



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

November 27, 1979

Cys: Gossick  
Smith  
Rehm  
PCollins  
Dircks  
Stello  
Shapar  
Levine  
Haller  
Barry  
Klinger  
TMI Inquiry

MEMORANDUM FOR: Lee V. Gossick, Executive  
Director for Operations

FROM: Samuel J. Chilk, Secretary

SUBJECT: SECY-79-330E/330F - QUALIFICATIONS OF (POWER) REACTOR  
OPERATORS (COMMISSIONER ACTION ITEM)

This is to advise you that the Commission (with all Commissioners concurring, as noted) has approved the staff's recommendations, subject to modification, as noted below:

Recommendation #1 - Senior Reactor Operator license applicants shall have 4 years responsible power plant experience, with up to 2 years credit for academic or related technical training. Two years shall be nuclear power plant experience and at least 6 months experience must be at the plant for which he seeks the license.

All Commissioners support increasing applicant qualifications, and as an initial step the staff's recommendation is accepted. In addition the staff is requested to prepare for the Commission's consideration new requirements which would be consistent with the recommendations of the Lessons Learned Task Force, NUREG-0585, Item 1.6 on page A-7. (The Commission notes that the staff plans to provide them with additional recommendations in this and other areas in the near future.)

Commissioners Gilinsky and Ahearne would go beyond the staff's recommendations in these papers and NUREG-0585. Specifically they would give primary responsibility for control room operation to a person who has at least an engineering degree, has passed the exam for licensed operator, has at least 5 years experience in the nuclear power business, and at least one year of experience as an assistant engineering officer in some area of a nuclear plant.

Recommendation #2 - Modify "hot" training programs and require 6 months experience as a licensed reactor operator for senior operator applicants.

The Commission prefers to increase the time required as an operator to 12 months, as opposed to the 6 month requirement recommended by the staff. The staff's basic recommendation is accepted; however, 12 months experience is to be required. Chairman Hendrie and Commissioner Kennedy did not agree with the 12 month experience stipulation.

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Recommendation #3 - Establish requirements for license applicants to participate in plant shift operation.

The staff's recommendation is accepted.

Recommendation #4 - Establish requirements that simulators be used in training programs for "hot" applicants.

The Commission agreed with the staff's recommendation. While Commissioners Bradford and Ahearne agreed with the recommendation they raised two issues as follows:

"(1) It has been mentioned several times in SECY 79-330E that some older plants may not have available to them simulators that adequately represent these plants. The staff should determine whether this is due to lack of simulators or lack of simulator programs. If it is a software problem and if we do believe that simulator training is critical, such software should be developed. Furthermore, if we believe simulator training is critical, we should examine the desirability of requiring the construction of simulators to represent these older facilities.

(2) This recommendation and several others stress the use of simulators. Commissioner Ahearne has been informed that the Navy does not endorse this philosophy. This may be based upon significantly different reactor control design or upon the Navy's use of prototype reactors. However, before we place major requirements upon all the utilities to switch heavily into the use of simulators and place great reliance upon their use to provide the training we believe necessary to fully qualify operator, we should understand why the Navy does not believe they are appropriate. Attached is a letter sent by Commissioner Ahearne to the Navy on the subject. Perhaps a follow-up would be appropriate."

The staff's recommendation is accepted, but the staff is requested to respond to the items raised by Commissioners Bradford and Ahearne.

Recommendation #5 - Operator training programs on simulators should be audited more closely and some certification examinations should be administered by the NRC.

The Commission has decided that the NRC shall conduct all certification examinations. Chairman Hendrie and Commissioner Kennedy agreed with the staff's recommendation.

The Commission recognizes that this action has significant resource implications and that it cannot be implemented immediately. Implementation plans must be developed.

Recommendation #6 - Eligibility requirements should be developed for instructors.

All Commissioners agreed with this recommendation, but Commissioners Gilinsky, Bradford and Ahearne questioned the need to initiate a rule-making in this area and suggested that the added requirements be implemented in such a manner as to permit the affected instructors to take the necessary examination.

The staff's recommendation is accepted, but rulemaking should be avoided unless required.

Recommendation #7 - Provide for periodic retraining and recertification on a simulator.

The Commission concurs with the staff's recommendation.  
Commissioner Ahearne noted:

"If we do conclude that simulators provide the level of training that the paper implies, then I would agree with this recommendation. In addition I would require that any licensed individual who has not performed a licensed duty for six months or more, must requalify that license".

The staff's recommendation is accepted.

Recommendation #8 - Establish explicit requirements, regarding exercises to be included in simulator requalification programs.

All Commissioners concurred in this recommendation. Commissioner Ahearne qualified his concurrence as being dependent upon resolving the questions he raised in reference to Recommendation #4.

Recommendation #9 - That NRC administer some of the annual operator requalification examinations.

The Commission has decided that the NRC shall conduct all requalification examinations. Chairman Hendrie and Commissioner Kennedy agreed with the staff's recommendation.

As with Recommendation #5 the Commission recognizes that significant resource implications arise as a result of this action; and that implementation plans must be developed.

Recommendation #10 - Increase scope of the written examinations as per Option #13.

Commissioners Gilinsky, Bradford and Ahearne prefer Option #14 with fixed time limits and modified grading procedures to the examinations. Chairman Hendrie and Commissioner Kennedy agreed with Option #13.

Option #14 is authorized with fixed test time limits and modified grading procedures. For example: The examinations should have fixed time limits, eight hours for the operator exam and five hours for the senior operator exam. (At some time in the future when the complexity and scope of the exams is increased, it would be appropriate to extend these times). Further, the grade should be based on the answers completed, during the fixed amount of time. Unanswered questions should be graded as a zero. These changes should be made immediately.

Recommendation #11 - Applicants for operator and senior operator licenses should be examined at a nuclear power plant simulator.

While all Commissioners agreed with the recommendation, Commissioner Ahearne qualified his concurrence until his questions on the use of simulators are answered.

The staff's recommendation is accepted.

Recommendation #12 - Senior operator applicants should also be required to take oral tests, as well as written examinations.

The Commission approved the staff's recommendation, and the recommendation is accepted.

Recommendation #13 - The passing grade of the written examination should be increased to 80% or greater and 70% or greater in each category.

The Commission approved the staff recommendation. Commissioner Bradford approved the basic staff recommendation, except that he would require a 90% pass rate for the categories entitled Emergency Systems and Emergency Operating Procedures. Commissioner Gilinsky preferred a figure of 90% and 70%. The staff recommendations are accepted.

Recommendation #14 - NRC should inform facility management of the results of each examination so that remedial training may be instituted, as applicable.

The Commission agreed with the staff's recommendation. Commissioner Ahearne noted:

"I am not sure that the appropriate follow-up action is necessarily so that the individual can be enrolled in requalification programs. It may be appropriate for the utility to conclude that the individual does not have the necessary skills to qualify."

The staff's recommendation is accepted.

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Recommendation #15 - ANSI/ANS 3.5-1979, "Nuclear Power Plant Simulators," should be reviewed and revised and a Regulatory Guide reflecting NRC endorsement be developed.

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The Commission agreed with the staff's recommendation. Commissioners Bradford and Ahearne noted as follows:

"This is a critical one because it addresses what requirements should be established for simulator capability. We believe we need to resolve the issue of why the Navy does not use simulators and to what extent we should rely on them. Once that is resolved, we definitely should establish the appropriate requirements. We believe that we must take a more direct and active role in this rather than waiting for the ANSI group to provide their recommendations."

The staff's recommendation is accepted.

Recommendation #16 - The present part-time examiners should be augmented by utility and vendor training personnel and formal training programs should be instituted for all examiners.

All Commissioners agreed with the recommendation to develop formal training and programs for retraining all examiners.

With respect to the first part of this recommendation (i.e., Option 23), in SECY-79-330F the staff recommended an alternative implementation plan which included a feasibility study of the viability of the check pilot concept. Subsequent to the study the staff should report to the Commission and make recommendations as they deem appropriate.

Chairman Hendrie and Commissioners Kennedy and Bradford concur in this latter approach, as outlined in SECY-79-330F. Commissioner Kennedy requested that as a part of its feasibility study regarding "check examiners", the staff should consider development of such a program in conjunction with the industry's Institute for Nuclear Power Operations. Commissioner Bradford qualified his concurrence, requiring that particular attention is paid to avoiding conflicts of interest.

Commissioners Gilinsky and Ahearne disapproved the staff's recommendation, preferring Option #22. They commented as follows:

"We do not agree with option 21, that is, continuing to use part-time examiners. We do agree with developing formal training and retraining programs for examiners. We also agree with the requirement that examiners must have passed a qualifying examination for the license for which they are examining. (We recognize this will require modification in our licensing, since we do not believe it appropriate for them to qualify on a specific plant.) We believe we should move toward the situation where there are no part-time examiners and where we hire only those who have held a senior reactor operator license or get such a license. In the interim, we believe it appropriate to continue the use of part-time examiners under the

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ground rules of option 21. However, at the point where it is possible to begin phasing them out as examiners, we should. At that point, we believe it would be more appropriate to use the part-time people to develop the training and to teach examiners. They can also be used as audit checks."

In additional comments, Commissioners Kennedy, Bradford and Ahearne indicated a desire to extend Commission approval of new or upgraded training program requirements for non-licensed power plant in functional positions which would affect the safe operation of the plant (e.g., management, maintenance and other technical personnel). Commissioners Bradford and Ahearne would go beyond that and suggested that we have requirements which would in some sense, lead to NRC approval of the individuals who occupy these positions.

Other Commissioner comments are as follows:

Chairman Hendrie stated:

"I concur in the recommendations of both these papers, on the basis that we must get on with the upgrading in this area and that this start on the matter is better than awaiting a more perfect program, and with the understanding that further measures should be considered and added to the program as appropriate."

Commissioner Gilinsky commented:

"I would like to see a division established within NRR to deal with deal with human factors."

Commissioner Kennedy commented:

"I concur in the recommendations set forth in SECY-79-330E and the implementation plan set forth in SECY-79-330F. In doing so, I would note that these actions should be considered as the 'first set' of upgraded requirements for operators of nuclear power plants and that additional requirements are likely to result from our continuing studies in this area."

Commissioner Ahearne commented:

"I disagree with obtaining SROs from utilities and vendor operators [to assist in licensing activities]."

Commissioners Bradford and Ahearne commented:

"As an additional requirement, we believe we should establish a system for keeping track of operator errors. We believe this should be in place within three months. It would entail an identification of the operators, auxiliary operators, and other maintenance personnel involved in a reportable event. (Expanding the list of reportable events is beyond the scope of this particular paper, but it is something that should be considered.) We believe there may be a tendency at present to shift equipment or procedural problems over to the catch-all phrase 'operator error.' We believe we must begin to keep track of individuals so that we can identify both those who need additional training and those who should not be allowed to retain a license. This pressure will also, we believe, lead to more accurate reporting of events."

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"In addition to the requirements on senior technical individuals, we believe that in order to have an operator's license, individuals entering the training must have at least a high school diploma (not a high school equivalency diploma). To obtain a senior operator's license, we believe there should be a requirement of two years of college level training (or the equivalent) in appropriate subjects. We believe these requirements should be proposed for all those not yet beginning training, and consideration should be given to making them retroactive after a fixed period of time. (Some provision will have to be made for a special examination to allow those currently performing the duties to 'demonstrate' an acceptable level of performance. This may be through the requalification examination.)

"Passage of stress tests should be required for the senior reactor operator and senior technical person. We should begin a discussion with organizations who have been developing stress tests or are using them, for example, the Department of Defense. In addition, we should require screening of applicants for the basic operator licensing training program. One possibility would be to use the aptitude screening test used by the Navy to decide who is eligible to go into their new reactor training program. (In this case all entrants to the Navy are given sets of tests and the reactor training first screening is those that score above a certain level on a certain number of tests.)

"The fundamental philosophy that we are advocating is one in which the right to be licensed to attend training programs and to be licensed as an operator is restricted. We recognize there are difficulties with this approach, but we believe the technology we are regulating justifies it.

"We also believe we should modify the requirements for presence in the control room to require, at a minimum, one reactor operator and one senior reactor operator."

The staff is requested to provide the Commission with further recommendations in the area of Recommendation #1. Specifically the recommendations of the Lessons Learned Task Force, NUREG-0585, Item 1.6 on page A-7 should be included. The additional requirements recommended by Commissioner Gilinsky and Ahearne should be considered and discussed. The Commission considers this a priority matter that should receive the staff's prompt attention. (SECY Suspense: 12/21/79)

The staff is requested to promptly proceed with the implementation of those recommendations approved by the Commission. The staff should provide a revised implementation schedule reflecting the authorized recommendations.  
(SECY Suspense: 12/21/79)

Commissioner Ahearne's comments on the utilization of simulators vs prototypes should be addressed.  
(SECY Suspense: 12/21/79)

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Since a majority of the Commission, Commissioners Kennedy, Bradford and Ahearne, have indicated a desire to extend Commission approval of the training of non-licensed power plant personnel in functional positions which would affect the safe operation of the plant (e.g., management, maintenance and other technical personnel) the staff should proceed expeditiously with the development of new or upgraded training program requirements for these positions for the Commission's consideration.  
(SECY Suspense: 12/21/79).

Attachment:  
Ahearne Letter - 4/26/79 to Rickover

cc:  
Chairman Hendrie  
Commissioner Gilinsky  
Commissioner Kennedy  
Commissioner Bradford  
Commissioner Ahearne  
Commission Staff Offices  
Director, Nuc Reactor Regulation