

## A. PURPOSE

This standard explains the requirements and procedures for grading the site-specific written examinations for the initial licensing of reactor operator (RO) and senior reactor operator (SRO) applicants at power reactor facilities. The standard includes instructions for evaluating and revising the examinations after they are administered, grading the examinations, and conducting the first review of the graded examinations.

## B. BACKGROUND

As discussed in ES-201, facility licensees will generally develop and administer the initial operator licensing written examinations, subject to review and approval by the NRC. Facility licensees will also be expected to grade the written examinations, evaluate the outcome, and submit the examination results to their NRC regional office for review, approval, and licensing action in accordance with ES-501.

## C. RESPONSIBILITIES

### 1. Facility Licensee

- a. If the facility licensee developed and administered the written examinations, the licensee is also expected to perform the following grading activities, as described in Section D:

- @ Review and resolve any questions and comments that arose during and after the examination (refer to ES-402).
- @ Grade the examinations and review the grading using Form ES-403-1, "Written Examination Grading Quality Checklist."
- @ Evaluate the applicants' performance on the examination.

Facility management will review the examination grading based on the guidance in ES-501 and forward the graded examinations and all associated documentation to the NRC chief examiner so that it is received, when practical, within five working days after the examination was administered.

- b. If the NRC developed the examinations, the facility licensee's responsibility is limited to providing the NRC chief examiner with comments and recommendations regarding question deletions and answer key changes. Such comments and recommendations should normally be received within five working days after the exit meeting; any delay in submitting the comments will likely result in a comparable delay in the final licensing actions. (Refer to ES-402 for additional instructions regarding the post-examination review and comment process.)

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## 2. NRC Regional Office

- a. If the facility licensee grades the examinations, the regional office shall provide guidance and assistance, as necessary, to ensure that the facility licensee complies with the instructions in Section D.
- b. If the NRC developed the examinations, the regional office should grade the examinations in accordance with Section D after receiving any comments and recommendations from the facility licensee (refer to ES-402). The regional office may take advantage of the facility licensee's machine grading capability if it is available.
- c. After the examinations have been graded, the regional office shall review the grading, process the documentation, and complete the licensing actions in accordance with ES-501.

## D. GRADING INSTRUCTIONS

The author of the examination should normally grade the examination; however, the examination may be graded by another equally qualified individual if the author is not available, the number of applicants is unusually large, or the NRC regional office or facility licensee wishes to expedite the grading process. The examinations shall be graded as expeditiously as possible, in accordance with the following instructions:

### 1. Evaluate Questions and Comments

- a. Evaluate all questions posed by the applicants during the examination, any pen-and-ink changes made on the master examination during its administration, and any post-examination comments or recommendations received from the facility licensee and applicants after the examinations were administered. Determine if any questions should be deleted from the examination, or if any answers need to be changed. Do not delete any question or change any answer unless there is a valid reference to support the change. An unreasonable assumption on the part of an applicant does not justify the acceptance of an alternate answer.

If there is some doubt whether the NRC chief examiner will accept a proposed change, the grader is encouraged to discuss the matter with the chief examiner before proceeding with the grading process. This may help to minimize the need for grading corrections during the quality reviews.

For each comment and recommendation, the NRC chief examiner shall document the reason that the question was changed or the comment was not accepted; this information will be included in the examination report as discussed in ES-501.

- b. If it is determined that there are two correct answers, both answers will be

accepted as correct. However, if three or more answers could be considered correct or there is no correct answer, the question shall be deleted. Annotate the recommended changes on the master examination and answer key and document the reason for every change or deletion.

- c. Those applicant questions, facility comments, and recommendations that do not result in answer key changes or question deletions, should be evaluated to determine if the associated test questions might benefit from editorial changes before they are used on another examination.
- d. **Before depositing the questions in any examination bank, revise the questions to incorporate all changes, comments, and enhancements, as appropriate.**

## 2. Grade the Examinations

- a. Copy each applicant's answer sheet, and set the copies aside for later use during the grading review process.
- b. On each applicant's original answer sheet, indicate in *red pen or pencil* which questions were answered incorrectly, note their correct answers, and indicate which questions (if any) were deleted. If the answer sheet is more than one page long, it is helpful to note the total number of incorrect answers on each page to aid in tabulating the final grade.

If the examinations are graded by machine, attach a copy of each applicant's profile report to his or her answer sheet, or manually annotate the answer sheet as noted above.

- c. If it is necessary to change a grade during the grading process, do so by lining out the original grade in such a way that it remains legible. Briefly explain the reason for the change on the applicant's answer sheet, and initial the change. Under no circumstances will a grader use "white-out" or other methods that obscure the change.
- d. After grading all the questions, enter the "Examination Value" (i.e., the original test point total minus the point value of any deleted questions), the "Applicant's Score," and the "Applicant's Grade" (i.e., the Applicant's Score divided by the Examination Value) in the "Results" section of the applicant's written examination cover sheet.

If a facility chooses to share its preliminary grades with the applicants, it should caution them that the outcome may change if the NRC does not accept all of the facility licensee's recommended changes to the examination answer key.

## 3. Evaluate and Review the Grading

- a. Evaluate the applicants' performance on each examination question to identify any indications of a problem with the question or a deficiency in the applicants' training program. A table that summarizes the applicants' answers on each question, or a computerized item analysis (if the examinations were graded by machine) may be used to identify items with which the applicants had problems.

If it appears that a test question was faulty, determine whether the question should be deleted, the answer key should be changed, and/or the question should be revised before reuse. Then regrade the examinations as necessary.

If it appears that the training program was deficient, determine the need for remedial training and/or a program upgrade.

- b. After evaluating the examinations, review the grading *in detail* and complete Form ES-403-1, "Examination Grading Quality Checklist."
- c. Forward the examination package (i.e., the master examination and answer key, justification for any examination changes, any item analysis that was performed, the applicant's examination cover and answer sheets (the graded original and one clean copy), and Form ES-403-1) to the designated facility representative (if applicable) or to the NRC chief examiner for review in accordance with ES-501.

#### E. ATTACHMENTS/FORMS

Form ES-403-1, "Written Examination Grading Quality Checklist"

|                          |   |               |  |                    |       |   |
|--------------------------|---|---------------|--|--------------------|-------|---|
| Facility:                |   | Date of Exam: |  | Exam Level: RO/SRO |       |   |
| Item Description         |   |               |  | Initials           |       |   |
|                          |   |               |  | a                  | b     | c |
| 1.                       | Clean answer sheets copied before grading   |               |  |                    |       |   |
| 2.                       | Answer key changes and question deletions justified and documented  |               |  |                    |       |   |
| 3.                       | Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)   |               |  |                    |       |   |
| 4.                       | Grading for all borderline cases (80% +/- 2%) reviewed in detail  |               |  |                    |       |   |
| 5.                       | All other failing examinations checked to ensure that grades are justified  |               |  |                    |       |   |
| 6.                       | Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants |               |  |                    |       |   |
| Printed Name / Signature |   |               |  | Date               |       |   |
| a.                       | Grader  | _____         |  |                    | _____ |   |
| b.                       | Facility Reviewer(*)  | _____         |  |                    | _____ |   |
| c.                       | NRC Chief Examiner (*)  | _____         |  |                    | _____ |   |
| d.                       | NRC Supervisor (*)  | _____         |  |                    | _____ |   |
| (*)                      | The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.                               |               |  |                    |       |   |

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