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ES-201  
INITIAL OPERATOR LICENSING EXAMINATION PROCESS

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A. PURPOSE

This standard describes the activities that must be completed to prepare for initial operator licensing examinations (including written examinations and operating tests) at power reactor facilities. It includes instructions for scheduling and coordinating examination development, assigning NRC examiners and facility personnel, maintaining examination security, and obtaining reference and examination materials from the facility licensee.

B. BACKGROUND

Title 10, Part 55, of the *Code of Federal Regulations* (10 CFR Part 55) requires that applicants for reactor operator (RO) and senior reactor operator (SRO) licenses pass a written examination and an operating test. The regulation allows power reactor facility licensees to prepare the site-specific written examinations and operating tests subject to the following conditions: (1) the facility licensee shall prepare the examinations and tests in accordance with the criteria contained herein; (2) the facility licensee shall establish, implement, and maintain procedures to control examination security and integrity; (3) an authorized representative of the facility licensee shall approve the examinations and tests before they are submitted to the NRC for review and approval; and (4) the facility licensee shall obtain NRC approval of its proposed written examinations and operating tests. Moreover, the regulation requires that the license examinations be developed and administered in accordance with 10 CFR 55.41 and 55.45 for ROs or 10 CFR 55.43 and 55.45 for SROs.

Facility licensees may propose alternatives from the examination criteria contained herein and evaluate how the proposed alternatives provide an acceptable method of complying with the Commission's regulations. The NRC staff will review any proposed alternatives and make a decision regarding their acceptability. The NRC will not approve any alternative that would compromise its statutory responsibility of prescribing uniform conditions for the operator licensing examinations.

The NRC will continue to prepare the examinations (or discrete portions of the examinations - i.e., the outline, written, or operating tests) upon written request by facility licensees (consistent with NRC staff availability) and retains the authority to develop the examinations on a case-by-case basis to certify new examiners or if it loses confidence that a facility licensee will develop examinations upon which the NRC can base its licensing decisions. If the NRC determines that a facility is unable to develop acceptable examinations, the examinations could be delayed until sufficient NRC resources can be scheduled to develop and conduct the examinations, or until the facility licensee can develop an acceptable examination. Each NRC regional office will also prepare at least one examination per calendar year to certify new examiners, as required, and to maintain examiner proficiency.

The NRC will make a reasonable attempt to administer all license examinations on the dates requested by facility licensees. At times, however, resource limitations may compel the staff to prioritize its examination review and development activities based on need and safety considerations. Examinations for fewer than three applicants should be scheduled only under extenuating circumstances such as a shortage of licensed ROs or SROs at the facility. If a facility licensee has fewer than three license applicants, the examinations may be delayed until more applicants are trained. Moreover, facility licensees that elect to have the NRC prepare

their licensing examinations should keep in mind that it takes the NRC more time to prepare than to review an examination and that the NRC will require greater flexibility to schedule those services.

In accordance with 10 CFR 55.40(a), the NRC shall use the criteria in NUREG-1021 to prepare the written examinations required by Sections 55.41 and 55.43 and the operating tests required by Section 55.45. The NRC shall also use the criteria in NUREG-1021 to evaluate the written examinations and operating tests prepared by power reactor facility licensees pursuant to 10 CFR 55.40(b). The NRC regional offices shall obtain approval from the NRR operator licensing program office before knowingly deviating from the intent of NUREG-1021. Moreover, the regional offices shall obtain program office approval before undertaking any initiative that could undermine interregional examination consistency.

Other pre-examination activities, such as submitting and reviewing license applications and eligibility waivers and administering the generic fundamentals examination program, are addressed in ES-202, ES-204, and ES-205. Specific instructions for developing, administering, and grading the written examinations and operating tests are found in ES-401 through ES-403 and ES-301 through ES-303, respectively. Post-examination administrative activities, including management review of the examination results and preparation of examination reports, are discussed in ES-501. Cross-references to each of these standards have been made where appropriate.

## C. RESPONSIBILITIES

Facility licensees and NRC staff should use Form ES-201-1, "Examination Preparation Checklist," to track the examination preparations. As noted on the form, the target due dates can be adjusted as necessary to accommodate a given situation. The NRC chief examiner will initial the items as they are completed and ensure that the original form is retained for the master examination file (refer to ES-501).

### 1. Facility Licensee

If a facility licensee requests the NRC to prepare the licensing examinations, then only those items identified with an asterisk (\*) are applicable.

- a\*. The facility licensee is expected to apprise its NRC regional office of changes in its examination requirements.

The facility licensee should respond in writing to the NRC's annual letter soliciting estimated operator licensing needs (including estimated numbers of applicants, examination dates, and their intended level of participation in developing all parts of the examination) and notify its NRC regional office if its examination requirements change significantly from those stated in its response. Facility licensees are strongly encouraged to schedule their examinations and to resolve any applicant eligibility questions with their NRC regional office *before* commencing an initial license training class.

In accordance with 10 CFR 55.40(c), facility licensees that elect to have the NRC prepare, proctor, and grade any portion of their operator licensing examinations shall submit a written request (to the responsible NRC regional office) for those

examinations pursuant to 10 CFR 55.31(a)(3). A response to the NRC's annual letter will satisfy this requirement.

- b\*. In accordance with 10 CFR 55.49, facility licensees and applicants shall not engage in any activity that compromises the integrity of any application, test, or examination required by 10 CFR Part 55. Attachment 1 of this ES summarizes several examination security and integrity considerations. NUREG-1600, "General Statement of Policy and Procedures for NRC Enforcement Actions," addresses possible enforcement actions against parties subject to the requirements in the regulation (i.e., Part 55 license applicants and licensees and Part 50 licensees).
- c. Pursuant to 10 CFR 55.40(b)(2), facility licensees that elect to prepare their own examinations shall establish, implement, and maintain procedures to control examination security and integrity. Attachment 1 discusses a number of examination security and integrity guidelines that may be appropriate for incorporation in those procedures.
- d\*. All facility and contractor personnel involved with an examination are subject to the restrictions stated in Section D of this ES. Any questions regarding those restrictions should be resolved with the NRC chief examiner before granting an individual access to the licensing examination.

The facility licensee shall designate a point of contact to work with the NRC chief examiner and assign additional personnel as required to ensure that the examinations are developed, reviewed, administered, and graded in accordance with the applicable examination standards. The facility licensee may use contractors or other outside assistance to develop the examinations, but the licensee bears full responsibility for the product, including conformance with the examination criteria and maintenance of examination security and integrity.

- e\*. The facility contact shall submit the required reference materials, examination outlines, and examinations, as applicable, based on the level of facility participation. Form ES-201-1 specifies target due dates for the various materials; the actual dates may be adjusted with prior agreement from the NRC regional office.
- f. The examination outlines and the examinations shall be prepared in accordance with the guidelines in ES-301, ES-401, and ES-701, as applicable. The proposed outlines and examinations shall cover all portions of the license examination (written, dynamic simulator, and walk-through) at all license levels relevant to the applicants (RO, SRO, and limited SRO) to be tested.

A facility supervisor or manager shall independently review the examination outline(s) and the proposed examination(s) before they are submitted to the NRC regional office per Item (g) below.

In conducting this review, the facility shall use Forms ES-201-2, "Examination Outline Quality Checklist," ES-301-3, "Operating Test Quality Checklist," ES-301-4, "Simulator Scenario Quality Checklist," and ES-401-7, "Written

## Examination Quality Checklist."

- g. Pursuant to 10 CFR 55.40(b)(3), an authorized representative of the facility licensee shall approve the proposed examination(s) before they are submitted to the NRC regional office for review and approval. The outline(s) and examination(s) should be forwarded to the NRC regional office with a cover letter signed by the facility representative. The materials must be complete and ready-to-use.
- h. In its examination submittal to the NRC, the facility licensee (or its contractor) shall provide the following information for each test item proposed for use on the written examination and the operating tests:
  - State the source of each item (e.g., Is the item taken directly, without changes, from the facility licensee's or ANY other bank; is the item a modified version of a bank item; or is the item new?). Facility licensees are encouraged to identify those bank items that were used on an NRC license examination at the facility since October 1995 because they will generally undergo less rigorous review by the NRC.
  - For those items that are derived by modifying existing bank items, note the changes that were made or submit a copy of the item from which it originated.
- i\*. The facility licensee shall make its simulation facility available, as necessary, for NRC examiners to prepare for and administer the operating tests. The NRC will take reasonable efforts to minimize the impact on other training activities.
- j\*. The facility licensee shall meet with the NRC in the regional office or at the facility, as necessary and appropriate, to review the examinations and discuss potential changes.

Before developing or administering an initial licensing examination, facility licensees are encouraged to review the simulator examination security considerations in Appendix D to NUREG-1021 for applicability to their facility. Because facility licensees are more familiar than the NRC examiners with the unique capabilities, limitations, and vulnerabilities of their simulators, it is expected that the licensees will take responsibility for determining and implementing whatever measures might be necessary to ensure the integrity of the operating tests.

If the examination was prepared by the NRC, the facility reviewers should make their comments and recommendations on a copy of the written examination(s) and operating test(s) provided to them by the NRC examiner. Simple editorial changes that do not change the intent of the question require no justification; however, every substantive change (e.g., deleting a question, replacing a distractor, or revising an answer) must be supported by approved facility reference material.

If the facility licensee has significant concerns with the content or difficulty of the

NRC-prepared examination, the changes that the NRC has directed the facility licensee to make in its proposed examination, or the general implementation of the requirements and guidelines in this NUREG, the facility licensee is encouraged to communicate those concerns to the NRC and, if appropriate, to request a meeting with the NRC to address the concerns. The NRC chief examiner is normally the first point of contact for resolving any concerns regarding the examination. If the concerns are not resolved at that level, the facility licensee should contact NRC regional management, and, if necessary, the chief of the NRR operator licensing program office for resolution.

- k. If the facility licensee developed the examinations, it will generally make any necessary changes as agreed upon with the NRC; however, the NRC retains final authority to approve the examinations.
- l\*. In accordance with ES-202, the facility licensee shall submit the license applications along with a letter requesting that licensing examinations be administered.

## 2. NRC Regional Management, Supervision, and Designees

- a. The regional office shall schedule the NRC's initial operator licensing examinations and shall arrange for the development, administration, and grading of those examinations as discussed below. The regional office shall periodically review each facility licensee's examination requirements and shall negotiate with the facility licensee's training representatives as necessary to schedule specific examination dates consistent with operational requirements and NRC resource availability. Each regional office shall plan to prepare at least one complete examination per calendar year.
- b. Approximately six months before each anticipated examination date, the regional office should contact the facility licensee and confirm the examination date(s) and the expected number of applicants to be examined. The regional office should use that information to estimate the required number of NRC examiners and to make preliminary work assignments.
- c. The regional office should contact the facility licensee by telephone at least four months before the scheduled examinations to reconfirm the expected number of applicants and the examination dates, and to make other preliminary arrangements for developing the examinations. The person who contacts the facility licensee shall discuss the following examination arrangements, as applicable, depending on the facility licensee's level of participation in the examination development process:
  - the examination integrity and security requirements and considerations (refer to Attachment 1)
  - the requirement for an authorized representative of the facility licensee to approve the examination outlines and examinations before they are submitted to the NRC for review
  - the need to have the examination outlines delivered to the NRC approximately 75 days before the scheduled examination date

- the need to have the reference materials necessary for the NRC to develop the examination (if applicable; refer to Attachment 2) delivered to the regional office at least 75, but preferably 90, days before the scheduled examination date
- the guidelines for developing, administering, and grading the written examinations, as applicable (i.e., the effective version of ES-401, ES-402, and ES-403, respectively)
- the need to have the simulator available and the guidelines for developing and administering the operating tests (i.e., the effective version of ES-301 and ES-302, respectively)
- the need to have the examinations and the supporting reference materials (refer to Attachment 2) delivered to the NRC regional office approximately 45 days before the scheduled examination date
- the option to submit some sample test items (e.g., 5 to 10 written questions, 1 scenario, and 1 to 2 job performance measures) for preliminary NRC review and comment (This could increase the efficiency of the examination review process by promoting early identification and correction of generic examination development concerns.)
- the requirements (refer to 10 CFR 55.31) and guidelines (refer to ES-202) for submitting the license applications

The NRC regional office may negotiate earlier due dates with the facility contact but should refrain from advancing the dates if it is unlikely that the review will begin promptly after the material arrives in the regional office. The regional office should also keep the facility contact informed of the dates by which the region expects to provide its comments regarding the licensee's submittals.

- d. The NRC regional office shall normally issue a letter confirming the arrangements no later than 120 days before the examination begins. The letter should be addressed to the person at the highest level of corporate management who is responsible for plant operations (e.g., Vice President of Nuclear Operations). Attachment 3 is an example of such a letter; the exact wording may be modified as necessary to reflect the situation.
- e. Approximately four months before the scheduled examination, the NRC regional office will assign the required number of examiners to develop, prepare for, and administer the examination as arranged with the facility licensee. The regional office will also designate a chief examiner to coordinate the examination project with the facility licensee and other examiners assigned to the examination. When making assignments, the region should consider each examiner's certification status, other examination commitments, possible conflicts of interest (as discussed in Section D of this ES), and general availability.

Once the facility licensee has begun preparing the examination, the regional office shall avoid changing the chief examiner assignment unless it is absolutely necessary. If a change is unavoidable, the responsible supervisor shall attempt to minimize the impact on the facility licensee.

Regional management should try to assign a sufficient number of examiners so that no examiner will have to administer more than four operating tests per week.

- f. The regional office will evaluate each examination assignment to determine if some or all of the assigned examiners should make a separate preparatory site visit. The purposes of such a visit may include providing examiner orientation, retrieving additional reference material, or reviewing and validating the examinations. When making a decision, the region should carefully weigh the costs and benefits associated with each additional trip to the facility. The region should also consider such factors as the experience of the assigned examiners, the quality of the facility licensee's examinations (if applicable), the number of written examinations and operating tests to be validated, and the status of the simulation facility (e.g., Is it new or recently upgraded?). In addition, the region should consider the alternative of reviewing the written examination(s) and operating test(s) with the facility licensee via telephone (if the examination quality is high) or in the regional office, as well as the alternative of validating the operating test(s) on-site at the beginning of the examination week.
- g. Upon receiving the preliminary license applications, approximately 30 days before the examination date, the regional office shall review the applications in accordance with ES-202. In addition, the regional office shall evaluate any waiver requests in accordance with ES-204 to determine if the applicants meet the eligibility criteria specified in 10 CFR 55.31.

After reviewing and approving the preliminary license applications and resolving all waiver requests, the region will prepare an examination assignment sheet (in the format of Attachment 4) as far in advance as possible, but at least two weeks before the scheduled examination date. The region will review and revise the assignment sheet as necessary after receiving and evaluating the final license applications.

The assignment sheet will identify the chief and other examiners by name and list the applicants by name, docket number, and type of examination (e.g., SRO upgrade, RO written only) to be administered. All applicants listed on the assignment sheet should be administered complete examinations (written and operating) as indicated under "Examination Type" unless waivers have been granted in accordance with ES-204. A copy of the assignment sheet will be distributed to all assigned examiners, the NRR operator licensing program office, and regional distribution.

- h. The responsible regional supervisor will review the examination outlines and the draft examinations and evaluate any recommended changes and corrections noted during the chief (and other) examiner's review (refer to ES-301 and ES-401 for additional guidance regarding examination reviews). The supervisory review is not intended to be another detailed review, but rather a check to ensure that all applicable administrative requirements have been implemented. If the outlines, examinations, and recommended changes are acceptable, the supervisor will authorize the chief examiner to resolve any noted deficiencies with the author or facility contact.

If any of the facility-developed examination materials (written, walk-through, or simulator) require substantive changes and cannot be made to conform with the examination standards by the end of the designated examination review week,

regional management shall consult the NRR operator licensing program office and make a decision whether to proceed with the facility-developed examinations or develop the examinations in-house. If the region does not have the resources to ensure that acceptable examinations are prepared by the scheduled administration date, regional management shall negotiate with the facility licensee to reschedule the examinations as necessary. Although it is generally easier to postpone the written examination and focus on the operating tests so that they can be administered on schedule and without affecting examinations at other facilities, regional management may delay either part of an examination for up to 30 days. The regional office shall consult the NRR program office regarding any examination delay and notify the facility licensee in writing of the reasons for the delay.

The responsible supervisor will also ensure that any significant deficiencies and problems are addressed in the examination report in accordance with ES-501.

- i. After the chief examiner has verified that the necessary changes and corrections have been made, the responsible supervisor will review and approve the examinations for administration. Before signing the applicable quality checklist (i.e., Form ES-301-3 and/or Form ES-401-7), the supervisor must be satisfied that the examination is acceptable for administration.

The responsible supervisor shall query the facility licensee management counterpart regarding the licensee's views on the examination sometime before it is administered. The following subjects should be considered for discussion, and corrective measures shall be implemented when necessary:

- whether the NRC test item comments were justified and clearly explained;
- the licensee's assessment of the significant test item changes;
- whether any of the examination changes are believed to render the test items or the examination/test as a whole unfair and whether this concern was shared with the chief examiner;
- whether the NRC requested the licensee to rework any "NRC-validated" questions; and
- whether the facility licensee requested and was permitted to defer the correction of minor test item flaws identified as minor in nature.

- j. If there is an indication that an examination may have been compromised, the responsible supervisor will take action as necessary to ensure and restore the integrity and security of the examination process. Actions may include not giving the examination, making additional changes to the examination, voiding the results if the examination has already been given, reevaluating the licensing decisions pursuant to 10 CFR 55.61(b), and possibly imposing enforcement action in accordance with NUREG-1600. The supervisor shall keep regional management and the NRR operator licensing program office informed of any concerns regarding examination integrity or security.

### 3. Assigned NRC Examiners



- a. When assigned to administer operating tests for the first time at a particular facility, the examiner should inform the chief examiner and the responsible supervisor so that arrangements can be made to conduct an orientation trip to the facility as described in Item C.2.f, if deemed appropriate.
- b. NRC examiners monitor and ensure the integrity of the examination process. If they perceive that a compromise has occurred, they must immediately report it to the responsible regional supervisor so that the necessary actions can be taken to restore the integrity of the examination. Attachment 1 summarizes several examination security and integrity considerations that examiners should note when reviewing the facility licensee's procedures established pursuant to 10 CFR 55.40(b)(2), as applicable.
- c. The assigned examiners shall review and inventory the reference materials received from the facility licensee in response to the 120-day corporate notification letter. The purpose of this review is to determine if the materials are complete and adequate to enable the regional office to review or develop the examinations, as applicable. If it is not, the reviewer(s) shall inform the chief examiner and the responsible supervisor and request that the facility licensee send any additional materials that might be required. If necessary, an examiner may review and select additional reference materials during a site orientation trip (refer to Item C.2.f).
- d. The chief examiner will work with the assigned examiners and the designated facility contact, as applicable, to ensure that the examination outlines and examinations are developed in accordance with the applicable examination standards. The chief examiner should adapt the level of oversight and coordination based upon the experience of the individuals who are preparing the examinations. Facility employees are generally less familiar with the examination standards and will require more oversight to ensure that a quality examination is ready on time.
- e. The chief examiner will ensure that the examination outlines are independently reviewed using Form ES-201-2, "Examination Outline Quality Checklist," as a guide; if the chief examiner prepared any portion of the outline, another NRC examiner shall perform that part of the independent review. The NRC reviewer(s) will initial Column "c" of Form ES-201-2 for the specific items they reviewed. A thorough and timely review (i.e., within 5 working days) will minimize the potential for significant problems with the examinations.  
  
The chief examiner will note/review any necessary changes and forward the outlines to the responsible supervisor for review and comment before resolving any deficiencies with the author or facility contact. The chief examiner will document his/her review/concurrence, as applicable, by signing the bottom of the form. If the outlines are significantly deficient, refer to Item C.2.h for additional guidance.
- f. The chief examiner will ensure that the written examinations and operating tests are independently reviewed for quality in accordance with the applicable checklists (refer to ES-301 and ES-401) forwarded with the examination. If the

chief examiner wrote any portion of the examination, another NRC examiner shall perform the independent review of that portion. The NRC reviewer(s) will initial Column "c" of the applicable checklist for the specific items they reviewed. The regional office may conduct additional reviews at its discretion if resources permit.

It is especially important that facility-developed examinations and tests be reviewed promptly because of the extra time that may be required if extensive changes are necessary. The written examination sampling review (as described in Section E of ES-401) should be completed within one week after receiving the examination, and the balance of quality reviews should be completed within two weeks after the examinations and tests are received from the author or facility contact.

The chief examiner will note any necessary changes and forward the examinations and tests to the responsible supervisor for review and comment before reviewing the examinations with the author or facility contact. The chief examiner will document his/her review/concurrence, as applicable, by signing the bottom of each quality checklist. There are no minimum or maximum limits on the number or scope of changes the NRC may direct the facility licensee to make to its proposed examinations, provided they are necessary to make the examinations conform with established acceptance criteria or to attain an appropriate level of examination difficulty. Chief examiners shall exercise their experience and judgement to ensure that the level of difficulty remains consistent with that expected on NRC-prepared examinations. If the examinations are significantly deficient, refer to Item C.2.h for additional guidance. The chief examiner shall document the responsible supervisor's authorization to proceed with for the facility review by initialing Item 11 on Form ES-201-1.

- g. Upon supervisory approval, generally about two weeks before the examinations are scheduled to be given, the chief examiner will review the written examinations and operating tests with the facility licensee.

The chief examiner may conduct the examination review via telephone, in the regional office, or at the facility, as appropriate to the circumstances, depending on the extent of the changes, and as approved by the responsible regional supervisor (refer to Item C.2.f).

If the examination was prepared by the NRC, the regional office will provide a copy of the written examination(s) and operating test(s) to the facility reviewers after they sign the security agreement (Form ES-201-3). The facility reviewers should make their comments directly on the examination(s), return the marked-up copy(ies) to the NRC chief examiner, and ensure that he or she understands their comments and recommendations. The facility reviewers may retain a copy of the marked-up examination(s), subject to the physical security considerations in Attachment 1.

If the facility reviewers have significant disagreements with the chief examiner, the chief examiner will inform the responsible regional supervisor so that the disagreements can be resolved before the examinations are administered.

- h. After the examination corrections have been made, the chief examiner shall verify that the changes are appropriate and route the examinations and the mark-up drafts to the responsible supervisor for final approval.
- i. As soon as possible after the responsible supervisor has approved the operating tests for administration, the chief examiner shall distribute copies of the scenarios, job performance measures (JPMs), and questions to the other assigned examiners so that they can familiarize themselves with those materials and be better prepared to probe the applicants' deficiencies if required.
- j. The chief examiner should work with the designated facility contact to schedule the operating tests to optimize efficiency and the mix of RO and SRO applicants in the crews assembled for the simulator examinations. The number of applicants on a crew shall not exceed the number of assigned examiners (i.e., one-on-one evaluations are mandatory), except as noted below. However, if the facility licensee's technical specifications routinely require more than two ROs to be stationed in the control room, the chief examiner may authorize the use of additional surrogates. Only one individual (applicant or surrogate) is allowed to fill a shift supervisor or manager position during the simulator operating test.

If a three-person operating crew consists entirely of SRO-upgrade applicants (who do not have to be evaluated on the control boards), the region may assign only two examiners to observe the crew. Although the applicants in the RO and balance of plant positions may not be individually evaluated, they will be graded and held accountable for any errors that occur as a result of their action(s) or inaction(s). SRO-instant applicants will always be individually evaluated regardless what operating position they are filling during a given scenario.

Normally, for purposes of test integration and continuity, the same examiner should administer all three operating test categories to an applicant. However, under certain circumstances, the walk-through portion of the operating test may be divided among different examiners. Such division is appropriate if a facility licensee's simulator is not located near the plant, because of limitations in examiner resources or scheduling, or if a facility licensee requests examinations for an unusually large group of applicants. Refer to ES-302 for specific instructions regarding administration of the operating tests.

Operating tests will normally be administered on regular work days. If weekend or shift work is required to administer the operating tests, the chief examiner will coordinate the arrangements with the assigned examiners and the facility licensee.

The written examinations may be administered as soon as they and the license applications (including any applicable waivers) have been approved. The region shall not allow the written examination and operating test dates to diverge by more than 30 days without obtaining concurrence from the NRR operator licensing program office.

If, as an efficiency measure, the facility licensee prepared the written examination or operating tests in conjunction with another facility, then the two examinations/tests must be administered at the same time.

If the examination schedule has to be changed on short notice, the chief examiner will work with his or her supervisor and the designated facility contact to reschedule the examinations to a time when examiners are available and other examinations are not affected.

- k. If the facility licensee will administer the written examinations, the chief examiner shall review the ES-402 requirements (e.g., proctoring and responding to applicant questions) and confirm the applicant's status on the assignment sheet (i.e., examination type and waivers) with the facility contact before the examinations are given.

#### D. PERSONNEL RESTRICTIONS

It is impossible to define criteria that anticipate every possible conflict-of-interest issue. Supervisors must apply sound judgment to the facts of each case. If any doubt exists regarding a particular case, the supervisor should consult with regional management and/or the NRR operator licensing program office to resolve the issue.

##### 1. NRC Examiners

- a. The regional office shall not assign an examiner who failed an applicant on an operating test to administer any part of that applicant's retake operating test.
- b. If an examiner was previously employed by a facility licensee (or one of its contractors) and was significantly involved in training the current license applicants, the regional office will not assign that examiner any direct responsibilities for developing or administering written examinations or operating tests at that facility. Regional management will control other in-office examination activities concerning the facility, such as technical consultation and quality reviews of examinations.
- c. If an examiner is assigned to an examination that might appear to present a conflict of interest, the examiner shall inform his or her immediate supervisor of the potential conflict. Such notifications should include the following information:
  - the nature and extent of previous personal and professional relationships with the applicants
  - anything that could affect the administration, performance, evaluation, or results of the examination
  - anything that could create the *appearance* of a conflict of interest

##### 2. Facility Personnel

- a. Although there is no specific upper limit to the number of facility personnel having access to the NRC licensing examination, the facility licensee shall

ensure that access is limited on a need-to-know basis. Moreover, the facility licensee should limit each person's access to only those portions of the examination for which the individual bears responsibility (e.g., the individuals who prepare the simulator scenarios may not require access to the written examination).

- b. All personnel who will receive detailed knowledge of any portion of the NRC licensing examination, including the examination outline, must acknowledge their responsibilities by reading and signing Form ES-201-3, "Examination Security Agreement," before they obtain detailed knowledge and again after the examinations are complete. Examples of prohibited activities for personnel who have signed Form ES-201-3 include the following:
- the design and administration of any classroom and simulator instruction (including scheduled sessions, individual coaching, and remedial training) specifically for the license applicants (Simulator booth operation is acceptable if the individual does not select the training content or provide direct or indirect feedback. Continued participation in requalification training for groups including SRO upgrade applicants is also acceptable, as long as it is documented on Form ES-201-3 and is limited to areas in which the instructor has no examination knowledge.)
  - all on-the-job training, practice, coaching, and sign-offs
  - the preparation, review, grading, and evaluation of periodic quizzes, examinations, and simulator exercises (Individuals on the security agreement may prepare and grade the audit examination subject to an NRC review for test item duplication.)

Supervisors and managers having knowledge of the examination content may continue their general oversight of the training program for the license applicants, including the review of examinations, quizzes, and remedial training programs, as well as the counseling of applicants concerning non-technical issues. However, those supervisors and managers may not provide any technical guidance, training, or other direct feedback regarding the content of those examinations, quizzes, or programs in a manner that might compromise the integrity of the licensing examination as defined in 10 CFR 55.49.

The original security agreement forms must be submitted to the NRC regional office for retention after the examinations are complete.

## E. ATTACHMENTS/FORMS

Attachment 1,	"Examination Security and Integrity Considerations"
Attachment 2,	"Reference Material Guidelines for Initial Licensing Examinations"
Attachment 3,	"Sample Corporate Notification Letter"
Attachment 4,	"Sample Examination Assignment Sheet"
Form ES-201-1,	"Examination Preparation Checklist"
Form ES-201-2,	"Examination Outline Quality Checklist"
Form ES-201-3,	"Examination Security Agreement"

NRC and facility licensee personnel must be attentive to examination security measures to ensure compliance with 10 CFR 55.49; moreover, pursuant to 10 CFR 55.40(b)(2), facility licensees that elect to prepare their own examinations must establish, implement, and maintain procedures to control examination security and integrity. At the time the examination arrangements are confirmed, an NRC examiner shall review the facility licensee's security procedures and brief the facility contact on the following examination security guidelines. Although these guidelines are not regulatory requirements, facility licensees are encouraged to consider them when establishing their own procedures.

### Physical Security Guidelines

1. The NRC expects that personnel will be aware of the facility licensee's physical security measures and requirements (as documented in the facility licensee's approved procedures), sign the NRC's examination security agreement, and understand their security responsibilities, including the limits on their interaction with the license applicants (as discussed in Section D.2 of ES-201), before they are given knowledge or custody of any examination materials.
2. The examination outlines and final examinations shall be positively and continuously controlled and protected as sensitive information (i.e., under lock-and-key or in the custody of someone who has signed the security agreement). The number of copies of outlines and examinations should be limited and each should be uniquely identified and controlled (e.g., with sign-out custody) at all times. Drafts, copies, and waste materials must also be controlled and disposed of properly.

The NRC recommends that additional security measures be considered when the examinations are developed, stored, or printed using a computer network to which the license applicants or other persons not on the security agreement could gain access. Although the use of passwords should provide adequate security if normal computer security practices (e.g., selecting and changing passwords) are observed, special cases may need additional consideration. For example, if a trainee has extended access to the LAN in his normal position, additional security measures might be appropriate.

3. The examination outlines, written examinations, and operating tests that are sent to the NRC regional office shall be placed in a double envelope. The inner envelope shall be conspicuously marked "FOR OFFICIAL USE ONLY" and "TO BE OPENED BY ADDRESSEE ONLY." Furthermore, the cover letter forwarding the examination materials shall state that the materials be withheld from public disclosure until after the examinations are complete.

The facility licensee should follow up on its examination mailing by communicating with the NRC chief examiner to ensure that the package was received.

The examination outlines and examinations shall not be transmitted via non-secure electronic means. However, they may be transmitted via the NRC's "AUTOS" local area

network in the resident inspector's office or as password-protected electronic files over the Internet if the licensee's word processing software provides adequate security and is compatible with the NRC's and the password is separately provided to the NRC chief examiner by mail or phone. The files do not need to be encrypted.

4. The facility licensee is expected to immediately report to the NRC chief examiner any indications or suggestions that examination security may have been compromised, even if the situation is identified and corrected before the examination is submitted to the NRC for review and approval. The NRC will evaluate such situations on a case-by-case basis and determine the appropriate course of action.
5. The facility licensee and the NRC should determine if examination security problems were noted in the past and ensure that corrective actions have been taken to preclude recurrence.
6. The facility licensee and the chief examiner will review the simulator security considerations in Appendix D to ensure that the instructor station features, programmers' tools, and external interconnections do not compromise examination integrity. The primary objective is to ensure that the exam material cannot be read or recorded at other unsecured consoles, and that examination materials are either physically secured or electronically protected when not in use by individuals listed on the security agreement.

#### Examination Bank Limitations

1. The facility licensee and chief examiner shall ensure that written examinations and operating tests conform with the guidelines in ES-301 and ES-401 regarding the use of items taken directly from the bank, modified items, and new items.
2. If the facility licensee has an open bank, it will not place any new or modified test items (written questions, job performance measures, or simulator scenarios) that will be used on the examination in its examination bank until after the last examination has been administered.

#### Other Considerations

1. The NRC will consider an examination to be potentially compromised if any activity occurs that could affect the equitable and consistent administration of the examination, regardless of whether the activity takes place before, during, or after the examination is administered.
2. The license applicants should not be able to predict or narrow the possible scope or content of the licensing examination based on the facility licensee's examination practices (other than those authorized by this NUREG or in writing by the NRC).
3. Facility licensees are responsible for the integrity, security, and quality of examinations prepared for them by contractor personnel.

This attachment discusses the reference materials that facility licensees are expected to provide for each NRC initial licensing examination. The regional office will customize the list of reference materials as required to support the specific examination assignment; additional materials may be requested at a later time if necessary to ensure the accuracy and validity of the examinations.

In determining the need for reference materials, the regional office will consider the facility licensee's level of participation in the examination development process. If the facility licensee will be preparing the examinations, it may be sufficient to obtain only those references necessary to review and validate the items that appear on the examination, plus a set of key procedures and other documents required to prepare for the operating tests. The regional office will duly consider the administrative burden it places on facility licensees and request only those materials that are actually necessary for the NRC examiners to prepare for the examinations.

All reference materials provided for the license examinations should be approved, final issues and should be so marked. If any of the material is expected to change before the scheduled examination date, the facility licensee should reach agreement with the NRC chief examiner regarding changes before the examinations are administered.

The reference materials may be submitted on computer diskettes (in a format compatible with the NRC's word processing software), as hard copy, or a combination as arranged with the NRC chief examiner. If the facility licensee prepares the examinations, the hard-copy references should normally be limited to those materials required to validate the selected test items. All procedures and reference materials should be bound with appropriate indices or tables of contents so that they can be used efficiently; a master table of contents should be provided for all materials sent. Failure to provide complete, properly bound, and indexed reference material may prompt the NRC to return the material to the person at the highest level of corporate management responsible for plant operations. The returned reference materials will be accompanied by a cover letter explaining the deficiencies in the material and the basis for postponing or canceling the examinations.

Unless otherwise instructed by the NRC regional office, the facility licensee is expected to provide the following reference materials for each NRC initial licensing examination:

1. Materials used by the facility licensee to ensure operator competency
  - a. The following types of materials used to train applicants for initial RO and SRO licensing, as necessary to support examination development:
    - learning objectives, student handouts, and lesson plans
    - system descriptions, drawings, and diagrams of all operationally relevant flow paths, components, controls, and instrumentation



- material used to clarify and strengthen understanding of normal, abnormal, and emergency operating procedures
- complete, operationally useful descriptions of all safety system interactions and, where available, balance-of-plant system interactions under emergency and abnormal conditions, including consequences of anticipated operator errors, maintenance errors, and equipment failures, as well as plant-specific risk insights based on a probabilistic risk analysis (PRA) and individual plant examination (IPE)

These materials should be complete, comprehensive, and of sufficient detail to support the development of accurate and valid examinations without being redundant.

- b. Questions and answers specific to the facility training program that may be used in the written examinations or operating tests
  - c. Copies of facility-generated simulator scenarios that expose the applicants to abnormal and emergency conditions, including degraded pressure control, degraded heat removal capability, and containment challenges, during all modes of operation, including low-power conditions (A description of the scenarios used for the training class may also be provided.)
  - d. All JPMs used to ascertain the competence of the operators in performing tasks within the control room complex and outside the control room (i.e., local operations) as identified in the facility's job task analysis (JTA) (JPMs should evaluate operator responsibilities during normal, abnormal, and emergency conditions and events, and during all modes of operation including cold shutdown, low power, and full power.)
2. Complete index of procedures (including all categories sent)
  3. All administrative procedures applicable to reactor operation or safety
  4. All integrated plant procedures (normal or general operating procedures)
  5. All emergency procedures (emergency instructions, abnormal or special procedures)
  6. Standing orders (important orders that are safety-related and may modify the regular procedures)
  7. Surveillance procedures that are run frequently (i.e., weekly) or that can be run on the simulator
  8. Fuel handling and core loading procedures (if SRO applicants will be examined)

9. All annunciator and alarm procedures
10. Radiation protection manual (radiation control manual or procedures)
11. Emergency plan implementing procedures
12. Technical Specifications or similar technical requirements documents (and interpretations, if available) for all units for which licenses are sought
13. System operating procedures
14. Technical data book and plant curve information used by operators as well as the facility precautions, limitations, and set points document
15. The following information pertaining to the simulation facility:
  - a. list of all initial conditions
  - b. list of all malfunctions with identification numbers and cause and effect information, including a concise description of the expected result or range of results that will occur upon initiation and an indication of which annunciators will be actuated as a result of the malfunction
  - c. a description of the simulator's failure capabilities for valves, breakers, indicators, and alarms
  - d. the range of severity of each variable malfunction (e.g., the size of a reactor coolant or steam leak, or the rate of a component failure such as a feed pump, turbine generator, or major valve)
  - d. a list of modeling conditions (e.g., simplifications, assumptions, and limits) and problems that may affect the examination
  - f. a list of any known performance test discrepancies not yet corrected
  - g. a list of differences between the simulator and the reference plant's control room
  - h. simulator instructor's manual
16. Any additional plant-specific material that has been requested by the NRC examiners to develop examinations that meet the guidelines of these standards and the regulations

(Date)(Name, Title)(Name of facility)(Address)(City, State, Zip code)Dear (Name):

In a telephone conversation on (date) between Mr./Ms. (Name, Title) and Mr./Ms. (Name, Title), arrangements were made for the administration of licensing examinations at (facility name) during the week(s) of (date).

[As agreed during the telephone conversation, your staff][[The NRC]] will prepare the examinations based on the guidelines in Revision 8, Supplement 1, of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." [The NRC regional office will discuss with your staff any changes that might be necessary before the examinations are administered.][[ Your staff will be given the opportunity to review the examinations during the week of (date).]]

To meet the above schedule, it will be necessary for your staff to furnish the [examination outlines by (date). The written examinations, operating tests, and the supporting] reference materials identified in Attachment 2 of ES-201 [will be due] by (date). [Pursuant to 10 CFR 55.40(b)(3), an authorized representative of the facility licensee shall approve the outlines, examinations, and tests before they are submitted to the NRC for review and approval. All materials shall be complete and ready-to-use.] Any delay in receiving the required [examination and] reference materials, or the submittal of inadequate or incomplete materials, may cause the examinations to be rescheduled.

In order to conduct the requested written examinations and operating tests, it will be necessary for your staff to provide adequate space and accommodations in accordance with ES-402, and to make the simulation facility available on the dates noted above. In accordance with ES-302, your staff should retain the original simulator performance data (e.g., system pressures, temperatures, and levels) generated during the dynamic operating tests until the examination results are final.

Appendix E of NUREG-1021 contains a number of NRC policies and guidelines that will be in effect while the written examinations and operating tests are being administered.

To permit timely NRC review and evaluation, your staff should submit preliminary reactor operator and senior reactor operator license applications (Office of Management and Budget (OMB) approval number 3150-0090), medical certifications (OMB approval number 3150-0024), and waiver requests (if any)(OMB approval number 3150-0090) at least 30 days before the first examination date. If the applications are not received at least 30 days before the examination date, a postponement may be necessary. Signed applications certifying that all training has been completed should be submitted at least 14 days before the first examination date.

This letter contains information collections that are subject to the *Paperwork Reduction Act of 1995* (44 U.S.C. 3501 et seq.). These information collections were approved by the Office of Management and Budget, approval number 3150-0018, which expires on April 30, 2003. The public reporting burden for this collection of information is estimated to average [500] [[50]] hours per response, including the time for reviewing instructions, gathering and maintaining the data needed, [writing the examinations, ]and completing and reviewing the collection of information. Send comments on any aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail at BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0018), Office of Management and Budget, Washington, DC 20503.

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Thank you for your cooperation in this matter. (Name) has been advised of the policies and guidelines referenced in this letter. If you have any questions regarding the NRC's examination procedures and guidelines, please contact (name of regional contact) at (telephone number), or (name of responsible regional supervisor) at (telephone number).

Sincerely,

(Appropriate regional representative,  
Title)

Docket No.: 50-(Number)

Distribution: Public  
NRC Document Control System  
Regional Distribution

- [ ] Include only for examinations to be prepared by the facility licensee.  
[[ ]] Include only for examinations to be prepared by the NRC.

MEMORANDUM TO:        (List NRC examiners by name)

FROM:                    (Regional Supervisor's Name, Title)

SUBJECT:                EXAMINATION ASSIGNMENTS

APPLICANT	DOCKET NO.	EXAMINATION TYPE
-----------	------------	------------------

Facility and location	_____
Facility contact	_____
NRC chief examiner	_____
Written examinations to be prepared by (RO)	_____
(SRO)	_____
Dates of Examinations	_____

\_\_\_\_\_  
NRC Supervisor

cc:     Resident inspector  
        Project manager  
        (Standard regional distribution)  
        NRR operator licensing program office

Facility: _____		Date of Examination: _____
Examinations Developed by:      Facility   /   NRC (circle one)		
Target Date*	Task Description / Reference	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a & b)	
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	
-120	3. Facility contact briefed on security & other requirements (C.2.c)	
-120	4. Corporate notification letter sent (C.2.d)	
[-90]	[5. Reference material due (C.1.e; C.3.c)]	
-75	6. Integrated examination outline(s) due (C.1.e & f; C.3.d)	
-70	7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)	
-45	8. Proposed examinations, supporting documentation, and reference materials due (C.1.e, f, g & h; C.3.d)	
-30	9. Preliminary license applications due (C.1.i; C.2.g; ES-202)	
-14	10. Final license applications due and assignment sheet prepared (C.1.i; C.2.g; ES-202)	
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f & h; C.3.g)	
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	
-7	14. Final applications reviewed; assignment sheet updated; waiver letters sent (C.2.g, ES-204)	
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee and authorization granted to give written exams (if applicable) (C.3.k)	
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	
<p>* Target dates are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.</p> <p>[ ] Applies only to examinations prepared by the NRC.</p>		

Facility:		Date of Examination:		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T E N	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.			
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.			
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
2. S I M	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.			
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity; ensure each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s)*, and scenarios will not be repeated over successive days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W / T	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.			
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.			
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.			
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.			
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	d. Check for duplication and overlap among exam sections.			
	e. Check the entire exam for balance of coverage.			
	f. Assess whether the exam fits the appropriate job level (RO or SRO).			
a. Author		Printed Name / Signature		Date
b. Facility Reviewer (*)				
c. NRC Chief Examiner (#)				
d. NRC Supervisor				
Note: * Not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.				

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of \_\_\_\_\_ as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC. Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of \_\_\_\_\_. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	_____	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____	_____	_____
7.	_____	_____	_____	_____	_____	_____	_____
8.	_____	_____	_____	_____	_____	_____	_____
9.	_____	_____	_____	_____	_____	_____	_____
10.	_____	_____	_____	_____	_____	_____	_____
11.	_____	_____	_____	_____	_____	_____	_____
12.	_____	_____	_____	_____	_____	_____	_____
13.	_____	_____	_____	_____	_____	_____	_____
14.	_____	_____	_____	_____	_____	_____	_____
15.	_____	_____	_____	_____	_____	_____	_____

NOTES: