

May 23, 2002

MEMORANDUM TO: Bruce A. Boger, Director  
Division of Inspection Program Management  
Office of Nuclear Reactor Regulation

FROM: */RA/*  
Theodore R. Quay, Chief  
Equipment and Human Performance Branch (IEHB)  
Division of Inspection Program Management, NRR

SUBJECT: POLICY FOR CONDUCTING "PEER CHECKS" DURING OPERATOR  
LICENSING EXAMINATIONS

The purpose of this memorandum is to obtain your approval to promulgate additional guidance regarding the use of "peer checks" during the operating test portion of initial operator licensing examinations.

Questions regarding the appropriateness of allowing license applicants to request "peer checks" during the initial operator licensing examination first arose last summer during an examiner workshop. The Operator Licensing and Human Performance Section subsequently discussed this issue during a regional operator licensing branch chief counterparts' meeting and during the August 16, 2001, public meeting with the Nuclear Energy Institute's operator licensing focus group. During that meeting the industry representatives voiced no objections to the policies outlined in Attachment 1. Additional discussion and rationale for those policies are provided in Attachment 2.

IEHB has not sought public comments on the proposed additional guidance because (1) it is a clarification that does not contradict the existing guidance in Appendix E of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors;" (2) it places no additional burden on facility licensees or license applicants; (3) it should enhance operational validity and have no negative effect on examination integrity; and (4) it will decrease the stress that some applicants, accustomed to the peer check protocol, may experience in its absence.

I have reviewed the attached guidance and recommend that you approve it for immediate implementation. I have concluded that this guidance does not involve a generic backfit that would require review by the Committee to Review Generic Requirements. If you concur with this conclusion and the proposed clarification, please sign in the space provided below and

CONTACT: George M. Usova, DIPM/IEHB/IOHS  
415-1064

B. Boger

-2-

May 23, 2002

return this memorandum to me. IEHB will then promulgate Attachment 1 via the NRC's "Operator Licensing Regulations, Guidance, and Communications" web page. The guidance will be incorporated in the next revision of NUREG-1021 when it is developed. If you determine that this issue requires further review or if you have any questions, please contact me on 415-1017.

Attachments: As stated

I hereby approve the attached "peer check" policy for promulgation via the NRC's operator licensing web site and immediate implementation.

/RA/  
Bruce A. Boger, Director  
Division of Inspection Program Management  
Office of Nuclear Reactor Regulation

6/6/02  
Date

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-2-

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Bruce A. Boger, Director  
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Date

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## **THE USE OF “PEER CHECKERS” DURING INITIAL LICENSING EXAMINATIONS**

### Issue

The NRC staff understands that some utilities use a “peer check” process during training and operations to provide assurance that procedures are performed correctly. In practice, one crew member confirms or corrects the intended actions of another crew member who then completes the required procedural actions; thus, the “peer checker” helps ensure that the completed actions are accurate. Since the “peer check” process may be an integral part of some utilities’ training and operations protocols, they have expressed a desire to preserve an element of that process during the initial operator licensing examination in order to maintain the applicants’ sense of operational continuity and job-relatedness.

### Discussion

The NRC agrees that, in a training and operating plant environment, the “peer check” process is arguably a good safeguard that promotes accurate job performance. However, during the NRC operating test, in which individual applicants are evaluated on their knowledge and understanding of facility operating procedures, actions, and critical steps -- so as to make a licensing decision at the individual level -- it is important that every applicant’s knowledge and understanding be sufficiently separable (i.e., independent and without external assistance). Any confirmation or correction of an applicant’s actions during the licensing examination could interfere with and confound the individual evaluations and threaten discriminant validity.

Therefore, in an effort to maintain the applicants’ sense of operational continuity and job-relatedness without undermining the NRC license examiners’ ability to evaluate their applicants’ individual knowledge and understanding of the facility’s operating procedures, the NRC staff has concluded that peer checks should be allowed during initial operator licensing operating tests subject to the additional guidance outlined below. This additional guidance clarifies the existing guidance in Revision 8, Supplement 1, of NUREG-1021, “Operator Licensing Examination Standards for Power Reactors,” and will be incorporated in the next formal revision of that document.

### Additional Guidance

1. During the walk-through portion of the operating test (i.e., Categories A and B), NRC license examiners will fulfill the “peer checker” role if it is required by the facility licensee’s conduct of operations and training procedures and practices. However, the NRC examiners’ role will be limited to **acknowledging** the applicant’s intended or completed actions, regardless of their accuracy. If the applicant’s intended actions are erroneous, the examiner will simply acknowledge the applicant’s request for a peer check, agree with the intended actions, and grade the error in accordance with ES-303 of NUREG-1021. Pursuant to Section D.1.j of ES-302 and Instruction C.3 of Appendix E of NUREG-1021, facility staff may not be used as “peer checkers.”

Add the following instructions to the applicant briefing conducted pursuant to Part D of Appendix E of NUREG-1021, Revision 8, to ensure that the applicants understand how peer checks will be performed during the walk-through portion of the operating test:

If your facility licensee's procedures and practices require the use of peer checks, you may request the NRC examiner to perform that function. However, because the NRC examiner must be able to evaluate your individual performance without assistance from others, he or she will simply acknowledge your proposed actions, regardless of their accuracy or correctness.

2. During the dynamic simulator portion of the operating test (i.e., Category C), the operating team or crew (including license applicants and surrogates, if applicable) should perform peer checks in accordance with the facility licensee's conduct of operations and training procedures and practices. Additional facility staff may not be stationed or called upon for peer checks, nor will the NRC examiners perform this function. Pursuant to Instruction E.4 of Appendix E of NUREG-1021, if an applicant serves as a "peer checker" during a simulator scenario and misses another applicant's error, then both applicants will be graded accordingly. However, if an applicant intends to commit an error but is prevented from doing so by the peer checker, the applicant will, nevertheless, be held accountable for the consequences of the intended error without regard to mitigation by the crew.

Add the following clarification to Instruction E.4 of Appendix E of NUREG-1021, Revision 8, to ensure that the applicants understand how peer checks will be conducted during the dynamic simulator portion of the operating test:

Members of the operating team or crew (whether applicants and surrogates) should perform peer checks in accordance with the facility licensee's procedures and practices; non crew members and NRC examiners will not perform this function. However, if an applicant intends to make an error that is corrected by a peer checker, the applicant will be held accountable for the consequences of the intended error without regard to mitigation by the crew.

## RATIONALE FOR POLICY REGARDING “PEER CHECKS” DURING INITIAL OPERATOR LICENSING EXAMINATIONS

**The issue:** Should the peer checker process be used during the operating portion of the NRC license examination?

One region reported that more and more licensees are implementing peer checking requirements for critical procedural steps, e.g., before turning a control switch for a component an operator asks a second operator to verify that he/she (the first operator) has his hand on the correct switch. Since this is the way they are operating in the plant, we are now seeing this showing up on the operating test. Chief examiners are divided on whether to allow this during the operating test. One camp says that since that is the way it is done in the plant, it should be done that way on the test. The other camp says peer review should not be allowed on the operating test because it may mask operator weaknesses.

### Background

The NRC license examination is a measure of applicant safety significant knowledge and operating performance. For license examinations to be valid measures of both knowledge and performance, those examinations must be developed and administered in accordance with established psychometric procedures which are addressed in NUREG-1021, “Operator Licensing Examination Standards for Power Reactors,” Revision 8. More specifically, the Examination Standards provide detailed guidance for attaining examination validity; the three components of validity are as follows: (1) content, (2) operational, and (3) discriminant validity. It is the latter level of validity -- discriminant validity -- that is at issue during the peer check process.

All examination instruments (written and operating tests) must contain discriminant validity; that is to say, the examination instrument, overall, must have the potential to discern which applicants do and which do not have the minimum level of safety significant knowledge and performance required to operate the plant. As is commonly known, properly discriminating and fair examination instruments provide individual applicants the opportunity either to pass or to fail the examination. Therefore, it is important that any NRC license examination be constructed and administered so that safety significant discriminations (validity) can be made for each **individual** taking the examination. Thus, for discrimination to be meaningful for the individual, it is essential that individual applicants receive no assistance or aid from any external sources for any test items or tasks during the administration of the examination.

During actual plant operations, some plants have adopted a “peer check” process to assure that the operators performing procedure steps are doing so properly. The peer check process allows a second operator to observe and confirm that the steps that the first operator intends to perform are, indeed, the correct steps. In the training and operating plant environment, the peer check process is arguably a good safeguard for accurate job performance.

In the NRC operating test, however, where the **individual applicant** is to be evaluated on his/her knowledge and understanding of procedures, actions, and critical steps -- so as to make a licensing decision at the individual level -- it is important that the individual’s knowledge and understanding be sufficiently isolatable (i.e., independent) to make this individual assessment.

Thus, during Categories A and B (i.e., the walk-through portion) of the operating test, it is not appropriate to allow a second operator, or any other person, to confirm or disconfirm the actions to be taken by the individual being examined. To do so, would be a threat to discriminant validity discussed above and would thus jeopardize the validity inference necessary to a license examination. Moreover, this stance is consistent with guidance in Revision 8 of NUREG-1021, Appendix E, Instruction C. 3, which states that “[the applicant] may not solicit technical information from other operators, engineers, or technical advisors.”

However, in the case of Category C (i.e., the dynamic simulator portion of the operating test) as discussed below, a crew member may, in fact, participate in the peer check process by confirming or correcting an applicant’s procedural action. The uniqueness of the crew’s participatory interaction permits the full implementation of the peer check process during the license examination.

### **Using peer checks during Categories A and B**

The peer check process may be an integral part of some utility’s training and operations protocols, and consequently, it may be desirable to preserve an element of that process in the examination in order to maintain the applicant’s sense of operational continuity and job relatedness. Preserving and integrating an element of the peer check process into the NRC license examination may better simulate the applicant’s sense of job environment.

Thus, so as to maintain fidelity to the utility’s training and operations environment and to the reasonable extent possible, license examinations can replicate the peer check process, in a limited manner, during Categories A and B of the operating examination. As discussed earlier, the license examination must evaluate the individual without assistance from others. Thus, it is permissible for NRC examiners to fulfill the peer checker role, but that role must be restricted to that of **acknowledging** (neither confirming nor correcting) the applicant’s intended or completed actions. Obviously, there may be instances where the applicant’s error is acknowledged and the examiner will grade the error as such. (Note: Any peer checker confirmation (rightness or wrongness) of the applicant’s intended or taken action is **not** appropriate for license examinations since it interferes with and confounds the individual evaluation and threatens discriminant validity).

In summary, individuals taking the NRC license examination must be evaluated individually without the assistance of others so as to maintain examination validity. Similarly, as with the written examination, applicants demonstrate their knowledge by taking the examination “alone,” i.e., within their own thoughts and without any assistance from others. For obvious examination security reasons, any such assistance from others would violate the integrity of the individual written evaluation. Equally so, therefore, the operating test must retain its individual assessment function. Thus, the peer check **confirmation** process is **not** an acceptable or appropriate methodology during Categories A and B of the operating test. Peer checks that allow **acknowledgment only** are acceptable.

## Using peer checks during Category C

Although the “acknowledgment only” policy is acceptable Categories A and B of the operating test, it is not applicable to Category C, the simulator operating test. The dynamic nature of the simulator test and its dependence upon crew member’s confirmation requires a more adaptive perspective toward the peer check protocol than that allowed for either Categories A and B.

NUREG -1021, Appendix E, Instruction E.4, states that:

"If you recognize but fail to correct an erroneous decision, response, answer, analysis, action, or interpretation made by the operating team or crew, the examiner may conclude that you agree with the incorrect item."

Therefore, since the above guidance warns control room team members to correct others’ errors, it is clear that the “acknowledgment only” approach is inappropriate. Confirmation of the rightness or wrongness of the intended or taken action is essential within an integral team framework. This important element of the operating crew communications during the examination should be preserved.

Since utilities differ in their training/operations protocols regarding peer checks in the simulator, a “one size fits all” peer check methodology is inappropriate. Thus, the NRC will conduct simulator exams in accordance with each utility’s protocol for using the peer check process. Thus, the NRC license examination in the simulator should “mirror” the utility’s operating practices as followed in its own training/operations protocol.

As in Categories A and B, the applicant’s intended or taken actions will be graded as (potential) errors. That is to say, operator errors of intention -- although confirmed or corrected by the peer checker and without regard to consequence or mitigation -- will be graded as examination errors. Unlike Categories A and B, however, the NRC examiner will not serve as a peer checker during the simulator evaluation; rather, applicants being evaluated will use either other applicants or surrogates to perform peer checks. Should any team member of the utility who serves as a peer checker during the scenario, miss or ignore the applicant’s error, then that team member, too, shall be graded appropriately downward.

During the NRC license examination, utilities cannot create an artificial presence of providing additional or multiple peer checkers so as to assist the applicant being evaluated. Licensees will not post additional personnel in the simulator for the sole purpose of performing peer checks during the license examination. The peer checker process used during normal plant operations will be the process replicated during the license examination.

Regarding examinations in which surrogates are assigned the role of peer checker, such surrogates will similarly follow the guidelines of this policy. Surrogates, who play a role in the evaluation process and who have knowledge of the scenario events, are nonetheless, expected to identify errors of intention or commission as they occur and without regard to subsequent errors that might occur in the absence of such error identification. The fundamental concept surrounding the peer check is, in fact, to correct any error from cascading into other errors that would adversely affect the crew’s performance to safely operate the plant; moreover, the identification of operator crew errors is similarly consistent with the crew communication guidelines set forth in Appendix E of NUREG-1021, Instruction E.4, stated above.