shall be required for each licensed operator on an annual basis.

Although walkthrough exams will generally be conducted on 12-month intervals, their timing may be adjusted somewhat near the end of each 12-month period to accommodate outages and other events. For certain individual licensed operators, the adjustments may cause the testing interval between successive walkthrough exams to exceed 12 months. This is acceptable, as long as each licensed operator takes two annual walkthrough exams during each 24-month requalification cycle.

Exam administration responsibilities should be assigned (where possible) so that no individual senior operator is exempt from taking the walkthrough exam more than once in any single training cycle.

1.2.3 Procedure/Technical Specifications Changes

Changes in procedures, technical specifications, applicable regulations, as well as facility changes shall be reviewed by every licensed operator and discussed as needed. The required reading list may be used for this purpose as appropriate.

1.2.4 Required Reading List

Documents, letters and memos pertinent to operations shall be maintained in the Required Reading List as appropriate. 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.

1.2.5 Annual Report Review

A summary review of facility operations shall be conducted with the operating staff using the UFTR Annual Report. The required reading list may be used for this purpose as appropriate.

1.2.6 Abnormal and Emergency Procedure Review

The contents of abnormal and emergency procedures shall be reviewed. This review may be performed during the requalification lectures listed in Table 1 as appropriate.

1.3 OPERATIONS AND CHECKOUTS

1.3.1 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.

1.3.1.1 Reactivity Manipulations

Each licensed operator shall perform at least ten reactivity manipulations in any combination of reactor startups, shutdowns, and reactivity or power changes over the 24-month requalification cycle

1.3.1.2 Startups and Shutdowns

Each licensed operator shall perform at least one reactor startup and one reactor shutdown annually at intervals not to exceed 15 months.

1.3.1.3 Daily Checkouts

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

1.3.1.4 Weekly Checkouts

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

1.3.1.5 Quarterly Licensed Activities

Each licensed operator shall perform a minimum of four hours of licensed activities during each calendar quarter.

1.3.1.6 Remediation Requirements

Any operator who fails to perform the required licensed activities listed in Section 1.3.1.1 through 1.3.1.4 must receive supervised practical training to meet the delinquent requirements prior to resuming solo operation.

Any operator who fails to perform the required licensed activities listed in Section 1.3.1.5 shall perform a minimum of six hours of licensed activities under the direction of an operator holding the same or higher-level license prior to resuming solo operation.

1.3.1.7 Additional On-the-Job Training

Practical on-the-job training in fuel handling shall be conducted prior to any refueling operation or irradiated fuel-handling operation to ensure proficiency of all personnel involved, including emergency actions.

Practical on-the-job training on emergency response equipment and other special equipment shall be conducted at least once during the 24-month requalification cycle.

1.3.2 Credit for Operations and Checkouts

Direct supervision of operations and checkouts as the designated senior operator shall be considered equivalent to actual performance. Direct supervision of operations and checkouts as the licensed operator with a trainee under instruction shall also be considered equivalent to actual performance.

1.3.3 Extended Outage Contingency

In the event an extended facility outage prevents licensed operators and senior operators from completing the required operations and checkouts, prior to solo operation each licensed operator shall complete a special retraining program. This special retraining program shall be approved by the RSRS.

1.4 EMERGENCY DRILLS

1.4.1 Scheduling and Participation

1.4.1.1 Each operator is required to participate in at least one emergency drill per year.

1.4.1.2 Each operator is required to participate in at least one large-scale emergency evacuation drill every two years.

1.4.1.3 Any operator failing to meet either drill requirement shall receive special training on proper response to emergencies and a documented review of the missed drill as well as a walkthrough of proper emergency responses. This remediation shall be conducted prior to the operator's return to solo operation.

1.4.2 Post-drill Critique

A post-drill critique shall be performed with all operators. This review should include any deficiencies as well as recommendations for improvement.

1.5 ABSENCE FROM AUTHORIZED ACTIVITIES

In addition to completion of applicable remediation requirements specified in Section 1.3.1.6, a licensed operator who has not performed licensed functions for a period in excess of six 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 solo operation. This shall be accomplished through an interview and evaluation or a written, oral or operational exam or a suitable combination thereof. Any deficiencies uncovered must be corrected before the individual resumes solo operation.

1.6 EVALUATION AND RETRAINING OF OPERATORS

1.6.1 Grade Requirements

All operators are required to complete each exam satisfactorily according to the following requirements:

- 1.6.1.1 A score on any exam equal to or greater than 80% requires no additional training. The results of all exams to include missed questions should be reviewed with the operator to ensure proper understanding.
- 1.6.1.2 An exam score in the range of 70%-79% requires additional training in those areas or topics where weaknesses or deficiencies are indicated. This retraining and retesting shall be completed within 90 days from the date the exam was administered. The operator 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 An exam score of less than 70% 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 operator's active status be withdrawn pending completion of an accelerated retraining effort. The evaluation shall take into account the operator'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. In any case, active status shall be withdrawn within four months if the operator does not achieve passing scores after reexamination.

1.6.2 Additional Training Requirements

Regardless of the score, if the Facility Director or Reactor Manager deems there to be a significant training deficiency, additional training shall be administered to promptly correct the deficiency.

1.6.3 Evaluation Via Annual Exams

The annual operations test and the annual walkthrough exam are key factors in evaluating the continued competence of the operator both for demonstrating operational proficiency and understanding of system responses and for demonstrating overall satisfactory understanding of the operations of the facility, its operating procedures, and the facility licensing basis. The results of these two exams should be utilized as primary input for evaluating operator performance.

1.6.4 Biennial Evaluations

An in-depth evaluation of the operating performance of each licensed operator shall be performed and documented biennially by 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 exams, the annual operations test, the annual walkthrough exam 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.

1.6.5 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 also be noted in his/her training notebook to aid later evaluations.

1.7 MEDICAL CERTIFICATION

1.7.1 Prospective operators shall undergo medical examination prior to initial licensing. The medical examination should be consistent with ANSI/ANS-15.4-2016, Selection and Training of Personnel for Research Reactors.

1.7.2 Licensed operators shall undergo medical examination no less than once every two years. The medical examination should be consistent with ANSI/ANS-15.4-2016, Selection and Training of Personnel for Research Reactors.

1.8 REQUALIFICATION DOCUMENTATION AND RECORDS

1.8.1 Operator Requalification Records

Operator requalification records shall be kept to ensure all requirements of the program are met.

Each operator shall have an individual notebook containing records of lectures attended, prepared or assigned self-study sessions, reactivity manipulations performed, weekly and daily checkouts performed, and drills participated in. The notebook shall also contain copies of written exams 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. Records documenting the performance of special training such as for fuel handling, use of emergency equipment, crane operation, etc., shall also be in the notebook.

1.8.2 Requalification Training Binder

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

1.8.3 Records Retention

Records pertaining to this program shall be maintained in accordance with 10 CFR 55.59(c)(5) and Technical Specification 6.8.

1.9 REQUALIFICATION DOCUMENT REVIEW AND AUDIT

Individual training notebooks shall be reviewed on a semiannual basis, at intervals not to exceed eight (8) months, by a designated senior operator. Any deficiencies noted during the review shall be brought to the attention of the Facility Director or the Reactor Manager who will then insure that appropriate corrective action is taken.

An audit of training and requalification program records shall be conducted biennially as required by TS 6.2.4.2.

1.10 REFERENCES

- 1.10-1 Title 10 Code of Federal Regulations, Part 55, Operators' Licenses.
- 1.10-2 UFTR Technical Specifications.
- 1.10-3 UFTR Emergency Plan.
- 1.10-4 ANSI/ANS-15.4-2016, Selection and Training of Personnel for Research Reactors.
- 1.10-5 NRC Regulatory Issue Summary 2003-10, Licensed Operator Requalification Training: Written Examination Frequency.