THE UNIVERSITY OF NEW MEXICO

Department of Nuclear Engineering

50-252

January 30, 2019

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

Based on comments from our Reactor Safety Advisory Committee, we have reviewed and revised the Operator Requalification Plan for the AGN-201M reactor located at the University of New Mexico, Docket 50-252. Changes have been made to reflect the split of the department into a stand-alone Nuclear Engineering Department. Other changes of an editorial nature have been made to make the document easier to read and use. Changes are noted by bars on the right hand side of the page and are described on the pages following this transmittal letter. The RSAC agreed that these changes were editorial in nature and will not reduce the effectiveness of the Operator Requalification Plan.

If you have any questions or comments, please let us know.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 30, 2019.

Respectfully Submitted,

Robert D Busch

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MOD 3
ADZD
NRR

cc: Ed Helvenston, Project Manager

Changes to Operator Requalification Plan for UNM AGN-201 Reactor, Docket 50-252
(Marked by bars)

Title Page Added.

Page 1, first paragraph last sentence, change to read, "The reactor has also been used for activation of samples and for graduate student research in foil self-shielding and perturbation theory." Reactor is no longer used by other departments.

Page 1, Item 2, last sentence. Remove "graduate" from the sentence to allow both graduate and undergraduate students to be operators. Sentence should read, "... completing their study programs."

Page 1, Last Paragraph on page, last sentence. Revise to read, "... as that outlined in 10CFR55, but it is designed to be consistent with ANS-15.4 Selection and Training of Personnel for Research Reactors."

Old sentence referred to App A of 10CFR55. This material has been incorporated in 10 CFR55 so the reference will be changed to just 10CFR55

Page 2, list of lecture topics – Add h. Security Issues, i. Conduct of Operations and operating log entries, n. Review of guidance documents, e.g., ANS 15.4 and NUREG 1478.

Page 2, list of lecture topics – re-letter to accommodate new entries – j. Radiation monitoring equipment, k. Radiological safety, l. Technical specifications and bases, and m. Review of applicable Federal Regulations, e.g., 10CFR55, 10CFR50.59, 10CFR20 (note deletion of Fitness for Duty from list and addition of 10CFR50.59 and 10CFR20)

Page 4, first paragraph – Revise first two sentences to read, "Written Examination: Every two years, each licensed individual shall be given a written examination covering the area described in Section B.2 of this document."

Page 4 – second paragraph – the minimum passing score was changed to 60% to comply with ANS 15.4, Section 6.3. Done in sentence one, "... of 60% to 69% ..." , and in sentence 5, "...score below 60% requires ..."

Page 4 – last 3 sentences of third paragraph – Revise to change weakness to unsatisfactory performance. New sentences to read, "If unsatisfactory performance is noted during the quarter or from the operational exam, then additional operation times will be scheduled for retraining. After this is completed, the individual will undergo an additional operational examination to ensure that the individual can competently manipulate the controls of the reactor. If the issue is in a safety area, then the individual will be relieved of licensed duties until the deficiency is corrected."

Page 5, new section on Resumption of Active Status added.

"Resumption of Active Status: If an operator or senior operator fails to maintain active status, he/she shall cease to perform the functions authorized under his/her license. To regain active status, the Chief Reactor Supervisor or Reactor Administrator shall certify:

(1) That the qualifications and status of the licensee are current and valid; and

(2) That the licensee has completed a minimum of six hours of functions under the direction of an operator or senior operator as appropriate and in the position to which the individual has been assigned.

(3) After completing the requirements in (2), that the individual has successfully completed an operational exam.

After this training and certification, the licensee will be restored to active status."

Page 5 – Records – add sentence to end of paragraph indicating the two year requirement on medical examinations. Sentence reads, "Records of medical examinations shall be included along with the requirement for the next medical exam (every two years)."

Page 6 – Requalification Training Record Form added.

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OPERATOR AND SENIOR OPERATOR REQUALIFICATION PROGRAM

FOR THE

UNIVERSITY OF NEW MEXICO AGN-201M REACTOR FACILITY

Docket No. 50-252
License No. R-102

Department of Nuclear Engineering
MSC 01-1120
The University of New Mexico
Albuquerque, New Mexico 87131-0001

Prepared by: _____
Robert Busch
Chief Reactor Supervisor

Reviewed by: _____
Reactor Safety Advisory Committee

Approved by: _____
Gary Cooper
Reactor Administrator

Revised as of January 2019

OPERATOR AND SENIOR OPERATOR REQUALIFICATION PROGRAM

UNIVERSITY OF NEW MEXICO

AGN-201M REACTOR FACILITY

A. Introduction

The University of New Mexico AGN-201M Reactor Facility is used primarily as a training reactor for undergraduate and graduate students. Experiments performed include sample activation, an approach to critical, reactor period and reactivity measurements, control rod calibrations, importance function measurements, and transfer function measurements. The reactor has also been used for activation of samples and for graduate student research in foil self-shielding and perturbation theory.

Licensed staff for the Facility is made up of personnel from three categories:

1. Faculty Members: Reactor supervisors (including the Chief Reactor Supervisor) are faculty members who are licensed senior operators. The faculty members are regularly engaged in teaching reactor theory, reactor engineering, and nuclear engineering laboratory courses.

2. Nuclear Engineering Students: Students serve as Lab assistants, teaching assistants, and licensed operators. These students are actively engaged in a rigorous academic program covering reactor theory, reactor engineering, and nuclear engineering laboratory experimental methods. Students who have been licensed generally serve as operators for 2 to 3 years while they are completing their study programs.

3. Nuclear Engineering Laboratory Technician: The Technician is a licensed operator or licensed senior operator who generally has had previous reactor experience, and who serves the dual function of teaching assistant, and reactor maintenance technician.

For all three categories of personnel, the typical training program for preparation to take the licensing exam has been about 1 day/week for 12 weeks. Because of the academic and work experience of the staff and the basic simplicity of the reactor facility and operating procedures, extensive training programs are not required. Therefore it is concluded that the requalification program for licensed personnel of this facility will not be required to be as elaborate and extensive as that outlined in 10CFR55, but it is designed to be consistent with ANS-15.4 Selection and Training of Personnel for Research Reactors and NUREG 1478 - Operator Licensing Examiner Standards for Research and Test Reactors.

B. Requalification Program

1. Schedule

A one-day requalification training session will be scheduled annually. All licensed personnel will be required to participate. For scheduling purposes the session may consist of two ½ day sessions. For experienced licensed personnel, the annual maintenance will suffice in place of the lectures.

2. Lectures

One-half-day of the Training session will consist of a review and discussion of the Reactor Operations Manual and material prepared for new operator and senior operator trainees. This material includes:

a. Fundamentals of reactor theory
b. General design features
c. General operating characteristics
d. Safety systems
e. Instrumentation and controls
f. Shielding and containment
g. Standard and emergency operating procedures
h. Security Issues
i. Conduct of Operations and operating log entries
j. Radiation monitoring equipment
k. Radiological safety
l. Technical specifications and bases
m. Review of applicable Federal Regulations, e.g., 10CFR55, 10CFR50.59, 10CFR20.
n. Review of guidance documents, e.g., ANS15.4 and NUREG 1478

The Chief Reactor Supervisor or the Reactor Administrator will keep the Operations staff current with changes in the facility and with information from other sources. This can be done through meetings of the Reactor Operations Committee, email, memo, RSAC minutes, or other written documents. Notification of substantial changes will be documented in the individual training files of the licensed personnel.

3. On-the-job Training

The other half-day of the training session will consist of the following activities:

a. Review and perform a monthly maintenance check
b. Review and perform a daily reactor checkout
c. Startup of the reactor and operation at licensed power
d. Measurement of excess reactivity
e. Measurement of reactivity worths of typical samples used in the training and activation experiments
f Measurement of a safety rod reactivity worth using rod-drop techniques
g. Simulated emergency with practice evacuation

Manipulation of the controls during these checks and operations will be rotated among the participating personnel. Participation in this session will assure that each licensed operator or senior operator is cognizant of facility design changes, procedure changes, and facility license changes.

4. Evaluation

Written Examination: Every two years, each licensed individual shall be given a written examination covering the areas described in Section B.2 of this document. (The licensed individual who develops, administers, and grades these examinations shall be waived from taking the examination at that time. The responsibility for the examination shall rotate among the licensed senior operators or other qualified individuals so that each licensed senior operator shall be evaluated at least every four years.) A score of 70% or higher will require no additional training.

An overall score of 60% to 69% requires additional training in those areas or topics where weakness or deficiencies are indicated. During the training, the individual can continue to perform licensed duties under the supervision of a licensed senior operator. After the training program is completed, an oral examination shall be administered to evaluate the individual's performance in those areas covered by the program. Unsuccessful performance on the oral examination shall require the individual to complete an accelerated training program followed by a written examination. An overall score below 60% requires that an individual be relieved of licensed duties and receive training in an accelerated program. The accelerated program shall cover those areas where weakness and deficiencies are indicated, and it shall be completed within four months following the grading of the written examination. After the accelerated training is completed, a written examination shall be administered and successfully completed before the individual can resume performance of licensed duties.

Evaluation of Reactor Operation by Certified Individuals: To maintain active status, each certified individual shall actively perform the functions of an operator or senior operator for a minimum of four hours per calendar quarter. Supervision of these functions by licensed senior operators shall be considered equivalent to actual performance. Each certified individual is required to take an annual operational exam requiring the operator or senior operator to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a comprehensive sample of items specified in 10CFR55.45(a) (2) through (13) inclusive to the extent applicable to the facility. These may include but are not limited to reactivity manipulations in startup, shutdown, and other significant reactivity changes that demonstrate skill or familiarity with the reactivity control systems and general familiarity with the reactor safety systems. Responsibility for these exams shall rotate among the senior operations staff. If unsatisfactory performance is noted during the quarter or from the operational exam, then additional operation times will be scheduled for retraining. After this is completed, the individual will undergo an additional operational examination to ensure that the individual can competently manipulate the controls of the reactor. If the issue is in a safety area, then the individual will be relieved of licensed duties until the deficiency is corrected.

Resumption of Active Status: If an operator or senior operator fails to maintain active status, he/she shall cease to perform the functions authorized under his/her license. To regain active status, the Chief Reactor Supervisor or Reactor Administrator shall certify:
(1) That the qualifications and status of the licensee are current and valid; and
(2) That the licensee has completed a minimum of six hours of functions under the direction of an operator or senior operator as appropriate and in the position to which the individual has been assigned.
(3) After completing the requirements in (2), that the individual has successfully completed an operational exam.
After this training and certification, the licensee will be restored to active status.

5. Records
A separate file for each licensed operator or senior operator shall be established. The attached form will be used to record and certify (1) participation in the requalification training sessions (2) reactivity control manipulations, and (3) written and operating examination results. These files will also contain copies of written examinations administered, the answers given by the licensee, and any additional information regarding training or requalification or each licensee. Records of medical examinations shall be included along with the requirement for the next medical exam (every two years).

REQUALIFICATION TRAINING RECORD
AGN-201M REACTOR FACILITY
UNIVERSITY OF NEW MEXICO

Name _____ License Number _____

Title _____ License Expiration Date _____

Date of Last Medical Exam _____ Next Medical Needed Before _____

Requalification Training or Annual Maintenance Sessions (one per year)

Date	Session Type & Comments	Certification

Operational and Supervisory Time (4 hours per quarter)

Quarter	Op hrs.	Supv hrs.	Other	Certification

Examination Results (1 operating exam per year, 1 written every two years)

Date	Exam Type	Performance	Certification