UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

October 12, 1982

To: All Power Reactor Applicants and Licensees

Subject: Reactor Operator and Senior Reactor Operator Requalification Examinations (Generic Letter No. 82-18)

Gentlemen:

This letter is to inform you that NRC-administered requalification examinations for licensed reactor operators and senior reactor operators will begin at your facility sometime after October 1, 1982.

Following the Three Mile Island Accident, the Commission directed the staff to administer examinations as part of the requalification program for all licensees and applicants. In response to SECY 82-232, "Use of Non-Plant-Specific Simulators for Initial, Replacement, and Requalification Examinations for Licensed Reactor Operators and Senior Operators," the Commission approved staff recommendations regarding the use of simulators for requalification examinations. A copy of SECY 82-232 is attached for your information. To implement these directives, the NRC staff intends to conduct requalification examinations at your facility. The procedures for the requalification examinations are still under development and review. Additional information will be provided to you later this year.

Subject to timely approval of the procedures for conducting the requalification examinations, we intend to administer a written and an operating examination to at least 20% of your licensed personnel per year. In this way, all licensed personnel will be examined at least every five years and the impact on your requalification training program will be minimized. Detailed schedules will be worked out with your training staff. The NRC plans on making two visits to your facility during the year for replacement examinations and one visit for requalification examinations. Therefore, scheduling of replacement and requalification examinations, including reexamination of failures will need to be closely coordinated to prevent the number of licensed operators from being reduced to unacceptable levels and to ensure timely reexaminations can be given.

An objective written examination consistent with the scope of the requalification program required by Appendix A to 10 CFR Part 55 will be administered to selected licensed personnel. If your plant has a plant-specific simulator, an operating examination will be conducted on that simulator. Otherwise, an operating examination will be conducted at your facility. Unsatisfactory performance will necessitate removal from licensed duties and accelerated retraining in weak areas. This is consistent with your in-house requalification program currently in place. Reexamination by NRC may be required in unsatisfactory areas. Renewal licenses will continue to be issued to licensed personnel who are enrolled in your approved requalification program, provided the NRC requalification examinations do not indicate significant weaknesses in that program.

IDR-5
INFO-HR-

This program should not represent a significant departure from the requalification program you already have in place, since you are required to conduct examinations at the reactor operator or senior reactor operator level as part of that program. It will, however, provide the NRC and the public with additional assurance that continued operator training is effectively being conducted. We encourage you to submit training material and examination questions and answer keys to NRC for our use in developing examinations.

In addition, in response to SECY 82-232 the Commission removed the requirement for NRC conducted simulator examinations for those plants that do not have plant specific simulators. The NRC staff is conducting an evaluation of the role of simulators in training and examinations to be completed by July 1983. When this study is completed, we intend to incorporate any changes into revisions to 10 CFR Part 55, Regulatory Guide 1.8 or into new regulatory guides, if necessary. Until then, the requirements for requalification training in Appendix A to 10 CFR Part 55 and NUREG-0737 remain in effect. You should refer to NUREG-0094 and Regulatory Guide 1.8 for additional guidance on initial and requalification training.

You will be contacted at a later date to schedule requalification examinations. If you have any questions on this program, please contact Mr. Don H. Beckham of the NRC's Division of Human Factors Safety at (301)492-4868.

Sincerely,

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosure: See Jacket
SECY 82-232

June 7, 1982

SECY-82-232

POLICY ISSUE
(Notation Vote)

For: The Commissioners

From: William J. Dircks
Executive Director for Operations

Subject: USE OF NON-PLANT-SPECIFIC SIMULATORS FOR INITIAL, REPLACEMENT, AND REQUALIFICATION EXAMINATIONS FOR LICENSED REACTOR OPERATORS AND SENIOR OPERATORS

Purpose: To request the Commission to continue the requirement to conduct examinations on plant-specific simulators and to remove the requirement for NRC-administered examinations on non-plant-specific simulators for initial and replacement licensing and for requalification of reactor operators and senior reactor operators.

Category: Minor Policy Question Notation Vote. Resource estimates Category 2.

Discussion:

I. Examination on Non-Plant-Specific Simulators

In response to SECY 79-330E, "Qualifications of (Power) Reactor Operators", the Commission in a memo from S. Chilk to L. Gossick, dated November 27, 1979, directed the staff to administer simulator examinations to all new, replacement, and requalification license candidates.

Since October 1, 1981, OLB examiners have examined approximately 600 license candidates on non-plant-specific simulators, and approximately 200 candidates on plant-specific simulators. Based on this experience, the staff does not believe that the information gained from a non-plant-specific simulator provides a basis to accurately judge the ability or competence of an operator with sufficient confidence to justify denial of a license.

Contact:
H. L. Thompson, NRR, 49-29595
D. H. Beckham, NRR, 49-24868

However, the staff recognizes the differences between a training device and an examination tool on which approval or denial of an operator's license will be based.

Non-plant-specific simulators qualify reasonably well as training tools, but are not effective examination tools for operator licensing. There are several reasons for this:

1. In most cases, the scope of the examination on a non-plant specific simulator is severely limited because of differences between the simulator and the plant. Since the areas of commonality generally encompass only the reactor controls, coolant system, and steam generating equipment, many areas of protective systems, emergency power supplies and radiological protection response are not conducive to examination on the simulator.

   Response to transients cannot be done in real time because of the plant differences noted above, therefore, the transient is discussed with the candidate to identify what has happened and what the appropriate response to the transient would be at his/her actual plant. This can be done with the same effect during the part of the oral examination conducted at the plant that stresses the control room operations.

2. In many plants, particularly the older ones, differences in technical specifications and operating procedures further compromise the non-plant-specific simulator examination's validity. For example, limits on axial flux differences or control rod deviation may vary between the actual plant and the simulator, or limiting conditions for operation may differ from the actual plant because the simulator is based on an earlier design. The alarms and indications available to alert operators to transient conditions can be quite different from those the operator must know to safely operate the actual plant.

3. Unless the candidates are thoroughly familiar with the layout of the boards, they can do little more than perform a startup of the reactor or increase or decrease power. This is because the candidate must recognize how the differences affect the evolution being conducted and locate the correct indicators and controls in real time simulation. This has caused such significant problems in the performance of operations on the non-plant specific simulator (e.g., the difference in controls and response of auxiliary feedwater systems with electric driven pumps and flow control valves or steam turbine driven, variable speed pumps) that the number and scope of malfunctions or casualties that the candidate can be expected to know are severely limited. For example, on most non-plant-specific simulators, casualties involving actuation of the engineered

safety features systems, D.C. power supplies or control air systems cannot be conducted satisfactorily because of plant differences. If the simulator is significantly different from the plant to be operated, the candidate must "train to pass the exam" and then return to the plant and retrain to become an operator at that plant.

II. Resource Impact of Non-Plant-Specific Simulator Examinations

A compounding factor has been the resource requirements associated with conducting simulator exams. Although a group of license candidates can be given written and oral walkthrough examinations at the site in one visit, the availability of the limited number of operational simulators has resulted in the problems listed below. Only nine plant specific simulators, as listed in Enclosure 1, are operational.

1. Simulator time is normally contracted one to two years in advance for scheduled operator training to meet training program commitments and NRC requirements. Simulator examinations increase the amount of training time required because the training departments have had to increase the amount of time in simulator training to provide the operator with the familiarity with the control board in addition to normal conceptual training programs.

2. Simulator availability problems sometimes force utilities to buy time on simulators not normally used in their training programs. This results in the license candidate being even less familiar with the simulator controls and indicators. It also increases overall training time, provides a higher probability of confusing the operator, and further limits the validity of the examination.

3. Even a small group of license candidates may result in several trips to different simulators to complete the exams. For example, replacement examinations for Kewaunee required two trips to two different simulators (SNUPPS and Sequoyah) to complete the examinations for four candidates. An additional trip would have been required but three candidates were withdrawn by the utility.

III. Resources For Requalification Examinations

In addition to the problem of simulator availability for scheduling and conducting requalification examinations, the staff has also experienced problems providing qualified NRC and contractor personnel available to conduct requalification examinations as directed by the Commission. In response to SECY 79-330E the staff was directed to conduct written, oral and simulator examinations for all requalification candidates. This was modified for FY 82 to include 100% simulator and 20% written and oral examinations. The reasons for the unavailability of personnel are three fold.

1. Lack of simulator availability has resulted in more trips being needed to simulator facilities to conduct examinations. This has increased the overhead associated with examinations, primarily due to increased time in travel status.

2. Requests for initial and replacement exams have increased beyond the rate budgeted due to the requirement to have two Senior Reactor Operators on shift by July 1, 1982. Budget estimates for FY 82 assumed 137 site visits for the entire year for all replacement and 20% requalification examinations. Actual requirements for the first quarter of FY 82 totaled 208 trips to give replacement examinations (8.5 psy equivalents were expended, an annual rate of 34 psy compared to 36.4 psy equivalents, contractor and NRC examiners, budgeted for all requalification and replacement examinations). This rate of resource use was for license examinations only, and did not include requalification examinations. To meet the minimum time as a reactor operator and the requirement for an SRO candidate to have three months on shift as an extra person, utilities are forced to have more reactor operators available to fill in and to provide the base for SRO selection. While this has caused a significant increase in RO and SRO applications, it has provided a large number of operators who have recently passed the licensing examination at operating plants.

3. Although contract funds were available to augment staff resources, it was difficult to obtain personnel through contractors with the necessary qualifications and training to conduct examinations. Therefore, extensive training programs had to be undertaken at three national laboratories (Oak Ridge, Idaho, and Battelle Pacific Northwest). The first classes have completed training and are conducting examinations now. There are second classes completing training, and we are evaluating proposals for a third class of limited size at some of the labs. However, the examiners in the second and third classes must be restricted to written

examination administration and grading until they have sufficient experience and the staff has sufficient confidence to ensure they will do competent work in simulator or oral examinations. Therefore, all of the contract personnel will not be available for full examination work until later in this fiscal year.

This training effort has also demanded staff attention. As of January 15, 1982 the OLB section leaders have been removed from use in preparing and conducting examinations in order to monitor and train these additional examiners. Until these examiners and the additional personnel hired for the Bethesda and Chicago sections are fully trained, the rate at which examinations can be given will continue to be manpower limited.

The staff has estimated that based on first quarter expenditures, using the resources saved by removing the requirements for non-plant-specific simulator examinations, requalification examinations could be conducted for 25-30% of the currently licensed operators, if the requalification examinations were given during scheduled site visits for replacement examinations. This will require coordination with the utilities to ensure that the operators to be administered requalification examinations will be available from their licensed duties on a schedule consistent with the replacement examinations. A generic letter to all utilities establishing the requalification examination program is attached as Enclosure 2.

For plants with plant-specific simulators, only a simulator requalification examination of 2 to 3 hour duration would be given. For plants without plant specific simulators, a combination of a written examination and a oral test in the facility will be given for requalification. This will provide additional impetus for upgrading requalification training programs and benefit those plants with plant-specific simulators. A preliminary schedule for conducting requalification examinations for the third and fourth quarters of FY 1982 is attached as Enclosure 3. This schedule is based primarily on the current schedule for conducting replacement examinations. Multiple visits may be made to one facility to accomodate the normal replacement examination schedule requested by the utility. The staff schedule will not commence until 30 days after Commission approval of the recommendations of this paper.

This method of auditing requalification programs should result in significant improvements in any requalification programs that are weak. Since the specific operators to be examined will not be announced in advance, the training of all operators will have to be reviewed and updated as necessary. Weaknesses noted in a requalification program will serve to focus NRC resources on those utilities that need improvements in their programs. This will result in improvements similar to those expected of a 100% NRC examination program with considerably fewer staff resources expended.

IV. Comprehensive Review of Examination Process

NRR presently has underway programs to determine the validity and reliability of the current examinations and to evaluate alternate methods for the examination process. Subjects to be covered include:

1. Validation of the written, oral and simulator examinations.

2. Further evaluation of the role of simulators in operator licensing to determine whether they should be required for all facilities.

3. Consideration of the use of non-NRC or industry examiners ("check-pilot concept").

4. Examination of the requalification/license renewal process.

Results from the review programs discussed above are expected to be available by mid 1983 and should provide the basis for changes to the current examination process and for defining the role of simulators in operator licensing.

Recommendation: That the Commission:

1. For power reactors with a plant-specific simulator, continue the requirements of a simulator licensing exam of all new and replacement candidates and require, for the NRC-administered requalification exam, only a simulator exam of at least 20% (per year) of the currently licensed operators. For power reactors without a plant-specific simulator, require an operating test (oral exams) in accordance with 10 C.F.R. § 55.23 as well as a written exam of all new and replacement candidates and require, for the NRC-administered requalification exams, oral and written exams of at least 20% (per year) of the currently licensed operators.

2. Note that under 10 C.F.R. § 55.11(b), the Commission may prescribe an operating test to determine that the candidate has learned to operate in a competent and safe manner. Up until the mid-1970's, this test generally included requesting the candidate to start up the reactor from a subcritical condition to a designated power level. Since then, actual plant manipulation has not been required for licensing exams in accordance with the approved staff guidance in NUREG-0094. For plants without a plant-specific simulator, this requirement could be re-instituted, depending upon results of the studies of the examination process presently underway.

3. Note that the staff-administered requalification examinations of the reactor operators and senior reactor operators will not commence until the schedule and content of the exams have been reviewed by the CRGR. A tentative schedule for administering those exams is at Enclosure 3.

4. Note that the staff will issue renewal licenses to candidates who have completed approved requalification programs and filed applications for renewal prior to June 1, 1982.

5. Note that the staff will submit a status of the program to improve the examination process, discussed under IV above, by July 1, 1983.

   This program will include proposed changes to 10 CFR Part 55 to clarify the requirements for acceptability of simulators in the training and examination of reactor operators and senior reactor operators.

Scheduling: Prompt Commission action is requested so that requalification examinations can commence as soon as possible.

William J. Dircks
Executive Director
for Operations

Enclosure:
1. List of Operating Plant-Specific Simulators
2. Generic Letter to All Power Reactor Applicants and Licensees
3. Schedule for Requalification Audit Examinations at Nuclear Power Plants

DISTRIBUTION: Commissioners

OGC	EDO	SECY
OPE	ELD	
OCA	ACRS	
OIA	ASLBP	
OPA	ASLAP	

Note: Commissioner's comment should be provided directly to the Office of the Secretary by c.o.b. Wednesday, June 23, 1982.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Wednesday, June 16, 1982, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

ENCLOSURE ONE

ENCLOSURE 1

LIST OF OPERATING PLANT-SPECIFIC SIMULATORS

Browns Ferry 1/2/3
Dresden 2/3
Hatch 1/2
Indian Point 2/3
McGuire 1/2
Sequoyah
Surry 1/2
Susquehanna
Zion 1/2

ENCLOSURE TWO

Enclosure 2

To: All Power Reactor Applicants
and Licensees

Subject: Reactor Operator and Senior Reactor Operator Requalification Examinations

Gentlemen:

This letter is to inform you that NRC-administered requalification examinations for licensed reactor operators and senior reactor operators will be scheduled at your facility prior to October 1, 1982.

In response to SECY 79-330E, "Qualifications of (Power) Reactor Operators", the Commission directed the staff to administer examinations as part of the requalification program for all licensees and applicants. This requirement was incorporated into TMI Task Action (NUREG 0660) Item I.A.3.1 and clarified in NUREG 0737. To implement this directive, the Operator Licensing Branch will be conducting requalification examinations at your facility at the same time that regularly scheduled initial or replacement examinations are given.

We plan to administer a written and an operating test to at least 20% of your licensed personnel per year. In this way all licensed personnel will be examined at least every five years and the impact on your requalification training program will be minimized. Detailed schedules will be worked out between OLB and your training staff in conjuction with your initial or replacement license examinations.

The requalification examinations will be conducted in a manner similar to the original license examination, with emphasis on procedures and operating experience. If your plant has a plant-specific simulator, the examinations will be conducted on that simulator. Otherwise, a written examination and a practical test will be conducted at your facility. Unsatisfactory performance will necessitate accelerated retraining, in weak areas. This is consistent with your in-house requalification program presently in place. Re-examination by OLB may be required in unsatisfactory areas. Renewal licenses will continue to be issued to licensed personnel who are enrolled in your approved requalification program, provided the NRC requalification examinations do not indicate significant weaknesses in that program.

It should be pointed out that this program does not represent a significant departure from the requalification program you already have in place. You are required to conduct examinations at the RO or SRO level as part of that program. We encourage you to submit training material and examination questions and answer keys to OLB for their use in developing examinations.

ENCLOSURE THREE

ENCLOSURE 3

PRELIMINARY SCHEDULE FOR REQUALIFICATION AUDIT EXAMINATIONS AT NUCLEAR POWER PLANTS

Week Started	Plant Visited
6/7/82	Ft. Calhoun Yankee Rowe
6/14/82	St. Lucie 1 Crystal River
6/21/82	Zion* Duane Arnold Nine Mile Pt. 1
6/28/82	TMI 1 Browns Ferry 1/2/3*
7/5/82	None
7/12/82	H. B. Robinson Indian Point 2*
7/19/82	North Anna 1/2 Connecticut Yankee Vermont Yankee
7/26/82	Surry 1/2* Kewaunee Hatch 1/2 Pilgrim 1
8/1/81	Farley Salem
8/8/82	Nine Mile Pt. 1 Brunswick 1/2 Indian Point 3*
8/15/82	None
8/22/82	Ft. Calhoun Oyster Creek McGuire 1*
8/29/82	St. Lucie 1 Nine Mile Pt. 1
9/6/82	ANO-2 Palisades Farley

*Plant-specific simulator exam.

9/13/82	SONGS 1 Ft. Calhoun Cooper 1
9/20/82	Calvert Cliffs 1/2 ANO-1 Fitzpatrick 1
9/27/82	TMI 1 St. Lucie

Not Yet Scheduled
Rancho Seco (11/82)
Big Rock Pt.
Humboldt Bay
Quad Cities 1/2
Turkey Point