Non-Power Reactor
Operator Licensing Examiner
Standards

Manuscript Completed: March 1995
Date Published: June 1995

Division of Reactor Controls and Human Factors
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

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ABSTRACT

The Non-Power Reactor Operator Licensing Examiner Standards provide policy and guidance to NRC examiners and establish the procedures and practices for examining and licensing of applicants for NRC operator licenses pursuant to Part 55 of Title 10 of the Code of Federal Regulations (10 CFR 55). They are intended to assist NRC examiners and facility licensees to understand the examination process better and to provide for equitable and consistent administration of examinations to all applicants by NRC examiners. These standards are not a substitute for the operator licensing regulations and are subject to revision or other internal operator examination licensing policy changes. As appropriate, these standards will be revised periodically to accommodate comments and reflect new information or experience.
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# GLOSSARY

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<td>CFR</td>
<td>Code of Federal Regulations</td>
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<td>DRCH</td>
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<td>Emergency Plan Implementing Procedures</td>
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<td>Knowledge and Ability</td>
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<td>QA</td>
<td>Quality Assurance</td>
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<td>RO</td>
<td>Reactor Operator</td>
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EXECUTIVE SUMMARY

In 1992, the staff proposed to create an examiner standard (NUREG-1478) for non-power reactor operator licensing activities. The Examiner Standards in use at the time (NUREG-1021, Revision 6) governed the administration of operator license examinations at both power and non-power facilities. Although this standard (NUREG-1021, Rev. 6) applied to both power and non-power reactor operator licensing activities, the standard appeared to apply mostly to the administration of power reactor examinations, with non-power examination requirements treated as exceptions. NUREG-1478 seeks to ensure that the standards which apply to the administration of non-power examinations are clearly defined and easily accessible to the non-power reactor community.

The proposed standards were initially created by editing NUREG-1021, Revision 6 to remove all references to requirements for power reactors. In parallel with the creation of NUREG-1478, NUREG-1021, Revision 7 was issued. NUREG-1478 was then modified to include the applicable improvements of NUREG-1021, Revision 7. The proposed standards were sent to the TRTR Executive Committee in November 1992 for distribution to TRTR members for comments. TRTR comments were received on July 9, 1993. The comments received were reviewed and incorporated as appropriate. The effective date for Revision 0 was April 4, 1994.

NUREG-1478 has been revised effective June 1, 1995. Revision 1 reflects organizational changes within the Operator Licensing Branch, and further refines some standards to make them more consistent with the examination process. No additional requirements have been imposed on the licensees.
A. PURPOSE

The Non-Power Reactor Operator Licensing Examiner Standards establish the procedures and practices for administering initial and requalification written examinations and operating tests to license applicants and operators pursuant to Part 55 of Title 10 of the Code of Federal Regulations (10 CFR Part 55).

These standards describe the provisions of the act and regulations on which the program is based and provide for equitable and consistent administration of examinations to all applicants and licensed operators at non-power reactor facilities subject to the regulations.

B. FORMAT

Each standard explains the rules, procedures, and practices for a particular aspect of the program. Each standard is assigned a three-digit number, and related standards are grouped together for ease of reference. All the standards beginning with the same digit apply to related aspects of the program, as follows:

1. General
2. Initial preexamination activities
3. Initial operating tests
4. Initial written examinations
5. Initial postexamination activities
6. Requalification examinations
A. PURPOSE

This standard lists the U.S. statutes and the regulations of the U.S. Nuclear Regulatory Commission (NRC) that establish the requirements for the conduct of operator licensing examinations and the procedures for their administration. It also identifies the regulatory guides, NUREG reports, and other published guidance intended to implement the regulations and the American National Standards Institute/American Nuclear Society (ANSI/ANS) standards that may provide additional guidance.

B. STATUTES

1. Atomic Energy Act of 1954

Section 107 of the Act, as amended (42 U.S.C. 2137), requires the NRC to prescribe uniform conditions for licensing individuals as operators of production and utilization facilities and to determine the qualifications of these individuals and to issue licenses to such individuals.


Section 306 of the Act (42 U.S.C. 10226, 96 Stat. 2201 at 2262-2263) directs the NRC to establish (1) simulator training requirements for applicants for operator licenses and for operator requalification training programs, (2) requirements governing NRC administration of requalification examinations, and (3) requirements for operating tests at civilian nuclear power plant simulators.

C. REGULATIONS

1. 10 CFR Part 55 - Operator Licenses (effective May 26, 1987)

10 CFR Part 55 is the implementing regulation for licensing reactor operators and senior reactor operators. This regulation establishes the requirements and the regulatory basis for licensing and requalifying operators.

2. 10 CFR Part 50 - Licensing of Production and Utilization Facilities

10 CFR 50.34(b)(8) requires that a description of the operator requalification program be included in the final safety analysis report (FSAR). That description forms the basis for the inspection, audit, and approval of requalification programs.
10 CFR 50.54(i-1) requires facility licensees to implement an operator requalification program that meets the requirements of 10 CFR 55.59(c) within 3 months after receiving a facility operating license. Notwithstanding the provisions of 10 CFR 50.59, the licensee may not decrease the scope of its approved requalification program without authorization from the Commission.

10 CFR 50.54(k)-(m) contain the regulations restricting control manipulations to licensed operators and are conditions of all facility licenses issued under 10 CFR Part 50.

10 CFR 50.74 requires facility licensees to notify the Commission within 30 days if there is a change in an a licensed reactor operator’s or senior reactor operator’s status.

3. 10 CFR Part 2 - Rules of Practice

The regulations in 10 CFR Part 2 govern the conduct of all proceedings under the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974 for: (a) granting, suspending, revoking, amending, or taking other action with respect to any license; (b) imposing civil penalties; and (c) public rulemaking.

10 CFR 2.103(b)(2) establishes the applicant’s right to demand a review of a proposed license denial, including appeal and hearing rights.

Subpart G, "Rules of General Applicability," governs all adjudications initiated by the issuance of an order to show cause, an order designating the time and place of a hearing requested by a person charged with a violation, and a notice of hearing.

Subpart L, "Informal Hearing Procedures for Adjudications in Materials and Operator Licensing Proceedings," governs proceedings for the grant, renewal, or licensee-initiated amendment of an operator or senior operator license.

4. 10 CFR Part 9 - Public Records

The regulations in 10 CFR Part 9 prescribe the rules governing the NRC's public records that relate to any proceeding subject to 10 CFR Part 2.

Subparts A and B describe and implement the requirements for balancing the public’s rights to information under the Freedom of Information Act and NRC’s responsibility to protect personal information under the Privacy Act.
Subparts C and D implement the provisions of the Sunshine Act, concerning the opening of Commission meetings to public observation, and describe the procedures governing the production of agency records, information, or testimony in response to subpoenas or demands of courts or other judicial authorities in State and Federal proceedings.

5. 10 CFR Part 20 - Standards for Protection Against Radiation

The regulations in 10 CFR Part 20 establish standards for protection against radiation hazards arising from licensed activities. Some of the material is appropriate for inclusion in the examinations administered to candidates for operator or senior operator licenses.

D. REGULATORY GUIDES, NUREG REPORTS, AND ANSI/ANS STANDARDS

Regulatory guides (RGs), NUREG reports, and industry standards are not requirements except as specified in Commission orders or as committed to by the facility licensee. The appropriate revisions should be consulted as referenced in the facility FSAR or approved training program. The following paragraphs summarize the latest revisions of these documents.

1. Regulatory Guide 1.114, "Guidance on Being an Operator at the Controls of a Nuclear Power Plant"

This RG describes a method acceptable to the NRC staff for complying with the Commission's regulations [i.e., 10 CFR 50.54(k)-(m)] that require the presence of an operator at the controls of the facility and a senior operator present at the facility or on call at all times during operation.


This document presents a procedure for systematically constructing content-valid licensing examinations for nuclear power plant operators. It also contains a section on acceptable techniques for formatting examinations.


This standard provides criteria for the selection and training of research reactor personnel performing a variety of functions at various levels of responsibility (e.g., directors/administrators, operators, and technicians). The standard also covers the general health and disqualifying conditions applicable to license applicants and licensed personnel.
A. PURPOSE

This standard describes the activities that must be completed in preparation for initial operator licensing examination visits to non-power reactor facilities. It includes procedures for scheduling and coordinating examinations, assigning examiners, obtaining reference materials from the facility licensee, and reviewing applications.

B. EXAMINATION SCHEDULING

The examiners shall schedule the NRC's initial examinations at non-power reactor facilities and prepare, administer, and grade those examinations (refer to Section D). The chief examiner shall review each facility licensee's examination requirements, negotiate with the facility licensees' training representatives as necessary to schedule specific examination dates, and request contract examiners if necessary (refer to Section C). Form ES-201N-2, "Preexamination Check Sheet," should be used to track these and other activities required before the examinations are administered.

Normally the written examinations and operating tests are completed during a single site visit. As a general rule, the operating tests are administered after the written examinations, however, other sequences are permissible. If the facility licensee has a large number of applicants, the staff may administer the written examinations and the operating tests separately.

C. COORDINATING EXAMINATION VISITS

The chief examiner should contact the facility licensee by telephone before the scheduled examinations to reconfirm the expected number of applicants and the examination dates and to make other preliminary arrangements for the examinations. The person who contacts the facility licensee shall use Attachment 1, "Non-Power Reactor Facility Notification Letter," as a guide and discuss the following examination arrangements:

1. the need to have the reference materials identified in Attachment 1 delivered to the assigned examiners at least 60, but preferably 90, days before the scheduled examination date;

2. the guidelines for reviewing and administering the written examinations (ES-401N, Attachment 1; ES-402N, Attachments 1, 2, and 3);
3. the guidelines for administering the operating tests (ES-302N, Attachment 1); and

4. the requirements (refer to 10 CFR 55.31) and guidelines (refer to Attachment 1) for submitting the license applications.

The chief examiner shall normally issue a letter confirming the verbal arrangements 120 days, but no fewer than 30 days, before the examinations begin. The letter should be addressed to the person at the highest level of management who is responsible for facility operations. Attachment 1 is an example of such a letter; the exact wording may be modified as necessary to reflect the situation.

When the reference material is received from the facility licensee, the assigned examiner(s) shall review and inventory the material to determine if it is complete and adequate for preparing the examinations. If the material is incomplete or inadequate, the assigned examiner(s) should immediately inform the responsible chief examiner. The chief examiner will request the facility licensee to send any additional material to all assigned examiners. If necessary, an examiner may review and select additional reference material during a site orientation trip.

The chief examiner shall coordinate the examination site visit with the facility licensee and the other examiners assigned to the examination. If an examiner is assigned to administer operating tests at a particular facility for the first time, he or she should inform the chief examiner of that fact so that appropriate arrangements can be made for the examiner's orientation at that facility as described in Section F.

If the examination schedule has to be changed on short notice, the chief examiner and the facility contact should reschedule the examinations, provided the assigned examiners are available and other examinations on the examination schedule are not affected. If examinations involving contract examiners must be rescheduled or if there is a need to modify the task order, the chief examiner shall notify the technical assistance project manager before the work modification (refer to Section D).

The chief examiner should schedule the operating tests to optimize the use of examiners. The same examiner should administer the entire operating test to an applicant. Operating tests normally will 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.
D. ASSIGNMENT OF EXAMINERS

The chief examiner will assign the required number of examiners to prepare and administer the requested number of examinations on the dates arranged with the facility licensee. Normally, a sufficient number of examiners will be assigned so that no examiner will have to administer more than 6 operating tests per week. Under no circumstances will an examiner be required to administer more than 7 operating tests in any one week. Each examiner’s certification status, other examination commitments, and general availability should be considered when making assignments. The need for contract examiner support should be determined at least 6 months before each scheduled examination date. If a chief examiner is not available in Headquarters, one will be requested from a region. Contract examiners will not be tasked to act as chief examiner.

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. The examiner shall discuss the following areas, as applicable, with his or her supervisor:

1. the length of time the examiner worked at the facility
2. the time that has elapsed since the examiner left the facility
3. the reasons the examiner terminated employment at the facility
4. the nature and extent of previous relationships with former associates being examined or employed at the facility
5. anything that could affect the administration, performance, evaluation, or results of the examination or create the appearance of a conflict of interest

Contract managers will not accept an examination assignment that appears to create a conflict of interest. If they cannot reassign their examiners to eliminate the conflict, they shall notify the technical assistance project manager, DRCH, and the technical monitor as soon as possible so that the problem can be evaluated and resolved.

An examiner who failed an applicant on an operating test will not be assigned to administer that applicant’s retake operating test, nor will an examiner who was previously employed by a facility licensee (or one of its contractors) be assigned any direct responsibilities for developing or administering written examinations or operating tests at that licensee’s facilities for...
at least 2 years after the examiner terminated employment with the facility licensee. Headquarters management will control other in-office examination activities concerning the facility, such as technical consultation and quality assurance reviews of examinations.

Criteria that identify every possible conflict-of-interest issue cannot be anticipated. Supervisors must apply sound judgment to the facts of each case. If there is any doubt regarding a particular case, the supervisor should consult with HOLB to resolve the issue.

The technical assistance project manager will contract for contract examiners at least 4 months in advance to allow for necessary adjustments to facility training or examination schedules. If the staff requires a new contract examiner assignment or a change in an existing assignment less than 4 months before the date of an examination, the request should be made as soon as possible (and preferably before work starts). The HOLB technical monitor and Branch Chief, HOLB, will normally resolve conflicts in scheduling contract examiners.

The chief examiner will ensure that an examination assignment sheet in the format of Form ES-201N-1 is prepared as far in advance as possible, but at least 2 weeks before the scheduled examination date. The assignment sheet should be completed after the preliminary license applications are reviewed and approved and all waiver requests are resolved (refer to Section E and ES-204N). The assignment sheet will identify the chief and other examiners by name and list the applicants by name, docket number, and the type of examination (e.g., SRO Upgrade, RO written only) they are 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-204N. A copy of the assignment sheet will be distributed to all examiners assigned and the facility project manager. A copy of the assignment sheet will be updated (pen-and-ink) to reflect the examinations as they were administered and placed in the examination master file for the facility.

E. REVIEWING LICENSE APPLICATIONS

When the preliminary license applications are received approximately 30 days before the examination date, the chief examiner shall review the applications in accordance with ES-202N to determine if the applicants meet the eligibility requirements specified in 10 CFR 55.31.

Those applicants who satisfy the eligibility requirements will be identified on the examination assignment sheet as described in Section D above.
F. PREEXAMINATION SITE VISITS

In some instances, it may be advantageous for some of the assigned examiners to make a preparatory trip to the facility before the scheduled examination date. This will allow the examiners to familiarize themselves with the facility and provide an opportunity for the examiners to review and validate the examination materials with the facility licensee as discussed in Section G.

The branch chief will evaluate each initial examination assignment to determine if a separate preparatory site visit should be conducted. The branch chief should carefully weigh the costs and benefits associated with each additional trip to the facility and consider factors such as the experience of the assigned examiners and the number of written examinations and operating tests to be validated.

G. FACILITY PREEXAMINATION REVIEWS

The chief examiner may make arrangements for the facility licensee to review the initial licensing examinations before they are administered. This review should include the written examination that has been completed and approved for facility review by the chief examiner. If the examination materials are being developed by a contractor and circumstances necessitate an earlier prereview by the facility licensee, the chief examiner must notify the contractor of the advanced delivery date as soon as possible so that the contractor's resources can be scheduled accordingly. If the contractor is unable to support the early delivery date, the chief examiner will make a decision whether to delay or waive the review or delay the examination.

The staff will conduct the examination prereview in accordance with the guidelines and instructions contained in Attachment 1.

ATTACHMENTS/FORMS:
Attachment 1, "Sample Facility Notification Letter"
Form ES-201N-1, "Examination Assignment Sheet"
Form ES-201N-2, "Preexamination Check Sheet"
Dear [Name]:

In a telephone conversation between [Name] and [Name], arrangements were made for the administration of operator licensing examinations at the [Facility Name]. The written and operating examinations are scheduled for the week of [Week of Exam].

In order for us to meet this schedule, please furnish two sets of the reference material, as applicable for your facility, listed in Enclosure 1, "Reference Material for Reactor/Senior Reactor Operator Licensing Examinations" at least 60 days prior to the examination date to the following address:

U. S. Nuclear Regulatory Commission
Washington, D.C. 20555
ATTN: (Chief Examiner)

You are responsible for providing adequate space and accommodations in order to properly conduct the written examinations. Enclosure 2, "Administration of Written Examinations," describes our process for conducting these examinations.

Enclosure 3 contains the Rules and Guidelines that will be in effect during the administration of the written examination. Please ensure that all applicants are aware of these rules.

Your review of the written examination will be conducted in accordance with the procedures specified in Enclosure 4, "Facility Review of Written Examinations."

Preliminary reactor operator and senior reactor operator license applications should be submitted at least 30 days before the first examination dates so that we will be able to review the training and experience of the candidates, process the medical certifications, and prepare final examiner assignments after applicant eligibility has been determined. Final signed applications certifying that all training has been completed must be submitted at least 14 days before the examination date in order to process the license application. If our review cannot be completed in time to make a determination of applicant
eligibility, the candidate may not be permitted to sit for the examination. Therefore, it is recommended that license applications be provided as soon as possible to ensure an appropriate level of review.

This request is covered by Office of Management and Budget (OMB) Clearance Number 3150-0101, which expires May 31, 1995. The estimated average burden is 7.7 hours per response, including gathering, xeroxing and mailing the required material. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch, MNBB-7714, Division of Information Support Services, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; and to the Paperwork Reduction Project (3150-0101), Office of Information and Regulatory Affairs, NEOB-3019, Office of Management and Budget, Washington, D.C. 20503.

If you have any questions regarding the examination procedures and requirements, please contact (Chief Examiner) at ( ) xxx-xxxx.

Sincerely,

Chief Examiner
Operator Licensing Branch
Division of Reactor Controls
and Human Factors
Office of Nuclear Reactor Regulation

Enclosures:
1. Reference Material for
   Reactor/Senior Reactor Operator
   Licensing Examinations
2. Administration of Written Examinations
3. Procedures for Administration of
   Written Examinations
4. Facility Review of Written Examinations

cc w/encls:
____________________, Reactor Supervisor
REFERENCE MATERIAL FOR REACTOR/SENIOR REACTOR OPERATOR LICENSING EXAMINATIONS

1. Existing learning objectives, students handouts and lesson plans (including training manuals, facility orientation manual, system descriptions, reactor theory, thermodynamics, etc.)

Training materials should include all substantive written material used for preparing applicants for initial RO and SRO licensing. The written material should include learning objectives if available and the details presented during lectures, rather than outlines. Training materials should be identified, bound, and indexed. Training materials which include the following should be provided:

- System descriptions including descriptions of all operationally relevant flow paths, components, controls and instrumentation.
- System training material should draw parallels to the actual procedures used for operating and applicable system.
- Complete and operationally useful descriptions of all safety-system interactions, secondary interactions under emergency and abnormal conditions, including consequences of anticipated operator error, maintenance error, and equipment failure.
- Training material used to clarify and strengthen understanding of emergency operating procedures.

2. Complete Procedure Index (including temporary procedures).

3. All administrative procedures as applicable to reactor operation or safety.

4. All integrated facility procedures, normal or general operating procedures and procedures for experiments.

5. All emergency procedures, emergency instructions, abnormal or special procedures.

6. Standing orders or procedures changed by reactor supervision and important orders or changes that are safety related and may supersede the regular procedures.

7. Applicable procedures (procedures that are run frequently).

8. Fuel-handling and core-loading procedures and initial core-loading procedure, when appropriate.

9. Any annunciator/alarm procedures, as applicable.

11. Emergency plan implementing procedures.


13. System operating procedures, including experiments.

14. Piping and instrumentation diagrams, electrical single-line diagrams, or flow diagrams, as applicable.

15. Technical Data Book, and/or facility curve information as used by operators and facility precautions, limitations, and set points for the facility.

16. Questions and answers specific to the facility training program which may be used in the written or operating examinations (voluntary by facility licensee).

17. Additional material as requested by the examiners to develop examinations that meet the requirements of the Non-power Reactor Examiner Standards and Regulations.

The above reference material should be approved final issues and so marked. If a facility has not finalized some of the material, the Chief Examiner should verify with the facility that the most complete, up-to-date material is available and that agreement has been reached with the licensee for limiting changes before the administration of the examination.
1. A single room must be provided for administration of the written examination. The location of this room and supporting restroom facilities should be such as to prevent contact with all other facility personnel during the written examination.

2. Minimum spacing is necessary to ensure examination integrity as determined by the Chief Examiner (e.g., six feet between applicants).

3. Acceptable arrangements should be made by the facility if the applicants are to have lunch, coffee or other refreshments. These arrangements shall comply with Item 1 above and must be reviewed by the examiner and/or proctor.

4. The facility licensee provides pads of 8 1/2 by 11 inch lined paper in unopened packages for each applicant’s use in completing the examination. The examiner distributes these pads to the applicants as needed.

5. Applicants may bring pens, pencils, calculators or slide rules into the examination room. Only black ink or dark pencils should be used for writing answers to questions.

6. No wall charts, models, and/or other training materials can be present in the examination room. No other equipment or reference material will be allowed unless provided by the examiner.

7. The facility staff is provided with a copy of the written examination at the beginning of the examination. The facility staff will then have five (5) working days to provide formal written comments with supporting documentation regarding written examination questions and answers to the Chief Examiner.
PROCEDURES FOR THE ADMINISTRATION OF WRITTEN EXAMINATIONS

1. Verify candidate identity.

2. Pass out examinations and all handouts. Remind applicants not to review examination until instructed to do so.

READ THE FOLLOWING INSTRUCTIONS VERBATIM:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

READ THE FOLLOWING INSTRUCTIONS:

1. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contact with anyone outside the examination room to avoid even the appearance or possibility of cheating.

2. Use black ink or dark pencil only to facilitate legible reproductions.

3. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.

4. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

5. Before you turn in your examination, consecutively number each answer sheet.

6. The point value for each question is indicated in [brackets] after the question.

7. If the intent of a question is unclear, ask questions of the examiner only.

8. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

9. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.
10. To pass the examination, you must achieve a grade of 70 percent or greater in each category.

11. There is a time limit of three (3) hours for completion of the examination, or one (1) hour for the completion of a single-section examination (retake).

12. When you have completed and turned in your examination, leave the examination area (DEFINE THE AREA). If you are observed in this area while the examination is still in progress, your license may be denied or revoked.
ENCLOSURE 4

FACILITY REVIEW OF WRITTEN EXAMINATIONS

1. At the option of the Branch Chief, HOLB, the facility may review the written examination up to two weeks prior to its administration. This review may take place at the facility or in the HOLB office. The Chief Examiner will coordinate the details of the review with the facility. An NRC examiner will always be present during the review. The examination or written notes will NOT be retained by the facility.

Whenever this option of examination review is utilized, the facility reviewers will sign the following statement prior to being allowed access to the examination.

a. Pre-Examination Security Agreement

I __________________ acknowledge that I have acquired specialized knowledge concerning the examination scheduled for ___________ as of the date of my signature below. I agree that I will not knowingly divulge any information concerning this examination to any unauthorized persons. I understand that I am not to participate in any instruction involving the applicants scheduled to be administered the above examination from this date until after the examination has been administered. I further understand that violation of the conditions of this agreement may result in the examinations being cancelled and/or enforcement action against myself or the facility licensee by whom I am employed or represent.

______________________________
Signature/Date

In addition, the facility staff reviewers will sign the following statement after the written examination has been administered.

b. Post-Examination Security Agreement

I __________________ did not, to the best of my knowledge, divulge any information concerning the examinations administered during the week of ___________ at ___________ or any instruction to those applicants who were administered the examination from the date I entered into this security agreement until the completion of examination administration.

______________________________
Signature/Date
2. Regardless of whether the above examination review option is exercised, the facility staff is provided a copy of the examination and the answer key at the beginning of the examination. A copy shall be kept of the pen and ink changes made to questions during the examination administration.

If the facility did not review the examination prior to its administration, they will have five (5) working days from the day of the written examination to submit formal comments. If the facility reviewed the examination prior to its administration, any additional comments must be given to an examiner prior to his/her leaving the facility. These comments will be addressed to the HOLB by the Reactor Supervisor. A copy of the submittal will be forwarded to the Chief Examiner, as appropriate. Comments not submitted within the required time frame will be considered for inclusion in the grading process on a case-by-case basis by the HOLB Branch Chief. This may cause delays in grading the examinations.

3. The following format should be used for submittal of specific comments:

   a. Listing of NRC question, answer and reference
   b. Facility comment/recommendation
   c. Reference (to support facility comment)

NOTES:

1. No change to the examination will be made without submittal of a reference to support the facility comment. Any supporting documentation that was not previously supplied, shall be provided.

2. Comments made without a concise facility recommendation will not be addressed.

4. A two-hour post examination review may be held at the discretion of the Chief Examiner. If this review is held, the facility staff should be informed that only written comments that are properly supported will be considered in the grading of the examination.
MEMORANDUM FOR:  (Branch Chief)
FROM:  (Chief Examiner)
SUBJECT:  EXAMINATION ASSIGNMENTS

Facility and location
Facility contact
Written examinations to be prepared by
Dates of Examinations

cc:  Project manager
     (Standard headquarters distribution)

Chief Examiner

Examiner Standards 15 of 16  Rev. 1, 06/01/95
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* Dates may be adjusted to permit facility prereview.
A. PURPOSE

This standard provides instructions for reviewing initial license applications and identifies the experience, training, education, and certification requirements and guidelines that an applicant should satisfy before he or she will be allowed to take an NRC reactor operator (RO) or senior reactor operator (SRO) license examination.

B. DEFINITIONS

The terms used in this standard are defined in ANSI/ANS-15.4-1988. Additional clarification is provided where necessary.


4. Reactor operator applicant: An unlicensed individual who is applying for an RO license.

5. Senior reactor operator upgrade (SRO-U) applicant: A licensed RO who is applying for an SRO license on the same unit(s).

6. Senior reactor operator instant (SRO-I) applicant: An unlicensed individual who is applying for an SRO license.

C. REVIEWING INITIAL LICENSE APPLICATIONS

The regulatory requirements associated with the license application process are as stated in Subpart D, "Applications," of 10 CFR 55. They should be referred to as necessary when reviewing license applications.

1. All Applications

   a. To apply for an RO or SRO license, an applicant must submit an NRC Form 398, "Personal Qualifications Statement-Licensee," and an NRC Form 396, "Certification of Medical Examination by Facility Licensee" (computer-generated duplicates are acceptable). The application is not complete until both forms are filled out, signed by the appropriate personnel, and received by the NRC.
Detailed instructions for completing NRC Form 398 are provided with the form and Section F. Refer to Sections C.2 and D for additional information regarding retake applications and medical certifications, respectively.

b. As noted in ES-201N, the facility licensee should submit preliminary, uncertified license applications and medical certifications to the Branch Chief, HOLB for review at least 30 days before the examination date. The chief examiner shall review the applications as soon as possible, determine license eligibility, process the medical certifications and any waiver requests (refer to ES-203N), and request any additional information that might be necessary.

When the applicant has completed all the required training for the desired license level, the facility licensee's senior management representative must certify that fact by placing a check in Item 19.b of NRC Form 398, signing the form, and submitting it to the NPRS at least 14 days before the examination date. The chief examiner shall review the application against the specific RO or SRO eligibility guidelines described in Section E.

c. If the chief examiner determines that the application is incomplete or that the applicant does not meet the requirements in 10 CFR 55.31, he/she will note the deficiencies and request the facility licensee to supply the additional information to complete the application. If the chief examiner determines that the applicant still does not meet the eligibility requirements, the Branch Chief, HOLB, will notify the applicant in writing that the application is being denied and inform him or her of the deficiencies on which the denial is based (Attachment 1).

The chief examiner shall check the "does not meet requirements" block at the bottom of Form 398 and sign and date the form. The applicant shall not be permitted to take the license examination until he or she is determined to meet the eligibility requirements.

If the applicant does not accept the proposed denial, he or she may request the Director, Division of Reactor Controls and Human Factors (DRCH), Office of Nuclear Reactor Regulation (NRR), to review the application denial or request a hearing in accordance with 10 CFR 2.103(b)(2). Further action will be taken in accordance with ES-502N.
2. Retake Applications

If the applicant is reapplying after a license denial, 10 CFR 55.35 applies and the applicant must submit new complete Forms 398 and 396. The NRC will not process a retake application if the applicant’s request for reconsideration or a hearing on the previous license denial is still outstanding (refer to ES-502N). The chief examiner shall review the application as described in Section C.1, subject to the following additional conditions:

a. If the first application was denied because the applicant failed the written examination or operating test or both, the applicant may file a new application 2 months after the date of the final denial. The applicant may file a third application 6 months after the date of the second denial and successive applications 2 years after the date of each subsequent denial.

b. If the applicant previously passed either the written examination or the operating test, he or she may request a waiver of that portion of the licensing examination (refer to ES-203N). Waivers are limited to the first reapplication and must be requested within 1 year of the date of the failed examination.

c. The new Form 398 shall describe the extent of the applicant’s additional training since the denial and certify that the applicant is ready for reexamination.

D. MEDICAL REQUIREMENTS

The medical requirements for license applicants and licensed operators are specified in Subpart C, "Medical Requirements," of 10 CFR 55.

1. The medical data in support of NRC Form 396 are normally good for 6 months from the date of the medical examination. However, if the applicant is reapplying after withdrawing a previous application or accepting a final license denial, he or she may request a waiver by checking Item 4.f.4 on NRC Form 398 and either providing an explanation in Item 17, "Comments," of the form or submitting a separate letter with the application. The chief examiner may waive the requirement for a new medical certificate (i.e., NRC Form 396) if the date of the original medical examination is within 1 year of the scheduled license examination. The chief examiner shall document the disposition of the waiver request by checking the appropriate block at the bottom of NRC Form 398 and notifying the candidate in writing (refer to ES-203N).
2. If a licensed operator is temporarily unable to meet medical standards but is expected to meet those standards again in the future, the facility licensee may administratively classify that operator's license as "inactive" until the operator is once again certified to meet all medical standards by the facility licensee. The facility licensee need not notify the NRC nor request a conditional license for the temporary disability provided the operator is administratively prevented from performing licensed duties during the period of his or her temporary disability. If the disability extends beyond the date of license expiration, the license will expire and the operator will have to file a new application when the medical requirements are again satisfied.

3. If the facility licensee determines that a licensed operator's medical condition is permanently disqualifying the facility licensee shall notify the NRC within 30 days of learning of the diagnosis (see 10 CFR 50.74 and 55.25).

E. LICENSE ELIGIBILITY GUIDELINES

The license eligibility guidelines in ANSI/ANS-15.4-1988 are summarized below.

1. Reactor Operator

   a. Certification

      Responsible facility management must certify that the individual has received sufficient training at the facility and the results of that training have been objectively evaluated to ensure safe assumption of the duties and responsibilities of a licensed operator (Form 398, Item 19.b).

   b. Training

      In consideration of the individual's previous experience, training and level of responsibility, the training performed shall:

      (1) Be adequate to ensure safe operation of the facility.

      (2) Include the topics identified in Section 5.4 of ANSI/ANS-15.4-1988.

      (3) Include operation of the reactor and its systems under the supervision of licensed operators and senior operators.

      (4) Include the manipulation of the controls of the reactor during 5 significant changes in reactivity or power level (refer to 10 CFR 55.31(a)(5)). Every effort should be made
to diversify the reactivity and power changes. Some examples of the control manipulations that could be accomplished include reactor startups and shutdowns, and large power changes.

c. Education

The applicant should have a high school diploma or equivalent. If an applicant has not graduated from high school or received an equivalent certification, then his or her educational background must be described in detail on the application so that eligibility can be determined before the examination.

2. Senior Reactor Operator

a. Certification

Responsible facility management must certify that the individual has received sufficient training at the facility and the results of that training have been objectively evaluated to ensure safe assumption of the duties and responsibilities of a licensed operator (Form 398, Item 19.b).

b. Training

In consideration of the individual's previous experience, training and level of responsibility, the training performed shall:

(1) Be adequate to ensure safe operation of the facility.

(2) Include the topics identified in Section 5.3 of ANSI/ANS-15.4-1988.

(3) Include operation of the reactor and its systems.

(4) (SRO-Instant only) Include the manipulation of the controls of the reactor during 5 significant changes in reactivity or power level (refer to 10 CFR 55.31(a)(5)). Every effort should be made to diversify reactivity and power changes.

c. Education

The applicant should have a high school diploma or equivalent. If an applicant has not graduated from high school or received an equivalent certification, then his or her educational background must be described in detail on the application so that eligibility can be determined before the examination.
d. Experience

The applicant should have a minimum of three (3) years of nuclear experience. A maximum of two (2) years equivalent full-time academic training may be substituted for up to 2 of the 3 years.

F. NRC FORM 398

Each application for a reactor operator or senior reactor operator license shall be made on a personal qualifications statement (NRC Form 398); the original and two copies are required. The form must be completely filled out per the instructions and signed by the appropriate personnel. Those sections or items that are not applicable to operators at non-power reactors shall be marked "NA".

Item 4 / Type of Application

Items:  
  e. Reapplications are discussed in Paragraph C of this Standard.
  f. Waiver requests are discussed in connection with reapplications in Paragraph C of this Standard.
  g. Not applicable (NA) to non-power facilities.

Item 10 / Current Position at Facility

Items:  
  a, b, c, e, and i are not directly applicable to non-power reactors. Therefore, the "other" Item (j) should be used to describe the applicant's position; for example, Director of Facility, Chief Reactor Supervisor, etc. Items g and h are only for licensed personnel. A non-licensed control room operator trainee should not be listed as a control room operator (h) but, instead, should be listed as a trainee in Item j.

Item 12 / Training

This Section should contain only training received specifically for the license for which the application is submitted. Non-power facilities normally do not have a training program that excludes other concurrent activities, therefore, the period of training should be identified (month and year from - to) and "condensed" to the appropriate number of weeks. For example:
An applicant spends four months in training from 1 June through 30 September with two hours a week devoted to fundamentals, two hours a week tracing systems, one hour a week in the control room, and one hour a week in actual manipulation (two reactivity changes per manipulation). The "condensed" training would be from 6/84 to 10/84; fundamentals (16 weeks x 2 hr/week), approximately one week; facility systems observation, one week; control room operations, one week; and reactivity manipulations, 32. Numbers do not have to be precise, but should be representative.


3. "Simulator Operation" and "Simulator Name(s)" are not applicable to non-power facilities.

3b. Enter number of reactivity manipulations under "plant."

5. "Extra Person on Shift" is not applicable to non-power facilities.

6. The use of "continuous" or a similar entry to describe the number of weeks in "Requalification" is not sufficient. The actual number of weeks (condensed in one time period) spent in requalification must be listed as described in the example above.

Item 13 / Experience

Experience must be current up to the date of application and be entered into the categories so that it corresponds to the positions listed as well as possible. Use of Items 13.5, 13.9 and 13.16 (i.e., "other") is encouraged. In all cases, the experience should be briefly and fully described in Item 16.

Item 14 / Facility Operator Training Program

N/A

Item 19 / Signatures and Certifications

Items: 19a. The applicant's signature must appear on the application.
19b. The Training Coordinator and highest level of facility management responsible for facility operations must sign the application. This is normally the Facility Director or equivalent position; "Higher" authority is not needed. If the Facility Director is also the "Training Coordinator" then he/she must sign in both places.

ATTACHMENTS/FORMS:

Attachment 1, "Sample Initial Application Denial"
Docket No. 55-(number)

(Applicant's name)

(Street address)

(City. State. Zip code)

Dear (Name):

This is to inform you that your application for a (reactor operator, senior reactor operator) license submitted in connection with the (facility name) is hereby denied.

(HOLB to discuss deficiencies and which part of 10 CFR 55.31, ES-202N, or ANSI/ANS-15.4-1988 was involved.) When you have met the requirements of 10 CFR 55.31, you may submit another application.

If you do not accept this denial, you may, within 20 days of the date of this letter, take 1 of the following actions:

You may request the NRC to reconsider the denial of your application by writing to the Director, Division of Reactor Controls and Human Factors, Office of Nuclear Reactor Regulation, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555. Your request must include specific reasons for your belief that your application was improperly denied. If the NRC determines that the denial of your application remains appropriate, you still have the right to a hearing pursuant to 10 CFR 2.103(b)(2).

If you do not request reconsideration, you may request a hearing in accordance with 10 CFR 2.103(b)(2). Submit your request, in writing, to the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, with a copy to the Assistant General Counsel for Hearings, Office of the General Counsel, at the same address.

If you have any questions, please contact (name) at (telephone number).

Sincerely,

(Branch chief or above)

cc: (Facility representative who signed the applicant's NRC Form 398)
A. PURPOSE

This standard provides guidance on the processing of waivers requested by reactor operator (RO) and senior reactor operator (SRO) license applicants at non-power reactor facilities.

B. BACKGROUND

The Operator Licensing Branch (HOLB) has delegated the authority to grant routine waivers of certain operator licensing requirements to the chief examiner in an effort to expedite the resolution of applicants' requests. The routine waivers identified in Section D may be granted by the chief examiner without first obtaining HOLB concurrence. All other waiver requests must be approved by HOLB after the staff makes its recommendation. If the staff decides to deny the waiver request, it does not require HOLB concurrence, although concurrence in some cases may be desirable. Waivers of experience requirements, completion of training, or completion of examinations not specifically identified in Section D shall not be granted unless approved by HOLB.

C. GENERAL GUIDELINES

1. Submittal of Waiver Requests

The applicant may request a waiver of a license requirement by checking the appropriate block in Item 4.f on NRC Form 398, "Personal Qualifications Statement-Licensee."

2. Evaluation of Waiver Requests

Waiver requests will be evaluated on a case-by-case basis. If additional information is required to reach a decision on the waiver request, the NPRS shall generally request the necessary information from the facility licensee in accordance with ES-202N.

Waiver requests may be denied if the evaluation and judgment of the staff or HOLB so warrant. The staff shall document the disposition of every waiver request, whether granted or denied, by completing the "For NRC Use" block on the applicant's NRC Form 398.

The NRC will consider granting an exemption to the requirement for a licensee to pass an NRC administered requalification examination for the purposes of license renewal if the reactor is not available or if the operator is incapacitated by a temporary disability or illness or unavailable. In these circumstances, the NRC may grant a schedular exemption with the provision that the examination requirement would
still be satisfied at a later date.

3. **Notification of Applicants**

When the decision to grant or deny a waiver is made, the staff shall promptly notify the applicant in writing of the disposition of the request. If time is too short to notify the applicant in writing before the examination date, the staff shall notify the facility training representative by telephone of the disposition of the waiver request, with a follow-up written response to the applicant. The staff shall include the HOLB Branch Chief on distribution for all waiver disposition letters.

If the applicant is determined to be ineligible to take the license examination, the staff shall issue a denial letter in accordance with ES-202N.

D. **ROUTINE WAIVERS**

1. If an applicant fails only one section of the written examination, but with an overall grade greater than 70%, or one category of the operating test, the staff may waive those examination areas (categories) that were passed. This is only applicable for the first retake examination if it is within 1 year of the examination that the applicant failed.

2. A facility licensee's request for waiver of training requirements specified in the final safety analysis report (FSAR) may be granted when waiver of those specific requirements is authorized by the approved FSAR and the applicant otherwise meets NRC requirements (e.g., waiver of some training requirements for applicants previously licensed at a comparable facility).

3. The medical data in support of NRC Form 396 are good for 6 months from the date of the medical examination for a person applying for an RO or an SRO instant license. For reapplications following a license denial or withdrawal of an application, waivers extending the 6-month period may be granted if the date of the original medical examination is within 1 year of the scheduled reexamination. For renewal and SRO upgrade applicants, the medical examination documented on NRC Form 396 is good for 2 years from the date of the medical examination.

4. Examination waivers (written and operating tests) for previously licensed operators not currently holding a license will be considered depending on the justification provided by the facility licensee pursuant to 10 CFR 55.47 as discussed above.

In these instances, the staff should forward requests for waivers with a recommendation to HOLB for concurrence. Examiners will be notified of such waivers by the chief examiner and on the examination assignment sheet (Form ES-201N-1).
A. PURPOSE

All applicants for reactor operator (RO) and senior reactor operator (SRO) licenses are required to take an operating test, unless it has been waived in accordance with 10 CFR 55.47 (refer to ES-203N). The specific content of the examination will depend upon the type of license for which the applicant is applying.

This Standard describes the procedure for developing operating tests to be given in accordance with the requirements of 10 CFR 55.45.

This Standard also provides guidance to the examiner on the use of the Non-Power Examination Report and related forms to develop operating tests for all levels of applicants, at all types of non-power reactor facilities.

B. DEFINITIONS

1. "Applicant" is any individual who has submitted an NRC Form 398 in pursuit of an operator license. For purposes of this and other Examiner Standards, it is synonymous with "candidate".

2. "Applicant License Level" is the level of operator license (i.e., RO or SRO) for which the applicant has applied.

3. "Section" is a major subdivision of related subjects on the operating test.

4. "Operating Test" is that portion of the operator licensing examination based upon direct interaction between an examiner and the applicant. It tests the applicants' level of knowledge on the design and operation of the reactor and its associated facility systems, both internal and external to the control room or operating console. It may also include a startup and control demonstration (examination) on the facility reactor.

5. "Scenario" is an integrated group of events comprising a set of facility malfunctions and/or evolutions to be performed or discussed using the reactor.

6. "Scenario Set" is a group of scenarios, which comprise Section C, Integrated Facility Operations, of the operating test.

7. "Task" is a well-defined unit of work. The totality of all tasks constitutes a job.
C. REGULATORY BASIS FOR THE OPERATING TEST

The operating test, to the extent applicable, requires the applicant to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a representative sample from among the following 13 items identified in 10 CFR 55.45(a):

1. Perform pre-startup procedures for the facility, including operation of those controls associated with facility equipment that could affect reactivity.

2. Manipulate the console controls as required to operate the facility between shutdown and designated power levels.

3. Identify annunciators and condition-indicating signals and perform remedial action, where appropriate.

4. Identify the instrumentation systems and the significance of facility instrument readings.

5. Observe and safely control the operating behavior characteristics of the facility.

6. Perform control manipulations required to obtain desired operating results during normal, abnormal, and emergency situations.

7. Safely operate the facility's heat removal systems, including primary coolant, emergency coolant, and decay heat removal systems, and identify the relation of the proper operation of these systems to the operation of the facility.

8. Safely operate the facility's auxiliary and emergency systems, including operation of those controls associated with facility equipment that could affect reactivity or the release of radioactive materials to the environment.

9. Demonstrate or describe the use and function of the facility's radiation monitoring systems, including fixed radiation monitors and alarms, portable survey instruments, and personnel monitoring equipment.

10. Demonstrate knowledge of significant radiation hazards, including permissible levels in excess of those authorized, and ability to perform other procedures to reduce excessive levels of radiation and to guard against personnel exposure.

11. Demonstrate knowledge of the emergency plan for the facility, including, as appropriate, the operator's or senior operator's responsibility to decide whether the plan should be executed and the duties under the plan assigned.

12. Demonstrate the knowledge and ability, as appropriate to the assigned position, to assume the responsibilities associated with the safe operation of the facility.
13. Demonstrate the applicant's ability to function within the control room team as appropriate to the assigned position, in such a way that the facility licensee's procedures are adhered to and that the limitations in its license and amendments are not violated.

D. USE OF REACTOR FACILITIES

The reactor facility will be used to administer the Integrated Facility Operations portion of the operating test in accordance with Paragraph G.3.a. This will be required for RO and SRO (Instant and Upgrade) applicants.

E. LEVEL OF EXAMINATION (RO/SRO)

The depth and scope of an operating test is dictated by the applicant's license level. The conduct of an SRO operating test includes evaluating the applicant's knowledge of responsibilities as a shift supervisor, or equivalent. The SRO applicant should demonstrate supervisory ability and an attitude of responsibility for safe operation. The applicant should assume a management role during facility transient and upset conditions.

A review of facility reference material should provide the examiner with some guidance for correctly orienting the examination to the applicant's license level, in order to ensure that the level of knowledge expected is in concert with the assignment of duties and responsibilities at that facility.

The SRO applicant, whether upgrade or instant, will be examined for the highest on-shift position for which the SRO's license is applicable (e.g., shift supervisor), even if he/she will be given a shift foreman's (or assistant shift supervisor's) position when licensed. The preexamination briefing, discussed in ES-302N, ensures that the applicants are advised of this requirement.

Differences in administrative controls and facility design will affect the SRO's responsibilities, but, in general, the following guidelines should be used to differentiate the SRO operating test from that of an RO.

1. The senior operator, in directing licensed activities, must evaluate facility performance, particularly during non-routine events, and make operational judgments accordingly. He/she should, therefore, have a higher degree of knowledge in areas such as operating characteristics, reactor behavior, and instrument interpretation.

2. The senior operator, in directing licensed activities, must have a wider and more thorough knowledge of facility administrative controls and methods, including limitations imposed by regulations, particularly the limitations set forth in the Technical Specifications and their bases.

3. The senior operator may often be assigned comprehensive actions during facility emergencies and abnormal conditions and should demonstrate knowledge of these assignments. If the facility's procedures allow the senior operator to be on-call, and absent from the reactor building, the reactor operator should demonstrate this same knowledge.
4. The senior operator may often be assigned responsibilities for auxiliary systems that are outside the control room and are not normally operated by licensed operators. The most common example is a waste disposal and handling system for which the licensed operator’s responsibility ends when the fluid passes the last instrument that has console display. However, due to his/her additional responsibilities, the senior operator applicant must demonstrate knowledge of system design concerning maximum permissible concentration, effluent release rates, and other aspects, as appropriate.

The Instant SRO operating test is the most difficult and time consuming to administer because the applicant must be evaluated for both RO and SRO levels of responsibility. The examiner must be assured that the applicant has the necessary skills and abilities as a reactor operator and has the required knowledge and supervisory capabilities to function as a senior reactor operator. Therefore, the instant SRO examination must be a combination of the RO and the SRO operating tests.

F. OPERATING TEST CONTENT

The content of the operating test is dictated by Part 55.45 and may be taken from the tasks comprising licensed operator or senior operator duties (i.e., information in the Safety Analysis Report, system description manuals and operating procedures, facility license and license amendments, Licensee Event Reports, and other materials requested from the facility licensee).

Reference material needed for preparing operating tests is requested from the facility in accordance with the requirements of ES-201N.

G. OPERATING TEST REQUIREMENTS

The Non-Power Reactors Examination Report (Form ES-301N-1) has been developed to implement the requirements of 10 CFR 55.45(a) listed in Paragraph C. Since ES-301N-1 is the vehicle for documenting operating test performance, it is essential that the examiner become familiar with the form and its use. By completing the applicable portions of the form in accordance with this Standard, the examiner will ensure that a representative sample of the required items is covered.

The Non-Power Reactors Examination Report and other forms used in operating test development and documentation are included as attachments to this Standard. Portions of the forms necessary for examination development are discussed in detail here; for a discussion of using the forms during operating test administration and documentation, refer to ES-302N and ES-303N, respectively.

Form ES-301N-1 is divided into three major categories, as follows:

Category A: Administrative Topics - This category must be completed for all applicants, unless specifically waived in accordance with ES-203N.

Category B: Control Room Systems (B.1) and Facility Walkthrough (B.2) - Unless specifically waived in accordance with ES-203N, B.1 must be completed for all RO and SRO Instant applicants, and B.2 completed for all applicants.
Category C: Integrated Facility Operations - Unless specifically waived in accordance with ES-203N, Category C is required for all RO and SRO applicants. This shall include, as a minimum, an evaluation of the applicant’s performance during a startup evolution (not required for SRO-Upgrades). 10 CFR 55.45(a) lists pre-startup and startup activities as part of the comprehensive list of operations that shall be sampled on an operating test. If a reactor startup is performed or discussed, it shall be evaluated in the same manner as any other evolution performed as part of this evaluation. Subcategory A.2 topics will be covered in discussing administrative requirements associated with startup activities.

In addition, Form ES-301N-2, "Operating Test Comments," provides additional space for documentation and comments concerning the applicant’s performance on the operating test.

Each of the three categories on the operating test is described in detail in the following paragraphs.

1. Category A

This category covers topics that are generally associated with the administrative control of the facility.

The examiner should keep in mind while preparing for the operating test that he/she should not automatically give duplicate credit in Category A subjects for operator actions observed during administration of Category C (with reactor facility available) of the operating test. Unless otherwise noted, evaluations on this page should be made based on task performance or associated questions asked of the applicant rather than inferences from observations on the integrated facility operation section of the examination.

The subjects in this category are divided into four groups. The minimum number of subjects from each group to be covered for RO and SRO applicants is indicated in the heading for each group. The selection of subjects to be examined in each group is at the discretion of the examiner. To evaluate varied subjects with different applicants, it will be necessary for the examiner to have prepared pre-scripted questions, as well as be conversant on each of the administrative topics.

As discussed in Paragraph E, many of the subjects will require different degrees of evaluation to properly cover the topic at the applicant’s license level. In general, the SRO applicant should have a greater understanding of the administration and responsibility associated with these subjects than the RO, who needs only to have an understanding of the mechanics and intent of each subject area, as it pertains to his/her tasks at the facility. However, a similar knowledge of emergency plan and security topics may be required for ROs who must act, by facility procedures, as Emergency Director in the SRO’s absence.
The examiner has several options on how to evaluate the candidate in this category. (1) Facility or NRC-developed administrative questions may be used to facilitate the evaluation; (2) the examiner can develop a series of suitable open reference questions as well as select those from the facility's Open Reference Question Bank, if available; or (3) the examiner may ask administrative questions after the performance of a Category B task or a scenario in Category C. The examiner may choose to combine elements of all three of these methods to ensure a complete evaluation is conducted. In each case, however, the questions asked must be pre-scripted in the maximum extent possible. Any questions asked to follow-up on perceived weaknesses noted during administration of the operating examination must be documented for subsequent review purposes.

The following descriptions should be used as guidelines for developing or selecting questions to ascertain/confirm minimal competency within each subcategory:

Subcategory A.1: These subjects are primarily used to evaluate the applicant's knowledge of the daily operation of the facility. These subjects can be covered within the framework of conducting a shift turnover, or integrated into other discussions as they apply throughout the examination. They are not intended to duplicate administrative system requirements in Category B (e.g., valve line ups, control room data system administration and use, etc.).

Subcategory A.2: These subjects are generally those administrative requirements associated with reactor/facility startup and power escalations. They may be covered separately with the applicant or integrated into Category B or C. If the examiner chooses to question the applicant during the integrated facility operation section of the examination, it would be appropriate to conduct this after completion of a scenario.

Subcategory A.3: These subjects deal with radiation protection, a subject area in which there is significant deviation between the level of knowledge expected of an RO and an SRO. The RO's responsibilities generally entail knowledge associated with radiation worker responsibilities and operation of facility systems associated with liquid and gaseous waste releases. Therefore, the depth to which he/she is evaluated should be limited to his/her responsibilities and the monitoring requirements prior to, during, and after the release. The SRO, however, is also involved in the approval and review of release permits and should be cognizant of the requirements associated with those releases, as well as their potential effect on the health and safety of the public. Discussion or simulated performance of a planned release (liquid, gaseous, containment purge) could be utilized when examining these topics.
The Subcategory A.3 subjects are best covered during the conduct of tasks or questioning associated with the local facility operations part of Category B. It is appropriate to evaluate these subjects during an entry into a radio-logically controlled area.

Subcategory A.4: These subjects must be covered with all applicants. However, the depth to which each subject should be examined varies according to the level of the license sought.

The first area to be investigated is the Emergency Plan. There are significant differences between the knowledge required of RO and SRO applicants in this area. The RO typically only has to be able to operate within the facility’s Emergency Plan Implementing Procedures (EPIPs), under someone else’s supervision. A familiarity with the plan, its implementation, and his/her facility-specific responsibilities under the plan reflect an appropriate level of knowledge for the RO applicant.

SROs, however, must demonstrate additional knowledge based upon their responsibility to direct and manage the implementation of the EPIPs during the initial phases of an emergency. Because of this, an SRO should be familiar with event classification procedures, communication requirements and methods, and have a more detailed understanding of the EPIPs, in general. These requirements also apply to an RO if the facility’s procedures assign the RO as Acting Emergency Director in the absence of the SRO.

This subject is best evaluated by integrating it into a Category C transient discussion that requires implementation of the Emergency Plan or by conducting a task requiring use of the Emergency Plan. This task can be conducted immediately following an integrated facility operation scenario or during the walkthrough examination.

The second mandatory subject to be covered is fuel handling. This subject can be covered in the control room, but consideration should be given, when possible and appropriate, to covering this subject in the fuel handling areas of the facility.

The knowledge and skills should be appropriate to the facility-specific requirements for the applicant’s license level. Examiner guidance is best found in the facility’s tasks associated with fuel handling operations.
The RO should be aware of duties relative to the control room during fuel handling such as, alarms from the fuel handling area, communication with the fuel storage facility, systems operated from the control room in support of fueling operations and supporting instrumentation. For the SRO, this subject should cover information such as the delivery of new fuel, moving new/spent fuel, storage of new/spent fuel, design of the fuel handling area, tools used, and casualty operations.

Security may be evaluated by observing the applicant's behavior during the examination. It is appropriate, however, for an SRO applicant to be questioned on applicable aspects of the facility's Security Plan.

2. Category B

This category is used to determine if the applicant possesses adequate knowledge in the area of facility system design and operation.

It is not the intent that this category duplicate the evaluations made in Category C, Integrated Facility Operations. It is, rather, to evaluate additional systems knowledge by observing a candidate's ability to perform facility related tasks and asking questions designed to probe the individual's knowledge of the task and its associated system. Evaluations in Category B should be the result of observing task performance and/or direct questioning of the applicant and should not be inferred from actions observed during the integrated facility operation section of the examination.

Attachment 1, "Topics for Operating Tests," lists generic systems and subjects for non-power reactors. The examiner may select the areas that he chooses to cover in this category from these lists or from a list applicable to the specific facility. To enhance test integrity the examiner should vary coverage of systems and subjects across test administrations.

There are four subject areas for each system selected of which at least two subject areas must be covered. The subject areas are briefly described as follows.

Subject A: System Equipment/Components incorporates the system hardware design, and components. This subject also includes the basic flow path (explanation, freehand drawings or tracing piping and instrument drawings), sources, power supplies, system backups, system operation to perform its function and its relationship with connecting systems.

Subject B: System Instrumentation/Protection/Interlocks incorporates instrumentation associated with the system, its purpose, normal readings, expected readings during normal, abnormal and emergency situations, component protection and interlock functions and location of local and remote instrumentation. Also, any automatic protection afforded by the system, set points, coincidences and reasons for the protection are appropriately evaluated in this subject.
Subject C: **Procedural Knowledge/Use** incorporates normal, abnormal or emergency procedures associated with the system, including procedural prerequisites and precautions and limitations. Also included in this subject are special tests, experiments, and valve lineup checklists. The examiner shall sample an applicant's knowledge in normal, abnormal, emergency procedures to a depth necessary to ensure minimum competency.

Subject D: **Administrative Requirements** incorporates knowledge in the area of Technical Specifications, surveillance testing, documentation associated with the system, and any special restrictions or instructions placed on the system by the facility.

The left hand column of Category B on ES-301N-1 is used by the examiner to list those systems covered during his/her control room and facility walkthrough discussions. The minimum number of systems to be covered for each applicant varies depending on the availability of the reactor facility.

a. **Facility Walkthrough (Category B)**

The examiner shall evaluate the applicant on at least eight systems, for Reactor Operator and Senior Reactor Operator Instant candidates. Attachment 1 lists 6 categories, of which at least one system from each category should be covered. In those instances where one of these categories does not exist at the facility, NA or NE should be entered. Note that Attachment 1 may not be all inclusive. It is intended to serve as a guideline. At least two subject areas must be evaluated for each system selected to meet the minimum requirements. Additionally, each subject area must be evaluated at least twice among the systems selected.

For Senior Reactor Operator Upgrade candidates at least two systems from the lists in Attachment 1 must be evaluated. Systems of different types must be chosen. The examiner must evaluate two of four subject areas based on previously developed questions. Additional questions may be asked to clarify the observed performance; however, these questions must be documented for post-examination evaluation. At least one of the tasks conducted in the facility shall evaluate the candidate's ability to implement actions required in an emergency or abnormal condition.

During the facility walkthrough the examiner should make an entry into a radiologically controlled area. This offers an excellent opportunity to discuss the majority of the radiological control subjects in Subcategory A.3. A task with follow-up questions is an appropriate method for performing an evaluation of this subcategory.

b. **Task/Question Development and Selection**

Both the tasks and the pre-scripted questions may be selected from existing facility examination banks, if available. The examiner may choose to annotate procedures with clarifying comments on how to execute particular steps, as well as identify critical steps. To satisfactorily evaluate a subject area, the examiner shall ask enough questions to determine the candidate's knowledge.
Questions may be selected from the facility's open reference question bank, if available, or developed by the examiner using the facility's reference material. If questions from the facility's bank are used, no more than 10% of the questions associated with the particular system being evaluated may be utilized. If the examiner determines that additional questions must be asked to clarify the observed performance, the question and the response must be fully documented to allow for post-examination review.

3. Category C

To adequately evaluate applicants in Category C, scenarios must be prepared by the examiner in advance to ensure a proper balance of events and sufficient basis to evaluate operator competency in all required knowledge and abilities.

Scenarios, regardless of whether they are developed by NRC or contract examiners, should be transmitted to the Chief Examiner seven working days prior to the start of the week in which they will be administered. The Chief Examiner will review the scenarios and communicate any corrections/changes to the scenario developer.

Scenarios may be developed and combined to make a scenario set. The examiner must ensure that the scenarios, in combination, adequately cover the following Integrated Facility Operations test requirements:

Each scenario set must require the applicants to operate during normal evolutions, instrument failures, component failures, and a major facility transient. The minimum requirements for the type and number of events for a scenario set are specified below and in Form ES-301N-7, "Transient/Event Checklist."

Multiple scenario sets may be required to adequately cover all competencies associated with the license level of the applicants being evaluated to enable the examiners to assess and grade the applicants' performance during the test. The competencies for the RO and SRO license levels are described in Attachment 2, "Competency Descriptions."

For clarity, these two major requirements are discussed separately, even though they are used integrally during scenario development.

Transients and Events

The scenario sets must cover the four different types of facility conditions discussed below. The examiner should use Form ES-301N-7 to track the inventory of transients and events while drafting and assembling his/her scenario sets.

Normal evolutions: evolutions such as system lineups, pre-startup checkouts, reactor startup, power maneuvering with rods, experiment manipulation, or pulsing operations.
A facility startup is required to be completed for all RO and SRO-Instant candidates. This is accomplished by observing the conduct of an actual facility startup, including performance of pre-critical checks (which provide a good opportunity for system related discussions), startup of the facility to a critical condition, ascension to a typically maintained power level and transferring control of the reactor to and from automatic control systems, as appropriate. It is not necessary to also observe a reactor shutdown evolution, though it may provide a basis for a discussion of topics in any of the categories. Once the startup evolution has been completed, control of the reactor may be turned over to a licensed operator. In the extraordinary situation where a malfunction of facility systems occurs after the examiners arrive on site which precludes the conduct of a reactor startup, it is permissible to perform this evolution in a facility walkthrough format. Otherwise, examinations should be rescheduled until the reactor is available for this evolution.

Instrument failures: includes nuclear, control, or process instrumentation failures.

Component failures: a failure which involves a significant system response and requires operator action to correct.

Major transients: significant transients, such as a loss-of-coolant accident or loss of electrical power, that would lead to an automatic protective action such as a reactor trip/scram or an engineered safety system actuation.

As depicted in Form ES-301N-7, RO applicants are required to operate during at least two normal evolutions. One of these evolutions shall involve a significant change in reactivity, during which the applicant should be positioned as the reactor operator. Applicants are also required to operate or verbally simulate at least one instrument failure, one component failure, and at least one major facility transient.

Instant SRO applicants, since they have never had the opportunity to demonstrate their manipulative skills on the control console, must be evaluated in the RO position during some events. These shall include at least one normal evolution, one instrument failure, one component failure, and one major transient. The normal evolution must involve a significant reactivity change with the applicant in the reactor operator position. Instant SRO applicants must also be evaluated as an SRO during an additional major facility transient tailored towards SRO supervisory skills and knowledge of the facility's Emergency Plan. Between the evaluations at the two different levels, the applicant will be adequately evaluated for both operational and supervisory knowledge and abilities.

Upgrade SRO applicants must fill an SRO position for at least one of each of the four types of events. The Upgrade applicant is given credit for his/her previous RO license evaluation and experience and is normally not required to manipulate the controls. However, if weaknesses are detected by the examiner during the test, additional preplanned scenarios may be used to allow the examiner to observe and evaluate the Upgrade applicant’s manipulative skills.
These minimum requirements for scenario set events are intended to ensure that a range of events and evolutions is exercised in each reactor facility test. It is also suggested that scenarios be developed such that a variety of systems is affected within each type of event (i.e., normal evolutions, instrument failures, component failures, major facility transients). The severity of events, as well as the demands they place on the applicants, should be balanced to allow each applicant to demonstrate competency across a range of conditions.

Knowledge and Ability Competencies

In addition to providing broad, balanced coverage of facility events and evolutions, scenarios must be developed to ensure ample opportunity to observe and evaluate each applicant on all required competencies.

The competencies reflect the major knowledge and ability requirements for both the RO and the SRO applicant. Each competency factor is further divided into several rating factors containing descriptive behavioral anchors for the examiner to use in judging applicant performance (refer to the RO and SRO competency worksheets, Forms ES-301N-5 and ES-301N-6, respectively). By comparing the observed behavior to the descriptive anchor, the examiner can assign an integral rating value of 1 to 3 for each rating factor. In combination, the rating factors within each competency provide a means of measuring the applicant's performance in that particular competency. For additional discussion of how the competencies and their rating factors are used by the examiner to grade an applicant's performance in Category C, refer to ES-303N.

Since the rating factors in each competency are used to grade an applicant's performance, it is extremely important for the examiner to be aware of each competency and its associated rating factors when developing scenarios. The examiner must track the competencies and rating factors to ensure they are adequately covered by the selected scenario set(s). This is the only way an examiner can fully evaluate an applicant's performance in this test category.

Scenario Documentation

When developing reactor facility scenarios, three forms will be used.

1. ES-301N-4: Scenario Events and Operator Actions
2. ES-301N-7: Transient/Event Checklist

Each planned scenario should be recorded on Form ES-301N-4. Each event should be sequentially numbered in the left column, identified as a performance (P) or discussion (D) item, and briefly described in the right hand column of the form. At the top of the Scenario Events page enter the name of the facility.

To complete the form, the examiner should list the scenario number, event and page numbers and a brief description of the event on the top of the Operator Actions page.
Scenario Review

When a scenario set is completed, the examiner must ensure that the scenario set contains all of the required transients/events and that all the competencies are adequately covered. This can be most easily accomplished by completing Forms ES-301N-7 and ES-301N-8, respectively. These forms are intended to assist the examiner in assuring the quality of scenarios and are not required to be maintained as a permanent record. They should however, accompany the scenario sets when they are forwarded to the Chief Examiner and Section Chief for review.

Scenario Development Guidelines

To achieve maximum benefit using the reactor facility for evaluation, the following guidelines are recommended in preparing scenarios:

Normal evolutions can be used as a backdrop on which to stage the emergency or abnormal situations. For example, an examiner may provide verbal cues that the reactor period indication is not responding to a normal power change.

Selected short surveillances may be used to examine panel dexterity (for example, exercising safety rods) and should be combined with other activities, such as a reactor startup.

Slower scenarios can be used for evaluating SRO supervisory or resource management skills. For example, a normal evolution, such as a power escalation from low power, can be used as the main scenario event. Other events such as component or instrument failures can be added to challenge the operators while continuing the power escalation.

A scenario shall contain failures that challenge Technical Specifications and administrative requirements if SRO applicants are being evaluated.

The interactions of systems and components can be used to evaluate an operator's knowledge by having one failure cause or exacerbate another. Within each scenario, the events should be selected such that successive equipment failures lead to a gradual and logical deterioration in facility status; a series of unrelated and isolated events should be avoided. Avoid having one failure fully mask the symptoms of another as this can cause a scenario set to be deficient in covering the required types of evolutions. Facility specific and industry generic operating experience should be incorporated into the scenarios.
ATTACHMENTS/FORMS:

Form ES-301N-1, "Non-Power Reactors Examination Report"
Form ES-301N-2, "Operating Test Comments"
Form ES-301N-3, "Individual Walkthrough Test Outline"
Form ES-301N-4, "Scenario Events and Operator Actions"
Form ES-301N-5, "RO Competency Worksheet for Integrated Facility Operations"
Form ES-301N-6, "SRO Competency Worksheet for Integrated Facility Operations"
Form ES-301N-7, "Transient/Event Checklist"
Form ES-301N-8, "Competencies Checklist"
Attachment 1, "Topics for Operating Tests"
Attachment 2, "Competency Descriptions"
Attachment 3, "Task Quality Checklist"
### OPERATOR LICENSING EXAMINATION REPORT

**Candidate's Name**: 

**Docket Number**: 55-  

**Facility**:

### EXAMINATION TYPE

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### EXAMINER RECOMMENDATIONS

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* = MINIMUM 2 SUBJECTS/SYSTEM
† For SRO Upgrades, the 2 systems shall be tested OUTSIDE the Control Room.
## CANDIDATE DOCKET NO. 55-______

### C. INTEGRATED FACILITY OPERATIONS

RO COMPETENCY GRADING SUMMARY

<table>
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<tr>
<th>COMPETENCIES/RATING FACTORS</th>
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(1) FOR COLUMN 1.0 OR 2.0 RATINGS, DOCUMENT HOW THE CANDIDATE'S RESPONSE/ACTION FIT THE DEFINED BEHAVIORAL ANCHOR.

(2) IF > 1.8 IN ALL COMPETENCIES, THEN PASS; IF 1.8 OR LESS IN COMMUNICATIONS, THEN PASS ONLY IF 2.0 OR GREATER IN ALL OTHER COMPETENCIES.
### C. INTEGRATED FACILITY OPERATIONS

#### SRO COMPETENCY GRADING SUMMARY

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<thead>
<tr>
<th>COMPETENCIES/RATING FACTORS</th>
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(1) FOR COLUMN 1.0 OR 2.0 RATINGS, DOCUMENT HOW THE CANDIDATE'S RESPONSE/ACTION FIT THE DEFINED BEHAVIORAL ANCHOR.

(2) IF > 1.8 IN ALL COMPETENCIES, THEN PASS; IF 1.8 OR LESS IN COMMUNICATIONS, THEN PASS ONLY IF 2.0 OR GREATER IN ALL OTHER COMPETENCIES.
## OPERATING TEST COMMENTS

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**INDIVIDUAL WALKTHROUGH TEST OUTLINE**

**EXAM LEVEL:** (CIRCLE ONE) RO / SRO(I) / SRO(U)

**WEEK OF EXAM:**

**FACILITY:**

**EXAMINER:**

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<th>TASK</th>
<th>SUBJ. A</th>
<th>SUBJ. B</th>
<th>SUBJ. C</th>
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**EXAMINER:** ____________________________  **APPROVED:** ____________________________

**COMMENTS:**

*Examiner Standards 21 of 32  Rev. 1, 06/01/95*
SCENARIO EVENTS

Facility_________________ Scenario No.___________

Examiners:_________________ Candidates:______________

Initial Conditions:

______________________________

______________________________

Turnover:

______________________________

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<th>PERFORM/DISCUSS</th>
<th>TYPE*</th>
<th>DESCRIPTION</th>
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*Normal (N), Reactivity manipulation (R), Instrument malfunction (I), Component malfunction (C), Major transient (MT)

Review Complete: ________________________  Chief Examiner

Examiner Standards 22 of 32 Rev. 1, 06/01/95
# RO Competency Grading for Integrated Facility Operations

## 1. UNDERSTANDING/INTERPRETATION OF ANNUNCIATORS/ALARM SIGNALS

<table>
<thead>
<tr>
<th>DID THE CANDIDATE:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>(A)</strong> Correctly INTERPRET and VERIFY that annunciators/alarm signals were consistent with facility/system conditions (including the use, when necessary, of the Alarm Response Procedures)?</td>
<td></td>
</tr>
<tr>
<td>Consistently and effectively</td>
<td>2</td>
</tr>
<tr>
<td>Minor inaccuracies in interpretation/verification of signals</td>
<td>Significant inaccuracies resulting in facility degradation; poor use of ARP's</td>
</tr>
<tr>
<td><strong>(B)</strong> ATTEND to ANNUNCIATOR/ALARM SIGNALS in order of importance/severity?</td>
<td></td>
</tr>
<tr>
<td>Yes in all cases</td>
<td>2</td>
</tr>
<tr>
<td>Minor inaccuracies/oversights</td>
<td>Did not prioritize attention to signals; inattentive to important alarms</td>
</tr>
</tbody>
</table>

## 2. DIAGNOSIS OF EVENTS/CONDITIONS BASED ON SIGNALS/READINGS

<table>
<thead>
<tr>
<th>DID THE CANDIDATE:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(A)</strong> RECOGNIZE off-normal trends/status?</td>
<td></td>
</tr>
<tr>
<td>Quick and accurate recognition</td>
<td>2</td>
</tr>
<tr>
<td>Some delays in recognizing off-normal conditions</td>
<td>Serious omissions, delays or inaccuracies in recognition</td>
</tr>
<tr>
<td><strong>(B)</strong> Correctly USE REFERENCE MATERIAL (prints, books, charts) to aid in the diagnosis/clarification of events and conditions?</td>
<td></td>
</tr>
<tr>
<td>Reference use, when necessary, aided in correct diagnosis</td>
<td>2</td>
</tr>
<tr>
<td>Minor errors in use of/reliance on references</td>
<td>Did not, or incorrectly used references to diagnose</td>
</tr>
<tr>
<td><strong>(C)</strong> Correctly DIAGNOSE facility conditions based on control room indications?</td>
<td></td>
</tr>
<tr>
<td>Diagnoses were accurate</td>
<td>2</td>
</tr>
<tr>
<td>Minor errors/difficulties in diagnoses</td>
<td>Faulty diagnoses adversely impacted facility status</td>
</tr>
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</table>
### RO Competency Grading for Integrated Facility Operations

#### 3. UNDERSTANDING OF FACILITY/SYSTEM RESPONSE

**DID THE CANDIDATE:**

<table>
<thead>
<tr>
<th>(A) LOCATE and correctly INTERPRET relevant instruments and other indicators of facility/system response(s)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Accurate and efficient instrument location and interpretation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(B) Demonstrate KNOWLEDGE of SYSTEM OPERATION, including setpoints, interlocks and automatic actions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Demonstrated thorough understanding of system operations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(C) Demonstrate an understanding of how his/her ACTIONS (or inaction) AFFECTED FACILITY/SYSTEM CONDITIONS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Understood the effect that actions had on facility/system conditions</td>
</tr>
</tbody>
</table>

#### 4. COMPLIANCE/USE OF PROCEDURES AND TECHNICAL SPECIFICATIONS

**DID THE CANDIDATE:**

<table>
<thead>
<tr>
<th>(A) REFER to the appropriate procedure in a timely manner?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Quickly located appropriate procedures</td>
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</table>

<table>
<thead>
<tr>
<th>(B) RECOGNIZE Emergency Procedure conditions and carry out appropriate immediate actions without the aid of references or other forms of assistance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Consistently, accurately and in a timely manner</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(C) COMPLY WITH procedures (including precautions and limitations) in an accurate, timely manner?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Accurate and timely compliance</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>(D) RECOGNIZE facility conditions which are addressed in Technical Specifications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Recognition and full compliance with LCOs/Action Statements</td>
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</table>

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Examiner Standards 24 of 32
Rev. 1, 06/01/95
### RO Competency Grading for Integrated Facility Operations

#### 5. CONTROL BOARD OPERATIONS

<table>
<thead>
<tr>
<th>DID THE CANDIDATE:</th>
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<tr>
<td><strong>(A)</strong> LOCATE CONTROLS effectively and accurately?</td>
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<tr>
<td>Went directly to appropriate controls in all instances</td>
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<td>3</td>
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<tr>
<td><strong>(B)</strong> MANIPULATE CONTROLS in an accurate and timely manner?</td>
</tr>
<tr>
<td>Manipulations consistently accurate and timely</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td><strong>(C)</strong> ACT appropriately in response to INSTRUMENT READINGS?</td>
</tr>
<tr>
<td>Responses were appropriate and timely</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td><strong>(D)</strong> Take MANUAL CONTROL of automatic functions where appropriate?</td>
</tr>
<tr>
<td>Took manual control as appropriate</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

#### 6. COMMUNICATIONS

<table>
<thead>
<tr>
<th>DID THE CANDIDATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(A)</strong> PROVIDE clear and accurate INFORMATION on system status to others?</td>
</tr>
<tr>
<td>Successfully provided others with accurate pertinent information</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>
SRO Competency Grading
for Integrated Facility Operations

1. UNDERSTANDING/INTERPRETATION OF ANNUNCIATORS/ALARM SIGNALS

   DID THE CANDIDATE:

   (A) Correctly INTERPRET and VERIFY that annunciators/alarm signals were consistent with facility/system conditions (including the use, when necessary, of the Alarm Response Procedures)?

<table>
<thead>
<tr>
<th>Consistently and effectively</th>
<th>Minor inaccuracies in interpretation/verification of signals</th>
<th>Significant inaccuracies resulting in facility degradation; poor use of ARP's</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

   (B) ATTEND to ANNUNCIATOR/ALARM SIGNALS in order of importance/severity?

<table>
<thead>
<tr>
<th>Yes in all cases</th>
<th>Minor inaccuracies/oversights</th>
<th>Did not prioritize attention to signals; inattentive to important alarms</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

2. DIAGNOSIS OF EVENTS/CONDITIONS BASED ON SIGNALS/READINGS

   DID THE CANDIDATE:

   (A) RECOGNIZE off-normal trends/status?

<table>
<thead>
<tr>
<th>Quick and accurate recognition</th>
<th>Some delays in recognizing off-normal conditions</th>
<th>Serious omissions, delays or inaccuracies in recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

   (B) Correctly USE REFERENCE MATERIAL (prints, books, charts) to aid in the diagnosis/clarification of events and conditions?

<table>
<thead>
<tr>
<th>Reference use, when necessary, aided in correct diagnosis</th>
<th>Minor errors in use of/reliance on references</th>
<th>Did not, or incorrectly used references to diagnose</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

   (C) Correctly DIAGNOSE facility conditions based on control room indications?

<table>
<thead>
<tr>
<th>Diagnoses were accurate</th>
<th>Minor errors/difficulties in diagnoses</th>
<th>Faulty diagnoses adversely impacted facility status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
### SRO Competency Grading for Integrated Facility Operations

#### 3. UNDERSTANDING OF FACILITY/SYSTEM RESPONSE

**DID THE CANDIDATE:**

<table>
<thead>
<tr>
<th>(A) LOCATE and correctly INTERPRET relevant instruments and other indicators of facility/system response(s)?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(B) Demonstrate KNOWLEDGE of SYSTEM OPERATION, including setpoints, interlocks and automatic actions?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(C) Demonstrate an understanding of how his/her ACTIONS (or inaction) AFFECTED FACILITY/SYSTEM CONDITIONS?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

#### 4. COMPLIANCE/USE OF PROCEDURES AND TECHNICAL SPECIFICATIONS

**DID THE CANDIDATE:**

<table>
<thead>
<tr>
<th>(A) REFER to the appropriate procedure in a timely manner?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(B) RECOGNIZE Emergency Procedure conditions and carry out appropriate immediate actions without the aid of references or other forms of assistance?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(C) COMPLY WITH procedures (including precautions and limitations) in an accurate, timely manner?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(D) RECOGNIZE facility conditions which are addressed in Technical Specifications.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

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## SRO Competency Grading for Integrated Facility Operations

### 5. CONTROL BOARD OPERATIONS

**DID THE CANDIDATE:**

<table>
<thead>
<tr>
<th>(A) LOCATE CONTROLS effectively and accurately?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Went directly to appropriate controls in all instances</td>
<td>Some minor hesitancy/difficulty in locating controls</td>
<td>Demonstrated inability to locate controls without assistance</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(B) MANIPULATE CONTROLS in an accurate and timely manner?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipulations consistently accurate and timely</td>
<td>Minor shortcomings but efficiently mitigated any resulting consequences</td>
<td>Major system perturbation(s) resulting from improper manipulations</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(C) ACT appropriately in response to INSTRUMENT READINGS?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses were appropriate and timely</td>
<td>Generally responsive but some minor errors/lapses</td>
<td>Failed to react appropriately to instrument readings without assistance</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(D) Take MANUAL CONTROL of automatic functions where appropriate?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Took manual control as appropriate</td>
<td>Minor delays with some prompting necessary before overriding automatic functions</td>
<td>Depended on automatic actions; required prompting to take manual control</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

### 6. COMMUNICATIONS/DIRECT OPERATIONS

**DID THE CANDIDATE:**

<table>
<thead>
<tr>
<th>(A) PROVIDE clear and accurate INFORMATION on system status to others?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Successfully provided others with accurate pertinent information</td>
<td>Minor instances of needing to be prompted for input, some incomplete/inaccurate information</td>
<td>Failed to accurately provide important information to others, jeopardizing facility status</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(B) Provide TIMELY, WELL THOUGHT OUT DIRECTIONS that demonstrated appropriate CONCERN for the safety of the facility, staff and public?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Provided early remedial/recuperative direction when necessary</td>
<td>Minor instances of failing to provide direction within a reasonable period of time.</td>
<td>Lost the big picture, examiner repeatedly had to request actions to be taken</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>
## TRANSIENT/EVENT CHECKLIST

<table>
<thead>
<tr>
<th>CANDIDATE TYPE</th>
<th>EVOLUTION TYPE</th>
<th>NUMBER REQ'D</th>
<th>SCENARIO NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>RO</td>
<td>REACTIVITY</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NORMAL</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>INST.</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COMPONENT</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MAJOR</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

| AS RO          | REACTIVITY     | 1            |                 |
|                | NORMAL         |              |                 |
|                | INST.          | 1            |                 |
|                | COMPONENT      | 1            |                 |
|                | MAJOR          | 1            |                 |

| SRO-I          | REACTIVITY     |              |                 |
|                | NORMAL         |              |                 |
|                | INST.          |              |                 |
|                | COMPONENT      | 1            |                 |
|                | MAJOR          | 1            |                 |

| SRO-U          | REACTIVITY     |              |                 |
|                | NORMAL         | 1            |                 |
|                | INST.          | 1            |                 |
|                | COMPONENT      | 1            |                 |
|                | MAJOR          | 1            |                 |

**NOTE:** ENTER SCENARIO SET NO. AT TOP AND THE ATTACHMENT 3 EVENT NOS. FOR EACH EVOLUTION TYPE.

**INITIALS**

**EXAMINER:**

**CHIEF EXAMINER:**

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Rev. 1, 06/01/95
MAJOR SYSTEMS (MAJ):
- reactor
- reactor power level control
- rods
- control rod drives
- primary system
- secondary system
- mechanical design (fuel assembly)
- reactor vessel - pool
- core construction

AUXILIARY SYSTEMS (AUX):
- reactor building cooling water control
- service air (compressed air system)
- sampling system
- fire protection system
- service water system
- equipment and floor drainage
- containment air recirculation
- radioactive waste (solid and liquid)
- demineralized water
- heating ventilation and air conditioning
- reactor water clean-up/make-up
- chemical additions

ENGINEERED SAFETY FEATURES (ESF):
- decay heat removal
- core spray
- core flooding control
- containment/reactor building isolation
- reactor building isolation
- reactor protective system

ELECTRICAL (ELT):
- normal AC supply
- emergency AC supply
- normal DC supply
- emergency DC supply
- reactor protection
- electrical power system
- batteries

REACTOR FACILITIES (FAC):
- fuel handling and storage
- exposure rooms
- incore experiment tubes
- beam tubes
- thermal columns
- pneumatic tube facilities
- liquid waste handling and disposal
- gaseous waste handling
- solid waste handling and disposal

NUCLEAR AND RADIATION SYSTEMS (NUC):
- startup channels
- log N channels
- safety channels
- incore instrumentation/incore probe
- liquid effluent monitors
- area radiation monitors
- gaseous effluent
- stack gas

REACTOR TRANSIENT RESPONSE:
- Power increase/decrease - auto control
- Power increase/decrease - manual control
- emergency shutdown from full power scram - hot restart
- sub critical to critical
- normal shutdown from full power
- rod malfunction
- primary system leak control
- instrument malfunction
- fuel clad failure
Attachment 2

ES-301N Competency Descriptions

REACTOR OPERATOR

1. UNDERSTANDING/INTERPRETATION OF ANNUNCIATORS/ALARM SIGNALS:

This competency involves the ability to notice and acknowledge alarms. Included is the ability to prioritize one's attention in keeping with the severity/importance of annunciator/alarm signals and the ability to correctly interpret and verify that signals are consistent with facility/system conditions (with the use of Alarm Response Procedures, as appropriate). The competency deals strictly with the understanding and interpretation of annunciators and alarm signals, and therefore does not include knowledge of, or the ability to diagnose overall facility/system status based on other indications of facility/system status or condition(s).

2. DIAGNOSIS OF EVENTS/CONDITIONS BASED ON SIGNALS/READINGS:

This competency involves the ability to diagnose facility conditions to guard against and mitigate out-of-spec conditions, based on accurate and timely recognition and analysis of off-normal trends. Included is the use of control room reference materials, such as prints, books, and charts, to aid in the diagnosis and classification of events and conditions. It does not include knowledge of system operation, such as setpoints, interlocks, or automatic actions, or the understanding of how one's actions affect the facility/system conditions.

3. UNDERSTANDING OF FACILITY/SYSTEM RESPONSE:

This competency involves knowledge of system operation, including setpoints, interlocks and automatic actions. Included is the ability to locate/remain attentive to control room indicators, interpret indicator to verify status/operation of systems, and understand how one's actions affect facility/system conditions. It does not include the ability to notice or attend to annunciator/alarm signals, nor the ability to diagnose or classify events and conditions based on control room indications.

4. COMPLIANCE/USE OF PROCEDURES AND TECHNICAL SPECIFICATIONS:

This competency involves the ability to refer to and comply with normal, abnormal, emergency and administrative procedures in a timely manner (i.e. in sufficient time to avoid adverse impacts on facility status). Included is the ability to recognize EOP entry conditions, carry out immediate actions correctly, and to recognize and comply with required LCO/Action Statements.

5. CONTROL BOARD OPERATIONS:

This competency involves the ability to locate and manipulate controls to attain a desired facility/system response/condition. Included is the ability to take manual control of automatic functions, when appropriate.

6. COMMUNICATIONS:

This competency involves the ability to provide and receive pertinent information, both oral and written (e.g., log entries) in clear easily understood manner. Included is the ability to keep outside the control room informed of facility status.

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SENIOR REACTOR OPERATOR

1. UNDERSTANDING/INTERPRETATION OF ANNUNCIATORS/ALARM SIGNALS:

This competency involves the ability to notice and attend to alarms. Included is the ability to prioritize one's attention in keeping with the severity/importance of annunciator/alarm signals and the ability to correctly interpret the significance of each and verify that signals are consistent with facility/system conditions (with the use of Alarm Response Procedures, as appropriate). The competency deals strictly with the understanding and interpretation of annunciators and alarm signals, and therefore does not include knowledge of, or the ability to diagnose overall facility/system status based on other indications of facility/system status or condition(s).

2. DIAGNOSIS OF EVENTS/CONDITIONS BASED ON SIGNALS/READINGS:

This competence involves the ability to diagnose facility conditions to guard against and mitigate out-of-spec conditions. Included is the ability for accurate and timely recognition and analysis of off-normal trends. Included is the use of control room reference materials, such as prints, books, and charts to aid in the diagnosis and classification of events and conditions. It does not include knowledge of system operation, such as setpoints, interlocks, or automatic actions, or the understanding of how one's actions affect the facility/system conditions.

3. UNDERSTANDING OF FACILITY/SYSTEM RESPONSE:

This competency involves knowledge of system operation, including setpoints, interlocks and automatic actions. Included is the ability to locate/remain attentive to control room indicators, interpret indicators to verify status/operation of systems, and understand how one's actions affect facility/system conditions. It does not include the ability to notice or attend to annunciator/alarm signals, nor the ability to diagnose or classify events and conditions based on control room indications.

4. COMPLIANCE/USE OF PROCEDURES:

This competency involves the ability to refer to and comply with normal, abnormal, emergency and administrative procedures in a timely manner (i.e. in sufficient time to avoid adverse impacts on facility status). Included is the ability to recognize EOP entry conditions, carry out immediate actions correctly and to recognize and comply with required LCO/Action Statements.

5. CONTROL BOARD OPERATIONS:

This competency involves the ability to locate and manipulate controls to attain a desired facility/system response/condition. Included is the ability to take manual control of automatic functions, when appropriate.

6. COMMUNICATIONS/DIRECT OPERATIONS:

This competency involves the ability to provide and receive pertinent information in a clear, easily understood manner. Included is the ability to keep those outside the control room informed of facility status. Also, this competency involves the ability to take timely, decisive actions in both normal and off-normal situations where problems arise. Included is the ability to provide timely, well thought out directions that indicate concern for the safety of all, solicit and incorporate feedback, and keep in a position of oversight to maintain the "big picture".
A. PURPOSE

This Standard describes the procedure for administering an operating test in accordance with the requirements of 10 CFR 55.45. It assumes that the examiner has prepared for the operating test in accordance with ES-301N.

B. PERSONNEL PRESENT

The number of persons present during an examination should be limited to ensure the integrity of the examination and to minimize distractions to the applicants. If an actual reactor startup or other reactivity manipulation is performed as part of the examination, a licensed operator or senior operator must be present in accordance with 10 CFR 55.13(a)(2). During control room discussions, shift personnel will be present as required by NRC regulations. If the examiner believes that the number of persons or the noise level in the control room is excessive, he should ask the shift supervisor or facility manager to address the issue.

Except for the facility operators, no other member of the facility training or operations staff shall be allowed to witness an operating test without the chief examiner’s authorization. Under no circumstances will another applicant be allowed to witness an operating test. Operating tests are not to be used as training vehicles for future applicants. The use of video tapes during the administration of initial examinations is not authorized.

The facility operator may assume the role of personnel outside the control room that senior operators and operators direct or notify regarding facility operations. Additional member(s) of the facility training or operations staff may be used, as required, to augment the operating shift team as deemed necessary by the chief examiner. Such individual(s) shall be fully briefed regarding their responsibilities, reporting requirements, duties and level of participation before the operating test begins. The examiners must not restrict the surrogate operator’s activities to such an extent that the applicants being evaluated are required to assume responsibilities beyond the scope of their license level. The surrogate operator will be expected to assume the full responsibility of the role he/she is playing in the operating test.

Other examiners may be present either to witness the operating test as part of their training, or to audit the performance of the examiner administering the operating test. Other observers, such as Regional personnel, researchers, or NRC supervisors, may be allowed to observe operating examinations if (1) the chief examiner has approved the request to observe the test, and (2) the applicant does not object to the observer’s presence.
C. TEST ADMINISTRATION PROCEDURES

1. General

An examiner shall brief the candidate(s) prior to beginning the operating test. Attachment 1 is provided to assist the examiner in performing this briefing. To more effectively use examiner resources, it is recommended that this briefing be presented to all operator license applicants who are scheduled to be examined during the facility visit at the same time.

All applicants for licenses listed on the Examination Assignment Sheet, Form ES-201N-1, should be administered written examinations and/or operating tests as indicated under "Examination Type."

Applicants will occasionally withdraw from the examination at the last moment. If the examiner encounters this situation after arriving on site, he should inform the chief examiner who will request a letter from the facility withdrawing the application of the individual(s). This letter should be forwarded to the Branch Chief, HOLB.

In rare instances, applicants may withdraw after the examination has begun. The examiner will inform such applicants that this constitutes an examination failure, and his reapplication will be in accordance with 10 CFR 55.35.

2. Walkthrough / Oral Test

While administering the operating test, the examiner should allow, and in fact encourage, the applicant to draw diagrams, flow paths, or other visual representations. This allows the applicants to better express themselves when providing an answer or explanation to the examiner. These diagrams should be on one side of a separate sheet of 8 1/2 x 11 paper. Notes should not be made on the back of any page of the Form ES-301N-1 or its attachments. Likewise, the applicant should be encouraged to utilize facility forms, schedules, procedures, etc., as appropriate to the questions asked. In all cases, the supporting material should be retained by the examiner, as it provides additional documentation to support a pass or fail determination. The requirements for the number of administrative topics, systems, subject areas, events and transients to be covered on each type of operating test (i.e., RO, SRO Instant and Upgrade) are specified in ES-301N.

The examiner shall not give duplicate credit in Category A or B subjects for operator actions observed while administering the integrated facility operation portion of the test (Category C). Unless otherwise noted, evaluations in these categories should be made based upon task performance and responses to subject area questions, rather than inferences from reactor examination observations.
As discussed in ES-301N, the examiner can improve the efficiency of the operating test by integrating the discussions required to complete the various categories of the test. This is particularly true when Category C must be conducted in a discussion format. For example, by postulating an abnormal facility condition, such as a reactor trip/scram, the examiner may include related tasks and associated subject area questions to cover systems in Subcategory B.1.

The examiner must take sufficient notes during this portion of the operating test to facilitate the thorough documentation of any and all applicant deficiencies in accordance with ES-303N. The examiner must be able to cross-reference every comment to a specific task or subject area question.

3. Reactor Facility Test

Prior to administering the operating test, the examiners will review the scenarios and the required procedures, Technical Specifications and special circumstances, etc., related to the scenarios. The scenarios (ES-301N-3 and -4) should be reviewed to identify important facility parameters to be monitored during their performance. Prior to the administration of the test, the examiner should request the duty control room operator to provide printed records of selected parameters, if possible, from the facility's parameter display system(s) or by reproduction of facility chart recordings.

Parameter readings should be collected at meaningful time intervals. This may vary depending upon the parameter, the nature of the event, and the installed facility instrumentation. These printouts could serve as back-up documentation to augment the examiner's notes made during the operating test.

Immediately prior to beginning the operating test, the examiners should review the Scenario Events (ES-301N-3) with the duty control room operator. This review should familiarize the facility operator with the sequence of the scenario events to ensure that it will proceed as planned, with respect to the capabilities and limitations of the facility and the anticipated applicant actions. Precautions should be taken so that the scenarios are not revealed to the applicants before the test begins (Form ES-302N-1).

Prior to beginning each scenario set, the examiners should advance any control room strip chart recorders that may prove useful in recreating the sequence of events. The charts should be clearly marked with the date, start and end time, examiner's initials and applicant docket number so that they can be accurately matched with the correct applicant. The chief examiner should request the facility to retain copies of these logs, charts, etc. until the results of the examination process become final, as suggested by the letter written per ES-502N, Attachment 1.
If facility operators are acting in the role of support staff outside the control room and they are in communication with the applicants, examiners should listen to both sides of the conversation. The facility operator shall be cautioned prior to the start of the examination to provide only information that is specifically requested by the applicants.

If the applicant performs in a way other than expected, the examiner should note the candidate's actions (or lack of actions). These notes must provide sufficient information to allow the examiner to confidently judge applicant performance on the knowledge and ability competencies described in ES-301N-6. Each examiner must determine the best way to document his/her candidate's actions. Some examiners will choose to record a minute-by-minute account of all key facility events and operator actions that occur, while others only record the candidate's significant actions. It is left to the individual examiner to develop his/her own examination documentation technique, however, documentation must provide an adequate basis for a licensing decision.

The examiners should limit discussions with the applicants during the scenario performance to both maintain realism and to avoid distracting the applicants from operating the facility. The questions asked by examiners during the scenario performance should be limited to those that are necessary for assessing the candidate's understanding of facility conditions and required operator actions during the scenario. Even these questions should be deferred until a time (such as during "breaks") when the applicant is not operating or closely monitoring the reactor facility. The examiner's follow-up questions or concerns can often be addressed during a brief question and answer period after each scenario or during the facility walkthrough portion of the operating test if it is performed after the operating demonstration.

If the reactor facility should become inoperable, causing excessive delay of the examination, the chief examiner should discuss the situation with the branch chief so that a decision on the conduct of the operating test can be made. It may be necessary to substitute discussions of transient operating conditions or to reschedule the examinations for a later date.

ATTACHMENTS/FORMS

Attachment 1, "Briefing Checklist - Operating Test"
Form ES-302N-1 "Examination Security Agreement"
The following applicant briefings are required depending on the type of operating test being administered.

**Part A - Applicable To all Operating Tests**

1. The senior operator is tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor or whatever the position may be titled).

2. The examiner is a visitor. Escort responsibilities for ensuring compliance with safety, security and radiation protection procedures rest with the facility.

3. Facility equipment should not be operated without appropriate permission from the operating crew. Nothing the examiner says or asks will be intended to violate that principle.

4. If clarification of questions is needed during the operating test, there should be no hesitation to request that the examiner reword or clarify the question.

5. The examiner will be taking notes throughout the test to document applicant performance. Frequently an examiner will stop questioning for this purpose. The amount of note-taking is not dependent upon the candidate’s level of performance. The examiner must document satisfactory as well as less than satisfactory performance.

6. The operating test is considered "open book." The reference material in the facility/control room which is normally available to operators is also available to the applicants, including calibration curves, previous log entries, piping and instrumentation diagrams, calculation sheets, and procedures. However, applicants are responsible for knowing from memory certain systematic automatic actions, setpoints and interlocks, and operating characteristics, as well as the immediate actions of emergency and other procedures, as appropriate to the facility.

7. There is no specific time limit for the operating test. The examiner will take whatever time is necessary to cover the areas selected, in the depth and scope required. Here the examiner may also discuss the scope and estimated length of the examination. Scope and estimated length of categories may be influenced by the amount of material covered during the Integrated Facility Operations portion (Category C) of the test.

8. The examiner is not allowed to reveal the results of the operating test at its conclusion.
9. If an applicant feels the need for a break during the operating test, the applicant should request this from the examiner.

Part B - For Operating Tests With Actual Reactor Startups

For those operating tests that require an actual reactor startup or other manipulation of controls of the facility to be performed, the following apply:

1. The applicant, the licensed operator present and/or the responsible supervisor should be informed that the examiner will never intentionally ask the applicant to perform an act that violates facility regulations or procedures or which places the facility in a hazardous situation. If a requested act meets one of these conditions, then the applicant, operator, or supervisor should immediately inform the examiner. If the examiner's intent is to determine whether the applicant would perform such an act, the question should be phrased in some manner other than requesting the act to be performed.

2. Candidates are to be made aware that the examiner's presence does not alter the normal chain of command and that the applicant, during the examination, should make all reports and obtain all permissions that normally would be required. All directions to the applicant shall come from the responsible supervisor in accordance with the facility administrative procedures. The examiner shall only question and make requests of the applicant.

3. The examiner shall not alter the set points or calibrations of any instrument or manipulate any control.

4. The licensed operator on duty should be informed that it is his/her responsibility to step in and take control of the reactor any time there is an unsafe condition or there is reasonable assurance, in the operator's opinion, that the reactor will shut down if conditions are not corrected. The licensed operator on duty may not provide any coaching or cueing to the applicant.
Pre-Examination Security Agreement

I agree that I will not knowingly divulge any information concerning the operating tests scheduled for instruction involving those reactor operator or senior reactor operator applicants scheduled to be administered the above operating test from now until after the examination has been administered.

Signature/Date

Post-Examination Security Agreement

I did not, to the best of my knowledge, divulge any information concerning the operating tests administered on to any unauthorized persons. I did not participate in providing any instruction to those reactor operator and senior reactor operator applicants who were administered the operating test from the time I was allowed access to the operating test.

Signature/Date
A. PURPOSE

This Standard describes the procedure for documenting and grading an operating test given in accordance with 10 CFR 55.45. This includes documenting all aspects of the operating test, collating the information on the test to arrive at pass/fail recommendations, and reviewing the documentation to ensure quality.

B. POST TEST ADMINISTRATIVE PROCEDURES

After giving the operating test, the examiner must ensure that applicant performance is thoroughly documented by completing the Non-Power Reactor Examination Report (ES-301N-1), and appropriate additional attachments, in accordance with this Standard. The report must indicate the topics covered, specific information to support all unsatisfactory evaluations, pass/fail recommendations from the examiner and Chief Examiner and the final license recommendation by the chief examiner. Specific instructions for using Form ES-301N-1 are found below.

C. GENERAL EVALUATION GUIDELINES

The examiner is responsible for recommending whether an applicant should pass or fail the operating test. The forms in ES-301N are the vehicle for documenting the operating test process and form the basis for the pass or fail recommendations.

With the exception of Category C of the test, the examiners will document their evaluation of applicant performance by placing an "S", for satisfactory, or a "U", for unsatisfactory, in the appropriate spaces on ES-301N-1. The following general criteria are to be used in making these evaluations. The method for evaluating and documenting performance in Category C is discussed in Paragraph D.5.

S - Satisfactory Working Knowledge and Understanding

The applicant may have some slight or minor difficulty relating to system interactions. Competence in the operation of equipment associated with the system is very good although there may be some hesitation while discussing/performing some tasks. The applicant, however, appears to be familiar with the equipment and procedures.

U - Not Satisfactory/Poor Working Knowledge and Understanding

Applicant has difficulty answering questions in depth and in relating the interactions of systems. Discussions/behavior in operating equipment show lack of familiarity with the equipment and procedures. Answers given by the applicant are incorrect and incomplete and/or he is
unable to provide an answer. The applicant shows obvious unfamiliarity with the subject and/or system, as evidenced by hesitant answers, inability to locate information, inability to locate control board indications and/or controls, and the lack of knowledge of procedural steps to operate systems.

All knowledge deficiencies must be supported by detailed notes stating the particular action or response that demonstrated the deficiency. Sufficient knowledge deficiencies in a common area may result in an unsatisfactory evaluation for that area.

When documenting knowledge deficiencies, general statements such as "did not know primary coolant system" are inadequate. Specifics related to performance deficiencies noted on tasks and whether they were critical steps or not, question asked, the applicant’s response, and the significance of the deficiency should be included in the examiner’s comments.

Grades of Unsatisfactory anywhere but on the cover sheet, and all numerical grades of 1 or 2 for a competency that is failed must be documented by providing the following information to the extent applicable.

The question asked by the examiner
The incorrect answer from the applicant
The lack of knowledge or inability that was demonstrated
The consequences of the incorrect answer
The correct answer to the question

D. SPECIFIC INSTRUCTIONS FOR COMPLETING FORM ES-301N-1 AND ALL ATTACHMENTS

As soon as possible after administering the test, the examiner must use Form ES-301N-1 (and all applicable attachments) to finalize and grade the test according to the following instructions.

1. Form ES-301N-2, Operating Test Comments

All weaknesses found in Categories A, B and C of the test must be documented on ES-301N-2. On the left side of the Form, the examiner must indicate the alphanumeric coordinates of the specific subject to which the comment refers (e.g., A.3.c, B.1.3.C). The "Comment Page No." blocks can be used to further cross-reference comments between the Form and Attachments. Additional instructions regarding the documentation of Category C comments are contained in Paragraph D.5.

If the applicant generated or used any figures, drawings, flowcharts, forms, etc., during the course of the operating test, then they may be used to aid in documenting either satisfactory or unsatisfactory performance. They should be appropriately marked and cross-referenced to applicable comments on ES-301N-1 or its attachments and attached to the examination package for retention.
2. ES-301N-3 and ES-301N-4, Scenario Events and Operator Actions

Before grading the operating test the examiner must finalize the scenarios performed or discussed using the reactor facility. If he/she has not already done so, the examiner must neatly enter any scenario revisions made during the test onto the applicable ES-301N-3 so that they accurately reflect all the events that actually transpired during each scenario.

At the top of the form, the examiner should fill in the applicants' names, the positions they occupied during the scenario, and the facility name. The examiner must then change the event numbers, Perform/Discuss, event type, and descriptions as necessary to reflect the "as run" conditions. This may be accomplished by making pen/ink changes, or retyping the scenario provided the method produces a clear, legible document.

The same principle applies to Form ES-301N-4. Each form must reflect the "as run" conditions and include any notes or comments the examiner desires to make in the spaces provided between the expected operator actions. Any events that were not run/discussed during the test should be marked "not used" or discarded. If the examiner has comments that require more space than the attachments provide, the examiner should use an additional ES-301N-4 for the completed write up.

Regardless of the options an examiner chooses to document the scenarios, the final product must be a clear, legible reproduction of the actual events that transpired at the facility during the operating test. Any rough notes or non-pertinent comments shall be expunged from the final version sent to the candidate.

For Integrated Facility Operation discussions where the reactor facility was not available, the procedure is virtually identical to that used for reactor facility scenarios. For these discussion scenarios, the end product should be a clear, legible chronology of all the actions, events and comments pertaining to the discussion transient or event. The final form should appear the same as a finalized reactor facility scenario. Since the discussions between the examiner and the applicant were one-on-one, there is no need to confer with other members of the examination team prior to finalizing the results.

3. Category A, Administrative Topics

In this category, the examiner must document the applicant's performance for each administrative topic discussed. The examiner must evaluate the applicant's performance on administrative topics using performance of tasks, where possible and the applicant's responses to questions posed by the examiner. All comments should be entered on Form ES-301N-2. After all comments are considered, the examiner must make a SAT/UNSAT determination for the topic and document the grade by placing an "S" or "U" in the appropriate block on ES-301N-1. This process is then repeated for each topic that was covered in the category. For topics not covered during the test, the examiner should indicate that no grade is to be assigned by placing a dash or the letters N/E in the block; this will clearly indicate that the block was not mistakenly missed.

With all applicable topics in the category graded, the examiner must make an overall assessment of his/her grades and comments and assign a single SAT/UNSAT (S/U) grade to the category. This grade is placed in the Category A
block in the Operating Test Summary section on the front page of ES-301N-I.

4. Category B, Facility Walkthrough

In this category, the examiner must indicate the systems selected and the tasks conducted in the appropriate columns on ES-301-B and then evaluate the applicant's performance for each of those systems. Each task must be evaluated for proper task completion. If all identified critical steps are completed correctly, then a SAT grade shall be assigned.

In order to determine whether a SAT or UNSAT grade is warranted for each subject area, the examiner shall take into account the correctness of the candidate’s responses and the importance of the topic or task being evaluated. The examiner will document the grade for each evaluated subject area by placing an "S" or "U" as appropriate in the subject area block on ES-301N-B. For subject areas not evaluated, the examiner shall indicate that no grade is to be assigned by the use of a "-" or "N/E" in the subject area block.

After the examiner has entered all "S" and "U" grades in the applicable blocks for Category B, an overall grade must be determined. This single grade shall be arrived at by using the following methodology:

First the examiner will determine the system pass/fail grade based on the following criteria. The applicant must satisfy BOTH in order to receive a "SATISFACTORY" grade for the system being evaluated: (a) Satisfactorily perform the system task and (b) receive no more than ONE "UNSATISFACTORY" evaluation in the subject area evaluations for that system. The examiner shall then enter an "S" or a "U" in the "System Grade" column on ES-301N-B.

Next, the examiner shall determine the overall category grade by calculating the ratio of systems passed to systems evaluated. To receive a grade of "SATISFACTORY", the applicant must receive a "SATISFACTORY" evaluation in at least 75 percent of the systems examined.

For example, a candidate on a reactor facility examination received one unsatisfactory system grade and seven satisfactory grades. He/she would receive an "S" for category B based on a grade of 7/8 (or 87 percent).


After scenario administration, the examiner must evaluate and grade the candidate's performance in Integrated Facility Operations by using the appropriate worksheet (Forms ES-301N-5 (RO) or ES-301N-6 (SRO)) and the knowledge and ability competency descriptions on Attachment 2 of ES-301N and transcribing the grade onto the appropriate page 4 of ES-301N-1.

Each form contains several competencies for measuring operator performance. For evaluation accuracy, each competence has several subordinate rating factors, with scales of one through three, that further define that competence. The rating scales have definitions, called "behavioral anchors", at each point along the scale. These anchors aid the examiner in assigning a correct value to each rating factor based on the applicant’s actions. Each rating factor is also assigned a specific weight that represents the relative importance of that particular factor. The weight factor, in conjunction with the value assigned to the rating factor by the examiner, yields a numerical
measure of the applicant's performance on that rating factor. Combining all
the rating factor numerical evaluations for all competencies will yield the
applicant's overall grade for the integrated facility operation portion of the
operating test.

The examiner must complete the following actions to evaluate his/her
applicant's performance on the integrated facility operation portion of the
operating test:

a. **Review and Categorize Notes.** Review the notes taken while admin-
istering the examination. In preparation for evaluating the
candidate, label the documented actions and behaviors with the
number and letter of the rating factor they most accurately
reflect. As a minimum, each action or comment that reflects
negatively on the candidate's performance should be coded, whether
or not it results in a grade of 1 or 2 for that rating factor.

b. **Evaluate the Candidate on the Rating Factors.** After the actions
and behaviors are categorized, evaluate the applicant's
performance by completing the appropriate page 4 of ES-301N-1.
ES-301N-5 (RO) or ES-301N-6 (SRO) shall be utilized to provide the
examiner guidance for evaluating each rating factor. For each
rating factor, circle the integral rating value corresponding to
the rating value (1 - 3) that most accurately reflects the
applicant's performance. (As discussed in ES-301N, "Control Board
Operations" is optional for SRO Upgrade applicants.)

c. **Document Low Ratings.** All ratings of 1 must be justified by
documenting the specific actions and behaviors that warranted the
evaluation and the consequence of the actions and behavior. Addi-
tionally, all ratings of 1 or 2 must be justified by providing
documentation in the same manner as above for any competency that
is evaluated such that it results in a candidate failing Category
C. This documentation shall be provided directly on ES-301N-2.
Printouts or strip chart recordings generated during the
integrated facility operation test may be used to substantiate
comments whenever possible. They should be appropriately cross-
referenced and included in the examination package.

d. **Compute Competence Grades.** For each competence, sum the rating
grades on ES-301N-1 to compute a final competence grade. (Final
competence grades will range between 1 and 3.) Record the final
competence grades in the TOTAL blocks of the form.

e. **Compute Overall Competence Rating.** The examiner must award an
overall competence rating of "SAT" or "UNSAT" to the applicant
based upon the following criteria: for an overall competence
rating of SAT, the GRADE in all competencies must exceed 1.8.
NOTE: For an Upgrade SRO, if Competence 5, Control Board
Operations, is evaluated, it should be factored into the
applicant's final grade.

With all parts of Category C assessed, the examiner will then enter a grade of
satisfactory (S) or Unsatisfactory (U) in the Category C block on the front
cover page of ES-301N-1.
6. Cover/Summary Page and Examination Reviews

The cover of ES-301N-1 summarizes all of the pertinent information about the applicant, the facility, and the examination.

At the top of the page, the examiner will fill in the applicant's name as it appears on the application, the applicant's docket number, the facility for which the license is sought, the type of examination, and the facility description. Near the center of the page, the examiner will fill in all of the information from the cover page of the written examination.

Next the examiner will enter the name of the examiner who conducted the operating test and the date on which it was given. The grading summary blocks must be completed in accordance with the instructions in this Standard by the examiner who administered the operating test.

The next area summarizes the pass/fail recommendations of the examiners involved with the examination. The grader of the written examination will assign a grade based on the grading criteria of ES-403N and sign as the grader. The examiner who conducted the operating test will make his/her pass/fail recommendation in the next block. The examiner may make a pass recommendation only if all summary blocks of the operating test contain SAT ("S") grades or NE. The examiner will then sign as the test administrator.

Once completed, the entire examination package is given to the peer reviewer for review. The peer reviewer will review the written and operating examination grading to ascertain whether the examiner's comments appropriately support his/her recommendations and whether the documented examination meets the requirements stipulated in ES-403N and ES-301N. The peer reviewer, will then make an independent pass/fail recommendation, sign the form and forward the package to the chief examiner for review. As a final check, the chief examiner performs a review for the final License recommendation, and signs at the bottom of the cover page.

If any member of the review and approval chain does not agree with the recommendations of the examiner staff, the examiner(s) shall be conferred with before the recommendation is overturned. Although such disagreements are not common, they usually arise because of inadequate justification in a denial recommendation. It is, therefore, very important for examiners to be complete and accurate in their grading and comments. Any recommendation for overturning results must be concurred with by the chief examiner, or higher. An explanation, or justification, highlighting the specific reasons for this action will be included on ES-301N-2.

Once the chief examiner completes his review, any marked up copies or rough notes shall be discarded. Clean "as run" Forms ES-301N-3 and -4 shall be filed in the Master Examination File. The applicable ES-301N-3 shall be sent to the candidate and placed in the individual's docket file (and ES-301N-4 if the candidate failed this category of the exam.)
A. PURPOSE

This standard specifies the requirements, procedures, and guidelines for the preparation of site-specific written examinations for the initial licensing of reactor operator (RO) and senior reactor operator (SRO) applicants at non-power reactor facilities.

B. BACKGROUND

The content of the written licensing examinations is dictated by Sections 55.41 and 55.43 of Title 10 of the Code of Federal Regulations (10 CFR). Each examination shall contain a representative selection of questions on the knowledge and abilities needed to perform licensed duties. The written operator licensing examination is administered in three sections, as described in Section D.

C. EXAMINATION PREPARATION


1. General Guidelines

   a. The examiner shall prepare the examination so that an applicant who is capable of safely operating the facility will be able to complete and review the examination within 3 hours and achieve a grade of 70 percent or greater in each category. When creating the examination, the examiner shall estimate 2 minutes per response.

   b. To enhance the integrity of the examination by avoiding excessive duplication of questions, no more than 25 percent of the questions from the last NRC-administered examination at the same facility shall be repeated.

   c. All test questions shall be in the multiple choice (preferred) or matching format. Matching questions should be limited to a total value of two points per question. All multiple choice questions shall have four (4) choices.
d. It is appropriate and desirable for the examiner to hypothesize events or circumstances leading to events to examine the applicants' analytical abilities and knowledge of corrective actions.

2. Use of Reference Material

The examiner is expected to use the following reference materials when preparing the site-specific, written operator licensing examinations:

a. Questions from the NRC's examination question bank (EQB) given previously at the facility, subject to the restrictions in Section C.1.b above.

b. Questions from the EQB administered at similar facilities.

c. Facility reference material requested in accordance with ES-201NY, including facility learning objectives used in the applicants' training program.

d. Personal files of questions (those of the examiner preparing the examination as well as those of other examiners).

e. Licensee event reports, safety evaluation reports, information notices, current industry and facility problems, and facility question banks. Questions drawn from the facility's bank shall not exceed 10 percent of the questions in that bank.

f. The examiner may use reference material such as diagrams, sketches, and portions of facility procedures as attachments to the written examinations and ask applicants to identify components and other items on the attachments. The examiner shall ensure that any reference material used in the examinations is easy to read, clearly marked, and provide an effective and objective way for the applicant to demonstrate knowledge of the topic or concept.

3. Examination Assembly

The examiner may format the examination in either the one-question-per-page layout specified in the Examiners' Handbook or by placing as many complete questions as possible on each page.

The examiner shall use a cover sheet, in the format shown in Form ES-401N-1 for all RO and SRO written examinations. The examiner shall fill out all items in the upper section of the cover sheet, except the name of the applicant, when preparing the examination.
The examiner shall insert a copy of the "Policies and Guidelines for Taking NRC Written Examinations," Attachment 3 of ES-402N, behind the cover page before the examination is reproduced.

D. EXAMINATION STRUCTURE

Due to the minimal differences between the knowledges and abilities required of an SRO and that of an RO that can be tested in a written exam format, an SRO Upgrade candidate is not required to take a written examination. Differences in the knowledges and skills required of an SRO versus an RO can be evaluated on the operating exam as described in ES-301N. An SRO Instant candidate will take the RO written exam. It is permissible to modify the SRO Instant's exam to include questions that relate directly to the SRO's duties and responsibilities, but the operating exam can serve as a more suitable forum for evaluating such topics.

The examiner shall create a 60 point (+/-10 points) examination such that a competent applicant shall be able to complete the examination (including review of one's answers) within a 3 hour time period. Based on the approximate time estimated for answering each of the applicable question formats, this would result in an exam consisting of 50 to 70 discrete test questions worth a total of approximately 50-70 points. For those non-power reactors of simpler design, such as AGN-201 reactors, the number of test items should approach the lower number of test items. Conversely, more complex facilities, such as TRIGAs or higher power rated reactors (2 MW and above), should have examinations with a number of test items approaching the upper limit noted above.

The written examination shall be divided into the three categories identified and described below:

Category A - Reactor Theory, Thermodynamics and Facility Operating Characteristics

This category contains questions relating to basic nuclear theory, reactor behavior and processes that take place in a reactor. Thermodynamics should be limited only to those areas that are applicable to the facility's operations and should be related to pertinent heat transfer and fluid flow processes that are observable at the facility. Questions should also relate to the manner in which power, reactivity, rod worth and other parameters of the facility would change in response to rod manipulation, core burnup, heatup, experiment insertion or other activities associated with the operation of the facility. Questions on facility behavior such as can be seen on recorder traces as a result of these activities should be included.

Category B - Normal and Emergency Operating Procedures and Radiological Controls

This category contains questions on the procedures for operation of the reactor and auxiliary systems, including administrative controls.
pertinent to the Reactor Operator’s position. The candidate must demonstrate complete understanding of the immediate action steps and the bases associated with abnormal and emergency operating procedures. Familiarity and understanding of Technical Specifications and operating, surveillance and maintenance procedures to the extent applicable to the RO position should also be evaluated. Questions on radiation hazards, radiological safety practices, facility and federal regulations (10 CFR 20) for the identification and control of radiation hazards and radioactive material handling and releases shall also be included in this category.

Category C - Facility and Radiation Monitoring Systems

This category contains questions on the design, construction, operation and interrelationships of the systems most directly associated with reactor safety, such as rod control, emergency power, or core flooding. Questions on the characteristics, operation and interrelationships of nuclear and process instrumentation and control systems are also to be included, with the emphasis on safety related devices. It is allowable to investigate the candidate’s knowledge of auxiliary systems and instrumentation, but the bulk of the questions shall be associated with areas important to safety. There shall also be questions associated with radiation monitoring systems and detectors, including both fixed and portable equipment. These questions shall evaluate the candidate’s knowledge of the operating characteristics, limitations and applications of the equipment as appropriate to the facility.

The relative weight of each category in the examination should be 33% (+/- 3%) of the total examination worth. However, since the relative importance of safety and emergency systems varies significantly from one size and type of non-power reactor to another and 10 CFR 55.41 allows flexibility in the selection of questions "...to the extent applicable to the facility...", the weighting of the examination categories can be modified based on the professional judgement of examiners experienced in the operation and examination activities associated with non-power reactors. Any deviation from the prescribed category weights must be approved by their supervisors.

E. NRC QUALITY ASSURANCE REVIEWS

1. Examiner Reviews

The author of the examination and at least one other NRC examiner shall independently review all the examination questions for content and wording. Reviewers should try to put themselves in the position of the applicant when reviewing questions by attempting to answer the questions without using reference material or referring to the answer key. Reviewers should ensure that the conditions and requirements posed in
the question are complete and unambiguous, that all necessary information is provided, that all unnecessary information is deleted, and that the intended answer clearly follows from what is asked in the question.

The author and reviewer should review the examination using the guidelines in the Examiners' Handbook, Section 4, Attachment A, "Examination Development Checklists." As a minimum, the items listed on Form ES-401N-2, "Written Examination Quality Assurance (QA) Checkoff Sheet," shall be checked by the examination author and the reviewer.

Examinations prepared by a contract examiner shall be reviewed by another contract examiner and by the contract manager before the examination is submitted to the staff. All three reviews will be documented on Form ES-401N-2.

Contract managers and examination authors from outside Headquarters shall submit the examinations to the chief examiner for review at least 30 days before the scheduled administration date. Examiners within Headquarters shall submit their examinations to the chief examiner for review at least two weeks before the scheduled administration date.

When submitting the examination package for review, the examiner shall include all proposed attachments, a copy of the test outline used, and a copy of the QA sheet with his or her portion completed. Whenever possible, the examination should be transmitted to the staff electronically via the EQB or electronic mail so that it can be more easily reviewed and edited by the reviewers.

2. Chief Examiner Review

The chief examiner should review the examination within five working days after receipt. It is especially important that the chief examiner promptly review examinations prepared by a contractor because of the extra communication time that may be required if extensive changes are necessary.

The chief examiner may conduct the independent NRC review discussed in Section D.1. However, if the chief examiner wrote the examination, another NRC examiner must perform the independent review and sign Form ES-401N-2.

If the examination requires major changes in structure or content (e.g., distractor or question replacements), the chief examiner shall consolidate the comments from all the reviewers and submit one set of comments to the author. If the examination conforms with the requirements of the Examiners' Handbook and this standard and it was electronically transmitted to the NPRS, the chief examiner may make the desired changes directly without involving the author of the examination.
After the necessary changes have been made, the chief examiner shall review the final version of the examination for completeness and clarity. When the chief examiner is satisfied with the examination, he or she will sign the QA form.

ATTACHMENTS/FORMS:

Form ES-401N-1, "Site-specific Written Examination Cover Sheet"
Form ES-401N-2, "Written Examination Quality Assurance Checkoff Sheet"
U. S. NUCLEAR REGULATORY COMMISSION
NON-POWER REACTOR LICENSE EXAMINATION

FACILITY:

REACTOR TYPE:

DATE ADMINISTERED:

CANDIDATE:

INSTRUCTIONS TO CANDIDATE:

Answers are to be written on the answer sheets provided. Attach all answer sheets to the examination. Points for each question are indicated in parentheses for each question. A 70 percent in each category is required to pass the examination.

Examinations will be picked up 3 hours after the examination starts.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>% OF TOTAL</th>
<th>CANDIDATE’S SCORE</th>
<th>% OF CATEGORY VALUE</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.00 33.33</td>
<td></td>
<td></td>
<td></td>
<td>A. REACTOR THEORY, THERMODYNAMICS, AND FACILITY OPERATING CHARACTERISTICS</td>
</tr>
<tr>
<td>20.00 33.33</td>
<td></td>
<td></td>
<td></td>
<td>B. NORMAL AND EMERGENCY EMERGENCY PROCEDURES PROCEDURES AND RADIOLOGICAL CONTROLS</td>
</tr>
<tr>
<td>20.00 33.33</td>
<td></td>
<td></td>
<td></td>
<td>C. FACILITY AND RADIATION MONITORING SYSTEMS</td>
</tr>
<tr>
<td>60.00 100.00</td>
<td></td>
<td></td>
<td></td>
<td>TOTALS</td>
</tr>
</tbody>
</table>

% FINAL GRADE

All work done on this examination is my own. I have neither given nor received aid.

Candidate’s Signature

Candidate's Signature

Examiner Standards 7 of 8 Rev. 1, 06/01/95
## Quality Assurance Checkoff Sheet

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Objectivity and clarity of questions.</td>
</tr>
<tr>
<td>2.</td>
<td>Questions and answers technically accurate and applicable to facility.</td>
</tr>
<tr>
<td>3.</td>
<td>No question worth more than 2 points.</td>
</tr>
<tr>
<td>4.</td>
<td>Total point value 60 points (+/-10 points). Total correct and corresponding to total on cover sheet.</td>
</tr>
<tr>
<td>5.</td>
<td>Partial credit points indicated.</td>
</tr>
<tr>
<td>6.</td>
<td>ES-401N.C Exam question format criteria met</td>
</tr>
</tbody>
</table>

Author: ___________________________ Date: ________

Contract Reviewer: ___________________________ Date: ________

Peer Reviewer: ___________________________ Date: ________

Chief Examiner: ___________________________ Date: ________
A. PURPOSE

This standard specifies the requirements and procedures for administering written examinations at non-power reactor facilities, including proctoring and facility staff review of the examination.

B. EXAMINATION FACILITIES

1. The licensee is responsible for providing facilities suitable for administering the written examination. The examination room and associated restroom facilities shall enable the NRC examiners to maintain the security and integrity of the written examination. Attachment 1, "Guidelines for Administering Written Examinations," summarizes the NRC's policies regarding written examination facilities and other preparations for administering the written examinations.

2. An examiner shall evaluate the licensee's examination facilities and other arrangements made in accordance with Attachment 1 to ensure their adequacy. The applicants shall not have access to any reference material that was not provided or approved by the chief examiner. The chief examiner shall not begin the examination until he or she is satisfied with the arrangements.

C. PROCTORING THE EXAMINATIONS

1. The chief examiner shall ensure that the applicants are proctored at all times while taking the written examination. The chief examiner shall ensure that the proctor clearly understands his or her responsibilities before the examinations are distributed.

   The chief examiner should consider the following means to ensure adequate proctoring:

   - using NRC secretarial help
   - using more than one examiner
   - using other NRC employees

   The proctor shall give full attention to the applicants taking the examination. The proctor shall not read procedures or other material, grade examinations, or engage in any other activities in a manner that may divert his or her attention from the applicants and possibly cause the examination to be compromised.

2. At least one examiner shall be available to clarify examination questions for the applicants during the examination. If the examiner who wrote the examination is not available, then the other examiners...
must be familiar with the intent of the questions. Examiners must be extremely careful not to lead the applicants or give away answers when clarifying questions. If an examiner has any doubt about how to respond to an applicant's question, he or she should consult the chief examiner before explaining the test item to the applicant. The examiners shall document all applicant questions regarding specific written examination test items for future reference in resolving facility comments and grading conflicts.

When responding to applicant questions, the examiners shall be particularly alert for indications that the applicants are unfamiliar with the terminology used in the examination. The examiners shall determine the correct terminology and, if necessary, announce it to all the applicants taking the examination.

Any question changes or clarifications shall be made on a chalkboard, if available, and called to the attention of all the applicants. Changes must be approved by the chief examiner before any applicant leaves the testing area. Changes made to questions during the examination should be made in pen and ink on the master copy and on the copy that is provided to the facility staff after the examination is administered.

D. EXAMINATION ADMINISTRATION PROCEDURE

The chief examiner shall administer the written examinations as follows:

1. An examiner shall verify each applicant's identity and examination level against the examination assignment sheet (see Form ES-201N-1). Any errors or absences shall be resolved with the facility staff and the assignment sheet shall be updated as required.

The chief examiner shall request the facility licensee to formally withdraw the applications of those individuals who will not be taking the examination by sending a letter to the Branch Chief, HOLB.

2. The applicants shall be reminded that they may use calculators to complete the examination and that only the reference material provided by the examiner is allowed in the examination area. The examiner shall define the examination area for the applicants.

3. An examiner shall pass out the examinations, answer sheets, and all required handouts and instruct the applicants not to review the examination until told to do so.

4. An examiner shall brief the applicants on the rules and guidelines that will be in effect during the written examination. The examiners shall
use Attachment 2, "Policies and Guidelines for Taking NRC Written Examinations," for this purpose and inform the applicants that they may refer to the instructions directly beneath the examination cover sheet. The examiner shall read the first two policies *verbatim*.

5. The examiner shall ask the applicants to verify the completeness of their copies by checking each page of the examination.

6. After answering any questions that the applicants may have regarding the examination policies, the examiner shall start the examination and record the time.

7. The examiner or proctor shall periodically advise the applicants of the time that remains to complete the examination. Normally, a chalkboard is available and can be used for this purpose.

8. As the applicants complete the examination, the examiner or proctor shall ensure that they sign the examination cover sheet. The examiner or proctor shall collect the examination packages, including the questions and answer sheets, and any reference material provided with the examination.

9. The examiner or proctor shall remind the applicants to leave the examination area, as defined by the examiner.

10. When the written examinations are completed, the chief examiner may conduct an examination review with the facility staff as described in Section E below.

The chief examiner shall complete Form ES-402N-1, "Examination Administration Quality Assurance Checkoff Sheet" and include it in the master examination package.

**E. FACILITY STAFF REVIEW OF THE WRITTEN EXAMINATION**

Immediately after the last applicant completes the examination, the chief examiner shall update the master copy of the examination(s) and answer key(s) with all the pen-and-ink changes made to questions while the examinations were administered.

The chief examiner will provide a copy of the master examination(s) and answer key(s) to the facility staff and answer any questions they may have regarding the NRC’s examination review and comment process. Attachment 3 provides detailed guidelines and instructions for reviewing the examination(s) and submitting formal comments to the NRC.
ATTACHMENTS/FORMS:

Attachment 1, "Guidelines for Administering Written Examinations"
Attachment 2, "Policies and Guidelines for Taking NRC Written Examinations"
Attachment 3, "Policies for Facility Review of Written Examinations"
Form ES-402N-1, "Examination Administration Quality Assurance Checkoff Sheet"
1. A single room must be provided for administration of the written examination. The location of this room and supporting restroom facilities should be such as to minimize contact with other facility personnel during the written examination.

2. Minimum spacing is necessary to ensure examination integrity as determined by the Chief Examiner (i.e., one applicant per table, with a three-foot space between tables).

3. Acceptable arrangements should be made by the facility if the applicants are to have lunch, coffee or other refreshments. These arrangements shall comply with Item 1 above and must be reviewed by the examiner and/or proctor.

4. The facility licensee provides pads of 8 1/2 by 11 inch lined paper in unopened packages for each applicant’s use in completing the examination. The examiner distributes these pads to the applicants as needed.

5. Applicants may bring pens, pencils, or calculators into the examination room. Only black ink or dark pencils should be used for writing answers to questions.

6. No wall charts, models, and/or other training materials can be present in the examination room. No other equipment or reference material will be allowed unless provided by the examiner.

7. The facility staff is provided with a copy of the written examination and answer key at the beginning of the examination. The facility staff will then have five (5) working days to provide formal written comments with supporting documentation regarding written examination questions and answers to the Chief Examiner.
1. Verify candidate identity.

2. Pass out examinations and all handouts. Remind applicants not to review examination until instructed to do so.

READ THE FOLLOWING INSTRUCTIONS VERBATIM:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

READ THE FOLLOWING INSTRUCTIONS:

1. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contact with anyone outside the examination room to avoid even the appearance or possibility of cheating.

2. Use black ink or dark pencil only to facilitate legible reproductions.

3. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.

4. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

5. The point value for each question is indicated in [brackets] after the question.

6. If the intent of a question is unclear, ask questions of the examiner only.

7. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

8. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.
9. To pass the examination, you must achieve a grade of 70 percent or greater in each category.

10. There is a time limit of three (3) hours for completion of the examination.

11. When you have completed and turned in your examination, leave the examination area (DEFINE THE AREA). If you are observed in this area while the examination is still in progress, your license may be denied or revoked.
1. The chief examiner may meet with the facility staff to discuss the examination questions and resolve facility concerns.

2. The facility reviewers are given a copy of the examination at the beginning of the examination. The chief examiner will enter pen-and-ink updates on the master examination and answer key to reflect changes made while it was administered and immediately provide a copy to the facility staff.

3. Formal comments from the facility review should be submitted within 5 working days from the day of the written examination.

4. The facility licensee should submit comments in the following format:
   - list the NRC question, answer and reference
   - state the comment and make a recommendation [NOTE: The NRC will not address comments without a recommendation.]
   - support the comment with a reference and provide a copy if it was not included in the original reference material submittal [NOTE: The NRC will not change the examination without a reference to support the facility comment.]

5. Comments should be signed by the highest on-site level of facility management responsible for facility operations and addressed to the Branch Chief, HOLB, with a copy to the chief examiner. [NOTE: Comments not submitted within the requested time will be included in the grading process on a case-by-case basis as determined by the NRC. Comments not submitted within the requested time will delay the examination grading process.]
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Chief Examiner or Proctor Initial/Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Adequate spacing during examination.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Examination room and restroom facilities adequate to prevent examination compromise.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Continuous proctoring maintained throughout examination.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Examination and answer key provided to facility reviewers.</td>
<td></td>
</tr>
</tbody>
</table>

Chief Examiner Signature __________ Date __________

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ES-403N
GRADING OF WRITTEN EXAMINATIONS AT NON-POWER REACTORS

A. PURPOSE

This standard explains the requirements and procedures for resolving the facility licensee’s comments on the site-specific written examinations, grading the examinations, and conducting a quality assurance (QA) review of the graded written examinations.

B. RESOLVING FACILITY COMMENTS

1. The chief examiner shall ensure that a copy of the examination as it was administered, with all changes incorporated, is turned over to the Licensing Assistant to be placed in the master examination file. The pen-and-ink corrections made for the applicants while the examination was administered may be changed to typewritten corrections, however, all changes shall be annotated in such a way that they are evident.

2. The chief examiner shall ensure that the master examination is updated to reflect any changes made to the examination and answer key in response to the facility licensee’s comments. The chief examiner shall analyze each facility comment and document the reason that the question was changed or the reason that the comment was not accepted. The chief examiner may not change the examination if the facility licensee does not submit a reference to support the comment. Comments without a facility recommendation shall not be accepted but should be noted for reference on future examinations.

3. If the chief examiner determines that there are two correct answers for a multiple choice question, both answers will be accepted as correct. However, if three or more answers could be considered correct, the question shall be deleted.

4. If 10 percent or more of the examination questions are deleted as a result of facility comments, the remaining examination must be evaluated to ensure that the test outline requirements in the Examiners’ Handbook (NUREG/BR-0122) are still satisfied. If the content validity of the examination is affected as a result of deleting questions, the examination may have to be voided. The training and assessment specialist on the Operator Licensing Branch staff should be consulted if the validity of the examination is in question.

C. GRADING THE EXAMINATIONS

1. The chief examiner will ensure that the examinations are graded expeditiously. However, the written examination grades shall not be finalized until the facility licensee’s comments have been resolved.
2. The examiner who wrote the examination should normally grade the examination. However, if the author of the examination is not available, the number of applicants is unusually large, or the NPRS wishes to expedite the grading process, the examination may be graded by another examiner.

3. The grader shall indicate in red pen or pencil the number of points given to or deducted for each answer on the applicant's answer sheet.

4. If it is necessary to change a grade during the grading process, the grader or reviewer shall do it by lining out the original grade in such a way that it remains legible, briefly explaining the reason for the change on the applicant's answer sheet, and initialing the change. Under no circumstances will whiteout or other methods that obscure the change be used.

5. After all the questions are graded, the examiner shall enter the "Test Value," "Applicant's Score," and "Applicant's Grade" in the "Results" section of the applicant's written examination cover sheet.

6. After grading the last examination, the examiner shall review the grading in detail and complete Form ES-403N-1, "Examination Grading Quality Assurance Checkoff Sheet."

7. If the operating test results are not available at the same time as the written examination results, the examiner shall fill in the "Written Examination Summary" on page 1 of Form ES-303N-1, check the written examination "Pass" or "Fail" block in the "Examiner Recommendations" section of the form, and sign and date the form as "Grader." The examiner should then forward the written examination package, including the master written examination(s) and answer key(s), the applicants' examinations, and all associated forms (ES-303N-1, ES-401N-2, and ES-403N-1) to the designated reviewer for a quality assurance check in accordance with Section D.

D. QUALITY ASSURANCE (QA) REVIEW OF THE GRADED EXAMINATIONS

1. If the written examinations were graded by a contract examiner, the contract manager shall confirm that the quality of the grading was checked in detail and sign the bottom of Form ES-403N-1 before sending the examinations to the chief examiner.

2. The chief examiner shall ensure that the grading of the written examinations is independently reviewed by another examiner. The chief examiner may perform this review in conjunction with his or her normal review specified in Section D.6.
3. The QA reviews are spot checks, or sampling tests, to follow up on the detailed review performed by the grading examiner. If the QA reviews indicate significant problems, additional detailed review will be necessary.

4. The reviewer shall use Form ES-403-1 to document the review. At a minimum, the reviewer shall:
   
   a. Check at least 25 percent of the examinations for math errors in determining the final grade.
   
   b. Review and recalculate the grades for all borderline cases (i.e., 70 percent +/- 2 percent in each category).
   
   c. Check all the failing examinations to ensure that the failures are justified. The reviewer shall pay particular attention to the highest failing and the lowest passing examinations to ensure that the examination effectively discriminated between applicants performing above and below the minimum acceptable level of competence.
   
   d. Review the overall performance on each question to determine if there are problems in the facility’s training program, in the wording of the questions, or in other areas.
   
   e. The reviewer should discuss all grading discrepancies with the grader before making any changes. The reviewer shall document all grade changes by carefully lining out the original grade so that it remains legible, entering the revised grade with a brief explanation, and initialling the change. Whiteout or other methods that obscure the original grade shall not be used.
   
   f. When the reviewer is satisfied with the quality of the grading, he or she shall initial and date the items on Form ES-403N-1 and sign and date the bottom of the form.

5. When the QA reviewer has completed the review, he or she shall forward the examination package to the chief examiner.

6. The chief examiner shall review Form ES-403N-1 for completeness and review borderline cases in detail to determine if any generic weaknesses exist so that they may be addressed in the examination report. When the chief examiner is satisfied with the examination grading, he or she shall sign and date the form.
The chief examiner shall also ensure that the applicable sections of Form ES-303N-1 are properly completed and assemble the final examination package for management review in accordance with ES-501N.

ATTACHMENTS/FORMS:

Form ES-403N-1, "Examination Grading Quality Assurance Checkoff Sheet"
<table>
<thead>
<tr>
<th>Item Description</th>
<th>Grader</th>
<th>Reviewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Applicants' scores checked for addition (reviewer check 25% of examinations)</td>
<td></td>
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</tr>
<tr>
<td>2. Grading for all borderline cases reviewed (70% +/- 2%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Highest failing and lowest passing examinations compared to justify decision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. All other failing examinations checked to ensure grades are justified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Performance on each question checked for training deficiencies and wording problems</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Signatures**

<table>
<thead>
<tr>
<th>Grader</th>
<th>Date</th>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract Manager/ Peer Reviewer</td>
<td></td>
</tr>
<tr>
<td>Chief Examiner</td>
<td></td>
</tr>
</tbody>
</table>

Examiner Standards 5 of 5  Rev.1, 06/01/95
A. PURPOSE

This standard describes the procedures for assembling and reviewing the examination package, notifying the facility and applicants of the examination results, preparing the examination report, and evaluating contractors.

B. BACKGROUND

The Operator Licensing Branch’s goal is to complete licensing or denial actions within 30 days after the facility licensee's formal written examination comments are resolved. The staff should establish its priorities and schedules to achieve this goal.

Examiners may use Form ES-501N-1, "Postexamination Check Sheet," to track completion of the administrative items after the examination is administered.

C. EXAMINATION REVIEWS

1. The examiners who participated in the examination assignment shall grade and review the written examinations and operating tests that they administered in accordance with ES-403N and ES-303N, respectively, and forward the examinations and associated documentation to the chief examiner.

2. The chief examiner or designee shall review the written examination grading to ensure that it meets the requirements of ES-403N, then sign and date Form ES-403N-1.

   The chief examiner or designee shall also review the examiners’ operating test documentation to ensure that the test and its grading meet the requirements in ES-301 and ES-303. The reviewer shall ensure that the examiner’s operating test comments support the pass or fail recommendation and check for consistency in documentation and grading among the operators tested.

   If the reviewer is satisfied with the accuracy and completeness of the documentation and concurs with the examiner’s recommendations, he or she shall sign and date the "Final Recommendation" block on Form ES-303N-1. If the reviewer does not agree with the examiner’s recommendation, the reviewer shall discuss the examination findings with the examiner and resolve the disagreement.

3. The chief examiner shall record the results of the written examinations and operating tests on Form ES-501N-2.
If the written examinations were administered much before the operating tests, the chief examiner should enter that data on the form and forward it and the completed written examination package for management review and approval in advance of the operating test results.

D. MANAGEMENT REVIEW

1. The chief examiner shall ensure that all examination results and documentation are complete. He or she will independently review the examinations, check either the "issue" or "deny" license block in the "License Recommendation" section of each applicant's Form ES-303N-1 and sign and date the form.

After making the licensing recommendation, the chief examiner will have the licensing assistant prepare a license or denial letter for each examined applicant and forward the examination package to the Chief, Operator Licensing Branch. Applicants who withdrew before taking any part of the license examination shall not be sent a denial letter. Sample RO and SRO (conditional) license letters and a sample denial letter are provided as Attachments 2 and 3.

Once the licensing decisions are complete, the examiners should discard any marked up documentation or rough notes for those applicants receiving licenses, and the written examination author should be instructed to upload the final version of the examination(s) to the examination question bank (EQB). Examiners should retain all their notes and documentation associated with proposed denials until the denial becomes final in accordance with ES-502N.

2. The final licensing decision is made by the Chief, Operator Licensing Branch or designee, who must be at or above the level of branch chief. The licensing official will take all recommendations into consideration and sign each applicant's license or denial letter.

The applicant must have a grade of 70 percent or greater on all three sections of the written examination and a grade of "satisfactory" on all three categories of the operating test to qualify for a license.

3. If the Chief, HOLB, does not agree with the final recommendation, the examiner of record and chief examiner shall be consulted to discuss and resolve any disagreements. Such disagreements usually arise because of inadequate documentation of a denial recommendation. It is, therefore, very important for examiners to be complete and accurate in their grading and comments.

4. If a recommendation is overturned during the management review, the affected summary evaluations will be lined out and initialed by the
licensing official. The licensing official will enter the new summary evaluation in the appropriate block and explain the change on Form ES-303N-2, "Operating Test Comments," and attachment it to the applicant's Form 303N-1.

5. If an applicant did not complete the SRO upgrade training program or failed the upgrade examination, management should ensure that the RO licensee complies with the requirements of 10 CFR 55.53(e), (f), and (h) and 10 CFR 55.59(a) before resuming active duties as an RO. HOLB should also conduct a case-specific review of the SRO upgrade examination to determine if the applicant failed as a result of significant deficiencies in RO knowledge or abilities.

Pursuant to 10 CFR 55.7, the NRC may, by rule, regulation, or order, impose upon any licensee such additional requirements it deems appropriate or necessary to protect the health and to minimize danger to life and property. If the SRO upgrade applicant's deficiencies pose such a threat, the NRC may require the facility licensee to provide remedial training and reevaluation and submit evidence of its completion to the NRC.

E. NOTIFICATION OF RESULTS

HOLB will notify the facility licensees and applicants of the examination results only after they are reviewed and approved by the licensing official.

1. HOLB should normally notify a representative of the facility licensee by telephone and confirm the results by mailing a copy of Form ES-501N-2 to the facility designee.

If the written examinations were administered much before the operating tests and management has approved the results of those examinations, HOLB may notify the facility licensee of those results rather than wait until the operating tests are completed.

A copy of Form ES-501N-2 shall also be sent to the Licensing Assistant, Operator Licensing Branch (HOLB). The form(s) shall not be placed in the public document room or distributed with the final examination report.

If any of the examinations are later regraded in response to an applicant's request for review (refer to ES-502N), the original Form ES-501N-2 on file in Headquarters shall be corrected by lining out the old grade, entering the new grade, and initialling the change.
2. After the licensing official has signed the license and denial letters, HOLB shall send each applicant the following material with his or her letter:

- a copy of Form ES-303N-1 with a clean copy of Forms ES-301N-3 and ES-301N-4.
- a copy of the applicant's written examination answer sheet and a copy of the written examination and answer key.

F. RETURNING FACILITY REFERENCE MATERIAL

If desired by the facility licensee, the chief examiner shall ensure that the reference material provided for examiners to prepare for the examinations is returned as soon as possible. If none of the applicants failed the examination, the material should be returned as soon as the licenses are issued. If any applicant was denied a license based on an examination failure, the reference material should be retained until the 20-day period during which the applicant may request a regrade has expired. If an applicant submits a request for regrade in accordance with ES-502NY, the chief examiner shall determine what reference material needs to be retained and return all unnecessary material. All the reference material should be returned to the facility licensee within 30 days following the resolution of any appeals.

The chief examiner shall inform all the examiners involved with the examination when the reference material should be returned.

G. EXAMINATION REPORT

The chief examiner shall prepare the final examination report when all portions of the examination grading and documentation have been completed. The sample examination report that is included as Attachment 1 should be used as a guide.

1. The final examination report shall document the results of the examination, any generic strengths and weaknesses noted while administering the operating tests and grading the written examinations, and issues discussed at the exit meeting.

2. The report shall include a copy of the facility licensee's comments on the written examination and the specific NRC resolution for each comment. Generic comments submitted by the facility licensee about the examinations or the administration process should also be included in the report, but they do not necessarily require a response or resolution. A copy of the master written examination(s) and answer key(s) shall also be included.
3. The applicants' names and specific grades (i.e., Form ES-501N-2) shall not be published in the examination report.

4. HOLB shall send the final examination report to the facility licensee and copies to the public document rooms.

H. EVALUATION OF CONTRACT EXAMINER SUPPORT

The chief examiner shall complete Form ES-501N-3, "Contract Examiner Evaluation," for examinations administered in whole or in part by contract examiners and send a copy of the completed form to the Chief, HOLB.

Written examinations and scenarios prepared by contract examiners should be evaluated for content validity, adherence to the Examiner Standards, and general quality. The reasons for requested changes and problems encountered in making the changes should be documented.

If the chief examiner audited any contract examiners during the administration of operating tests, he or she shall document the results of the audit(s) by completing the appropriate sections of an "Operating Test Audit Form" (HOLB Manual Chapter 170, Attachment 2) and forwarding the completed form(s) to the Chief, HOLB.

I. RECORD RETENTION

1. The original or a copy of the following items should be placed in the facility's master examination file and retained for two initial examination cycles (i.e., the file should contain the last two examinations administered at the facility):

   a. ES-201N, Attachment 1, "Facility Notification Letter," with all enclosures.
   b. Form ES-201N-1, "Examination Assignment Sheet," with pen-and-ink changes to identify the applicants that were actually examined.
   c. The written examination and answer key (enclosure to examination report) with all changes incorporated.
   d. Form ES-401N-2, "Written Examination Quality Assurance Checkoff Sheet."
   f. Form ES-403N-1, "Examination Grading Quality Assurance Checkoff Sheet."
g. Form ES-501N-2, "Non-Power Reactor Examination Results Summary Sheet"

h. Form ES-501N-3, "Contract Examiner Evaluation" (if applicable).

i. ES-501N, Attachment 1, examination report, with all enclosures.

2. The original or a copy of the following items should be placed in each applicant's docket file:

a. Form ES-303N-1 (all pages) with final, clean versions of Form ES-301N-3 and all associated documentation.

b. All correspondence with the applicant.

c. The applicant's written examination answer sheet.

ATTACHMENTS/FORMS:

Attachment 1, "Sample Examination Report"
Attachment 2, "Sample License Letters"
Attachment 3, "Proposed Denial Letter"
Form ES-501N-1, "Postexamination Check Sheet"
Form ES-501N-2, "Non-Power Reactor Examination Results Summary"
Form ES-501N-3, "Contract Examiner Evaluation"
Dear (Name):

Subject: Examination Report

On (date), the NRC administered examinations to employees of your company who had applied for licenses to operate (Name of facility). At the conclusion of the examination, the examiners discussed the examination questions and preliminary findings with those members of your staff identified in the enclosed report.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosure(s) will be placed in the NRC Public Document Room.

Should you have any questions concerning this examination, please contact (Name) at (telephone number).

Sincerely,

(Name)  
(Title)

Enclosures:
1. Report Details
2. Examination(s) and Answer Key(s) (SRO/RO)
3. Facility Comments (Enclosures 3 and 4 may be combined)
4. NRC Resolution of Comments (Enclosures 3 and 4 may be combined)

cc w/enclosures: (Standard Distribution)
Facility Training Manager
Branch Chief, HOLB
Project Manager, NRR
Contract Examination Supervisor
REPORT DETAILS

Facility Licensee:  
(Name)  
(Street address)  
(City, State Zip code)

Facility Docket No.:  

Facility License No.:  

Examinations administered at (Name of facility) near (City, State)

Chief Examiner:  _______________  Date  

Approved by:  Deputy Branch Chief  Date  

Summary:  

Examinations administered on (date)

Written examinations and operating tests were administered to (number) senior reactor operator (SRO) and (number) reactor operator (RO) applicants. A written examination was administered to (number) additional RO applicant. (Number) SROs and (number) ROs passed these examinations. All others failed.
1. Examiners

*(Name), NRC
(Name),
(Name),

*Chief Examiner

2. Exit Meeting

At the conclusion of the site visit, the examiners met with representatives of the facility staff to discuss the results of the examinations. The examiners made the following observations concerning your training program:

a. Areas of generic weaknesses were found in (briefly state the areas of weakness identified during the exit meeting). The facility committed to place more emphasis in these areas in future training programs (Open Item (number)).

b. Areas in which the examiners believe that the applicants exhibited good training and knowledge were (briefly state any strengths identified during the exit meeting).
WRITTEN EXAMINATION(S) AND ANSWER KEY(S) (SRO/RO)
Facility Comment: Question 4.01. Control Room Log Book should be included as an additional correct response.

Facility Justification: Administrative Procedure AP-4.0, Page 8.

NRC RESOLUTION OF FACILITY COMMENTS

Question 4.01

NRC Resolution: Comment accepted. The alternative answer is acceptable but not required for a complete answer.
Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, (Public Law 93-438), and subject to the conditions and limitations incorporated herein, the Nuclear Regulatory Commission hereby licenses you to manipulate all controls of the (Name of facility, facility license number).

Your License No. is OP-(number). Your Docket No. is 55-(number). The effective date is (date). Unless sooner terminated, renewed, or upgraded, this license shall expire six years from the effective date.

This license is subject to the provisions of Section 55.53, Title 10 of the Code of Federal Regulations, Chapter 1, Part 55, with the same force and effect as if fully set forth herein.

While performing licensed duties, you shall observe the operating procedures and other conditions specified in the facility license which authorizes operation of the facility.

The issuance of this license is based upon examination of your qualifications, including the representations and information contained in your application for this license.

A copy of this license has been made available to the facility licensee.

For the Nuclear Regulatory Commission

(Name and title of licensing official)

cc: (Facility representative who signed the applicant’s NRC Form 398)
Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, (Public Law 93-438), and subject to the conditions and limitations incorporated herein, the Nuclear Regulatory Commission hereby licenses you to direct the licensed activities of licensed operators at, and to manipulate all controls of the (Name of facility, facility license number).

Your License No. is SOP-(number). Your Docket No. is 55-(number). The effective date is (date). Unless sooner terminated or renewed, this license shall expire six years from the effective date.

This license is subject to the provisions of Section 55.53, Title 10 of the Code of Federal Regulations, Chapter 1, Part 55, with the same force and effect as if fully set forth herein.

While performing licensed duties, you shall observe the operating procedures and other conditions specified in the facility license which authorizes operation of the facility, and shall comply with the following condition:

You shall wear corrective lenses while performing the activities for which you are licensed.

The issuance of this license is based upon examination of your qualifications, including the representations and information contained in your application for this license.

A copy of this license has been made available to the facility licensee.

For the Nuclear Regulatory Commission

(Name and title of licensing official)

cc: (Facility representative who signed the applicant’s NRC Form 398)

Examiner Standards 13 of 20 Rev. 1, 06/01/95
Dear (Name):

This is to inform you that, on the basis of a grading of the (written examination, operating test, or both) taken on (date(s)) in connection with your application for a (reactor operator, senior reactor operator) license for the (facility name), which indicates that you did not pass that (examination, test, or both), it is proposed that your application be denied. Enclosed is a copy of the (written examination, operating test, or both) results indicating those areas in which you exhibited deficiencies. (A copy of the master answer key is also provided.)

If you accept the proposed denial and decline to request either an informal NRC staff review or a hearing within 20 days as discussed below, this proposed denial will become a final denial. You may then reapply for a license in accordance with 10 CFR 55.35, subject to the following conditions:

* a. Because you passed (a written examination, an operating test) on (date), you may request a waiver of that portion. This waiver will be granted by the NRC and will be valid up to 1 year from your (examination, test) date.

* b. Because you did not pass the (written examination, operating test) administered to you on (date), you will be required to retake an (a written examination, an operating test).

* c. You may reapply for a license 2 months from the date of this letter. A reexamination will be scheduled, upon request by you or your facility management, shortly after your reapplication is received.

** a. Because this is your (second, subsequent) examination failure, you will be required to retake the written examination and the operating test.
You may reapply for a license (6. 24) months from the date of this letter. A reexamination will be scheduled, upon request by you or your facility management, shortly after your reapplication is received.

Because you did not pass either the written examination or the operating test administered to you on (date(s)), you will be required to retake the written examination and the operating test.

You may reapply for a license (2, 6, 24) months from the date of this letter. A reexamination will be scheduled, upon request by you or your facility management, shortly after your reapplication is received.

If you do not accept the proposed denial, you may, within 20 days of the date of this letter, take 1 of the following actions:

You may request an informal NRC staff review of the grading of your examination. Your written request must be sent to the Director, Division of Reactor Controls and Human Factors, Office of Nuclear Reactor Regulation, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555. Your request must identify the portions of your examination that you believe were graded incorrectly or too severely. In addition, you must provide the basis, including supporting documentation, such as procedures, instructions, computer printouts, and chart traces, in as much detail as possible, to support your contention that certain of your responses were graded incorrectly or too severely. The NRC will review your contentions, reconsider your grading, and inform you of the results. If the proposed denial is sustained, you will have the opportunity to request a hearing pursuant to 10 CFR 2.103(b)(2) at that time.

* Use for initial RO or SRO license applicants who passed either the written examination or the operating test but failed the other.

** Use for second and subsequent retake applicants.

*** Use for applicants who failed both the written examination and the operating test.
You may request a hearing pursuant to 10 CFR 2.103(b)(2). Submit your request, in writing, to the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, with a copy to the Assistant General Counsel for Hearings, Office of the General Counsel, at the same address.

You may not reapply for a license, pursuant to 10 CFR 55.35, until your license has been finally denied. Failure on your part to exercise 1 of these options within 20 days constitutes a waiver of your opportunity for informal review and your right to demand a hearing and, for the purpose of reapplication under 10 CFR 55.35, renders this letter a notice of final denial of your application, effective as of the date of this letter.

If you have any questions, please contact (name) at (telephone number).

Sincerely,

(Name and title of licensing authority)

Enclosures: As stated

cc: (Facility representative who signed the applicant's NRC Form 398)

CERTIFIED MAIL -
RETURN RECEIPT REQUESTED
<table>
<thead>
<tr>
<th>Due Date</th>
<th>Task Description</th>
<th>Initials</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1. Facility comments resolved (within 7 days of receipt)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>2. Facility comments incorporated and grading completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>3. Graded examinations received by NRC</td>
<td></td>
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<tr>
<td>20</td>
<td>4. Chief examiner review completed</td>
<td></td>
<td></td>
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<tr>
<td>25</td>
<td>6. License and denial letters typed</td>
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<td></td>
</tr>
<tr>
<td>28</td>
<td>7. Management review completed</td>
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<tr>
<td>29</td>
<td>8. License and denial letters mailed</td>
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<td></td>
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<tr>
<td>30</td>
<td>9. Facility notified of results</td>
<td></td>
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<tr>
<td>45</td>
<td>10. Examination report issued</td>
<td></td>
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<tr>
<td>45</td>
<td>11. Contractor evaluation completed</td>
<td></td>
<td></td>
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<tr>
<td>45</td>
<td>12. Corrected examination(s) loaded into examination question bank (EQB)</td>
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<tr>
<td>45+</td>
<td>13. Reference material returned after final resolution of any appeals</td>
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</table>
Non-Power Reactor Examination Results Summary Form ES-501N-2

---

**PRIVACY ACT INFORMATION - FOR OFFICIAL USE ONLY**

**NON-POWER REACTOR EXAMINATION RESULTS SUMMARY**

<table>
<thead>
<tr>
<th>Facility:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Examination Date:</td>
<td>Operating Test Date(s):</td>
</tr>
<tr>
<td>Examiners:</td>
<td></td>
</tr>
</tbody>
</table>

**OVERALL RESULTS**

<table>
<thead>
<tr>
<th>Total # of Applicants</th>
<th># Passed</th>
<th>% Passed</th>
<th># Failed</th>
<th>% Failed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactor Operator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Operator</td>
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</tbody>
</table>

**INDIVIDUAL RESULTS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Docket #55-</th>
<th>Type (1)</th>
<th>Written Grade</th>
<th>Results(2)/Initials(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>Written</td>
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**NOTES:**
(1) 1=RO; 2=SRO-I; 3=SRO-U; 4=RO-Retake; 5=SRO-I-Retake; 6=SRO-U-Retake;
(2) P=Passed; F=Failed; W=Waived
(3) Enter only the initials of the examiner who actually wrote or administered the examination.

---

**PRIVACY ACT INFORMATION - FOR OFFICIAL USE ONLY**

**Examiner Standards**

18 of 20

Rev. 1, 06/01/95
1. **Examination Information:**

Facility __________________ Examination Type __________________

Examination Date(s) ___________ No. of Applicants ___ ROs ___ SROs

Date written examination received by reviewer ______________

Date operating scenarios received by reviewer ______________

Date all graded examinations received _____________________

2. **Examiner Information:**

<table>
<thead>
<tr>
<th>NAME</th>
<th>CONTRACTOR</th>
<th>LEVEL OF EFFORT</th>
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</table>

3. **Evaluation:** For each activity listed below, indicate whether the contractor's performance met the appropriate sections of the Examiner Standards (Yes, No, or N/A). Justify all responses of "No" in the comments section. Negative comments should include the deficiency and the associated requirement (Examiner Standard, NUREG/BR-0122, etc.) that the contractor failed to meet.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>WRITTEN EXAM</th>
<th>OPERATING SCENARIOS</th>
<th>FACILITY WALK-THROUGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write and prepare</td>
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<td></td>
<td></td>
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<tr>
<td>Onsite preparation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Administer</td>
<td></td>
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<td></td>
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<tr>
<td>Grade and document</td>
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<td></td>
<td></td>
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<tr>
<td>Review and quality assurance checks</td>
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<td></td>
</tr>
</tbody>
</table>

Examiner Standards 19 of 20  
Rev. 1, 06/01/95
4. **Audit of Examiners**: List examiners that were audited and whether or not they conformed with guidance in the Examiner Standards (ES) for the areas evaluated during the audit. Attach a copy of the "Operating Test Audit Form." Note the reasons for any negative ratings in the comment section below or on the audit form. All negative comments should refer to pertinent guidance on examination administration.

<table>
<thead>
<tr>
<th>NAME</th>
<th>SCENARIO ES CONFORMANCE</th>
<th>WALK-THROUGH ES CONFORMANCE</th>
<th>TYPE OF APPLICANT</th>
</tr>
</thead>
<tbody>
<tr>
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5. **Comments (attach additional sheets if necessary):**

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Form Completed By _____________________________ Date __________________

Chief Examiner _____________________________ Date __________________

Branch Chief, HOLB __________________________ Date __________________

Examiner Standards 20 of 20

Rev. 1, 06/01/95
A. PURPOSE

This standard specifies the NRC's policies and practices for processing informal staff reviews of initial license application denials, issuing final denials of license applications, and reapplying for a license after a final denial of an application is issued.

B. BACKGROUND

Operator license applicants who fail a written examination or operating test administered pursuant to 10 CFR Part 55 are notified of their failure in writing, including the nature of the deficiencies noted. The notification letter constitutes a proposed license denial and informs the applicant of his or her options as specified in Section C below. One of these options is to seek reconsideration of the proposed denial through the informal review process described in Section D below. If the proposed denial is sustained during the review, the applicant may request a hearing pursuant to 10 CFR 2.103(b)(2). The second option available to the applicant is to immediately request a hearing pursuant to 10 CFR 2.103(b)(2).

Applicants who fail a written examination or operating test may reapply pursuant to the provisions of 10 CFR 55.35, but only after they have been issued a final denial of their existing application. This may occur as a result of (1) the applicant's failure to respond to a proposed denial by requesting either an NRC staff review of the examination results or a hearing within 20 days allowed, (2) the applicant's failure to request a hearing within 20 days of the letter from the NRC sustaining the initial proposed denial, or (3) a hearing request by the applicant. The NRC will not accept a reapplication pursuant to 10 CFR 55.35 as long as a request for either an informal NRC review or a hearing is pending.

The procedures that apply when the NRC has denied an application for an operator license because the applicant fails to meet the eligibility requirements in 10 CFR 55.31 are similar to those for processing informal NRC reviews and license denials. The details of this process are described in Section E below.

C. PROCEDURE FOR APPLICANT TO RESPOND TO A LICENSE DENIAL

If an applicant receives a proposed denial letter (refer to ES-501, Attachment 2), he or she has 20 days from the date of the letter to exercise one of the following options:

1. Do nothing. The proposed denial then constitutes a final denial and the applicant may reapply pursuant to 10 CFR 50.35.
2. Submit a letter to the Director, Division of Reactor Controls and Human Factors (DRCH), Office of Nuclear Reactor Regulation, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, requesting the NRC to informally regrade the written examination, the operating test, or both in light of new information provided by the applicant. If the applicant submits such a request, the NRC will not consider a reapplication pursuant to 10 CFR 55.35 until a final denial has been accepted.

The applicant’s request for informal review must identify the item(s) for which additional review is requested and include documentation supporting the item(s) placed in contention. The applicant must mail or deliver the request for review and the supporting documentation to the Director, DRCH, within 20 days after the date on the proposed denial letter. The NRC staff should complete its review in accordance with Section D below within 45 days after receiving the applicant’s request. If the staff determines that the applicant provided insufficient basis to justify passing grades on all sections of the licensing examination, the Director, DRCH, will issue a letter sustaining the proposed denial (Attachment 1). The applicant may then request a hearing pursuant to 10 CFR 2.103(b)(2) within 20 days after the date of that letter. If the staff determines that the applicant’s contentions are valid and justify passing grades on all sections of the licensing examination, the Director, DRCH, will overturn the proposed denial and direct the appropriate licensing authority to issue a license to the applicant. No license will be backdated as a result of this review process.

3. Request a hearing as provided by 10 CFR 2.103(b)(2). The hearing request must be submitted to the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, with a copy to the Assistant General Counsel for Hearings, Office of the General Counsel, at the same address. If the applicant requests a hearing, the NRC will not consider a reapplication pursuant to 10 CFR 55.35 until a final denial has been issued.

If the applicant takes the first option and declines the opportunity for an informal review or a hearing, or if the applicant takes the second option but does not request a hearing when the proposed denial is sustained by the Director, DRCH, the proposed denial becomes a final denial as of the date of the notification. The applicant may then reapply after the waiting period specified in 10 CFR 55.35, determined from the date of the initial or the sustaining notification, respectively. The NRC will not consider a reapplication pursuant to 10 CFR 55.35 if a request for an informal review or a hearing is outstanding.
D. PROCEDURE FOR THE INFORMAL REVIEW OF EXAMINATION OR TEST RESULTS

The following actions shall be taken when an applicant requests the Director, DRCH, to conduct an informal review of his or her license examination. These actions should be completed within 45 days after receiving the applicant's request.

1. The Chief, Operator Licensing Branch (HOLB), will forward a complete copy of the review package to the staff. The Chief, HOLB, will also prepare a letter for the Director, DRCH's, signature, notifying the applicant that his or her examination is being reviewed, and inform the HOLB Licensing Assistant to track the licensing action.

2. The staff shall evaluate the applicant's contentions within 5 working days after receiving the review package. If the contentions justify overturning the failure, the staff will inform the Chief, HOLB, of its findings and issue the appropriate license (the license will not be backdated). HOLB will prepare a letter in the format of Attachment 1 to notify the applicant that the proposed denial was overturned and that a license will be issued.

3. If the staff sustains the original denial, it shall inform the Chief, HOLB, of its decision within 5 working days. The staff shall provide the Chief, HOLB, with a written summary and explanation of the grading changes that were made as a result of its review.

4. If the staff sustains the original denial, the Chief, HOLB, will convene a three-person board to review the applicant's documented contentions. The board shall be impartial (i.e., it will not include anyone who was in any way involved with the applicant's licensing examination), will include at least 2 certified examiners, and will be chaired by a supervisor (written examination review panels may be chaired by a senior license examiner). To promote objectivity, the 3 appeal board members will be obtained from different offices, whenever possible. The board may conduct its review at Headquarters, in a regional office, at the facility where the operating test was administered, or by mail or telephone, depending on the extent of the applicant's contentions and the need for access to reference material (or the facility in the case of operating test reviews).

5. For written examinations, the board shall review the original grading of the applicant's examination, the reference material supplied by the facility licensee, and the contentions and supporting documentation provided by the applicant. The review shall focus on those portions of the examination that were contested by the applicant and were not regraded by the staff as part of the informal review process.
For operating tests, the review board shall evaluate the examiner's comments, the examination report, and the simulator scenarios that were administered. The board shall then review the applicant's contentions in light of the information and documentation provided for the review (e.g., facility system descriptions, operating procedures, logs, chart recorder traces) to determine if the applicant's contentions have merit. The board should ensure that specific examples of unsatisfactory performance were used to document each unsatisfactory (U) rating and that all comments are technically and procedurally correct.

The board will thoroughly document its findings and recommendations on each of the applicant's contentions.

6. The review board should evaluate the results of the staff review conducted in accordance with Section D.3 above. If the board's findings and recommendations differ from those of the staff reviewer(s), the board chairman shall discuss the matter with the original examiner and the staff to determine the cause of the disparity. The board chairman should brief management on its preliminary findings and recommendations. Management may provide any additional information at that time, and the board will consider those concerns in its final recommendation.

7. The board will submit its findings and a recommendation to sustain or overturn the license examination failure to the Chief, HOLB. If the staff continues to have concerns, it should raise them to the Chief, HOLB. The Chief, HOLB, will make a final recommendation to the Director, DRCH.

8. The Director, DRCH, will consider the findings and recommendations of the review board and make a decision whether to sustain or overturn the applicant's license examination failure. The Director, DRCH, will notify the applicant in writing that his or her proposed denial was sustained (Attachment 2) or overturned (Attachment 1 and DLPQ will issue license).

E. PROCEDURE FOR PROCESSING APPLICATION DENIALS

If the staff reviews the NRC Form 398 and the NRC Form 396 submitted by an applicant to demonstrate eligibility for a license examination and determines that the application is incomplete or that the applicant does not meet the requirements in 10 CFR 55.31, it will note the deficiencies and contact the applicant and the facility licensee and give them the opportunity to supply additional information to complete the application. If after the additional information is supplied, the applicant still does not meet the eligibility requirements, the staff will notify the applicant in writing that the application is being denied and inform him or her of the deficiencies on which the denial is based (refer to ES-202N, Attachment 1). The applicant may then
exercise one of the following options within 20 days after the date on the
notification letter:

1. Request the Director, Division of Reactor Controls and Human Factors,
Office of Nuclear Reactor Regulation, U. S. Nuclear Regulatory
Commission, Washington, D. C. 20555, to review the application denial.
The applicant's submittal must clearly state the basis for the request.

2. Request a hearing pursuant to 10 CFR 2.103(b)(2). The hearing request
must be submitted to the Secretary of the Commission, U. S. Nuclear
Regulatory Commission, Washington, D. C. 20555, with a copy to the
Assistant General Counsel for Hearings, Office of the General Counsel,
at the same address.

If the applicant exercises the first option and DRCH sustains the denial by
issuing Attachment 3, he or she may request a hearing pursuant to 10 CFR
2.103(b)(2).

F. NOTES

1. A branch chief or above will sign all letters informing an applicant of
an examination failure or an application denial. DRCH will include the
appropriate licensing assistant on distribution for all correspondence
that is generated in accordance with this standard.

2. The facility licensee's authorized representative who signed the license
applications shall be sent a copy of all external correspondence
generated as a result of this standard.

3. The Chief, HOLB, is responsible for keeping management informed of
review requests from license applicants.

4. All correspondence referenced in this standard shall be sent to the
applicant via certified mail, return receipt requested.

ATTACHMENTS/FORMS:

Attachment 1, "Sample License Notification From DRCH"
Attachment 2, "Proposed License Denial From DRCH"
Attachment 3, "Initial Application Denial From DRCH"
Docket No. 55-(number)

(Applicant’s name)
(Street address)
(City, State, Zip code)

Dear (Name):

In response to your letter of (date), we have reviewed the grading of the
(written examination, operating test) administered to you on (date(s)) and
reconsidered the proposed denial issued to you on (date).

In light of the additional information you supplied, we have determined that
you passed the (written examination, operating test) and satisfy the
requirements of 10 CFR 55.33(a) for approval of your license application.
DLPQ will issue your (reactor operator or senior reactor operator) license
pursuant to 10 CFR 55.51 and forward it to you under separate cover.

[For your information, I am enclosing a copy of the staff’s resolution of each
of your (written examination, operating test) comments.] If you have any
questions, please contact (name) at (telephone number).

Sincerely,

Director, Division of Reactor
Controls and Human Factors
Office of Nuclear Reactor Regulation

Enclosure:
As stated

[ ] Include only if DRCH does not forward discussion of comment resolutions
to applicant.
Docket No. 55-(number)

(Applicant's name)

(Street address)

(City, State, Zip code)

Dear (Name):

In response to your letter of (date), we have reconsidered the proposed denial issued to you on (date) and reviewed the grading of the (written examination, operating test) administered to you on (date(s)) in light of the information you supplied. We find that you did not pass the (examination, test). The result of our review is enclosed.

Consequently, the proposed denial of your license application is sustained. If you accept the proposed denial and decline to request a hearing within 20 days as discussed below, the proposed denial will become a final denial. You may then reapply for a license in accordance with 10 CFR 55.35, subject to the following conditions:

* a. Because you passed (a written examination, an operating test) on (date), you may request a waiver of that portion. This waiver will be granted by the NRC and will be valid up to 1 year from your (examination, test) date.

* b. Because you did not pass the (written examination, operating test) administered to you on (date), you will be required to retake (a written examination, an operating test).

* c. You may reapply for a license 2 months from the date of this letter. A reexamination will be scheduled, upon request by you or your facility management, shortly after your reapplication is received.

** a. Because this is your (second, subsequent) examination failure, you will be required to retake the written examination and the operating test.

** b. You may reapply for a license (6, 24) months from the date of this letter. A reexamination will be scheduled, upon request by you or your facility management, shortly after your reapplication is received.
Because you did not pass either the written examination or the operating test administered to you on [date], you will be required to retake the written examination and the operating test.

You may reapply for a license 12, 6, 241 months from the date of this letter. A reexamination will be scheduled, upon request by you or your facility management, shortly after your reapplication is received.

If you do not accept the proposed denial, you may, within 20 days of the date of this letter, request a hearing in accordance with 10 CFR 2.103(b)(2). Submit your request, in writing, to the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, with a copy to the Assistant General Counsel for Hearings, Office of the General Counsel, at the same address.

Failure on your part to request a hearing within 20 days constitutes a waiver of your right to demand a hearing and, for the purpose of reapplication under 10 CFR 55.35, renders this letter a notice of final denial of your application, effective as of the date of this letter.

If you have any questions, please contact (name) at (telephone number).

Sincerely,

Director, Division of Reactor Controls and Human Factors
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc: (Facility representative who signed the applicant’s NRC Form 398)

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

* Use for initial RO or SRO license applicants who passed either the written examination or the operating test but failed the other.

** Use for second and subsequent retake applicants.

*** Use for applicants who failed both the written examination and the operating test.
Docket No. 55-(number)

(Applicant's name)

(Street address)

(City, State, Zip code)

Dear (Name):

This is in response to your request for reconsideration of the denial of your application for a (reactor operator, senior reactor operator) license issued to you on (date) submitted in connection with the (facility name). Our review of your application still indicates that you do not meet the eligibility requirements.

(DRCH to discuss deficiencies and which part of 10 CFR 55.31, ES-202, NRC-approved facility training program, or Regulatory Guide 1.8 was involved.)

When you have met the requirements of 10 CFR 55.31, you may submit another application.

If you do not accept this denial, you may, within 20 days of the date of this letter, request a hearing pursuant to 10 CFR 2.103(b)(2). Submit your request, in writing, to the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, with a copy to the Assistant General Counsel for Hearings, Office of the General Counsel, at the same address.

If you have any questions, please contact (name) at (telephone number).

Sincerely,

Director, Division of Reactor Controls and Human Factors
Office of Nuclear Reactor Regulation

cc: (Facility representative who signed the applicant's NRC Form 398)
A. PURPOSE

The NRC requalification examinations are conducted under this standard in accordance with the provisions of 10 CFR 55.59(a)(2)(iii) and 10 CFR 55.59(c)(7). The program described in this standard applies to those licensees where requalification results or operational problems have caused the NRC to lose confidence in the licensee's ability to conduct its own examination. Examples which could result in a "for cause" requalification examination include requalification inspection results which indicate an ineffective requalification program, operational problems for which operator error is a major contributor, and allegations regarding significant training program deficiencies. These conditions may lead the NRC to initiate planning to conduct requalification examinations during the next annual examination cycle scheduled by the licensee.

B. SCOPE

This standard provides guidance and requirements to NRC examiners for the administration of NRC requalification examinations at Non-Power Reactor (NPR) facilities. Where possible, the requalification examination will be developed by an examination team consisting of NRC examiner(s) and facility representative(s). The examination will be based on the facility requalification program and available facility learning objectives. In addition, co-evaluation of operator performance by the facility and the NRC will enhance the ability of the NRC to assess both individual and program performance. The NRC-conducted examination consists of a written examination and an operating test.

C. ADMINISTRATIVE CONTROLS

1. Responsibilities

   a. Schedule of Notifications

      When the NRC determines that a "for cause" requalification examination is necessary, it will notify the facility licensee at least 90 but preferably 120 days before the examination date. The NRC will schedule a site visit during which the examination and grading process will be explained and any questions that the facility may have about the NRC's examination procedures will be answered.

      1) NRC notifies the facility approximately 90 days in advance of the examination date using the "Notification Letter," Attachment 1.

      2) The facility responds to the Notification Letter
approximately 60 days in advance of the examination date by providing the following to the NRC:

- reference materials and examination bank, if available
- list of operators to be examined
- staff employee(s) assigned to assist NRC examiner(s)

3) If the facility is preparing the written examination and operating test, this material should be provided to the NRC at least 30 days before the scheduled examination date. The NRC will confirm the examination schedule and the operators participating in the examination with the facility at least 30 days in advance.

4) The NRC staff will review the list of operators to be examined and recommend changes as necessary.

b. Examination Preparation

1) The facility supplies the reference and examination materials or the written and operating examination (Attachment 1, Enclosure 1) as requested in the notification letter. The NRC evaluates the material or the facility-prepared examinations for adequacy.

2) The NRC will prepare the examination from the materials provided, if the facility has not prepared an examination. The facility has the option to develop the examination or assist in its development.

3) NRC reserves the right to reschedule the examination if the facility-supplied materials or examinations are inadequate.

c. Facility Involvement

1) The facility will be requested to provide an employee to assist the NRC examiner(s). The employee is expected to be a licensed or previously licensed SRO at the facility or a similar facility. If the facility wishes and the Chief Examiner agrees, an additional employee may be a member of the examination team. The function of these individuals is to provide facility-specific technical assistance to the NRC in the development and review of the written examination questions and the operating test. Normally, the facility representatives will participate in the operating test and written examination as facility evaluators.

2) To ensure examination security, the facility representatives on the examination team will be asked to adhere to examination security restrictions. These restrictions begin
with review of the actual examination and continue until the examination is concluded. Each representative shall be required to sign a "Pre-Examination Security Agreement" (Attachment 1, Enclosure 4) before reviewing the actual examination and a "Post-Examination Security Agreement" at the conclusion of the examination process (Attachment 1, Enclosure 4).

3) By the end of the examination day, each facility evaluator will provide preliminary pass/fail results of the operating test and the final results before the exit meeting.

4) The facility will grade the written examinations and the operating tests in parallel with the NRC examiner(s).

5) On a case by case basis, facilities may request a solely NRC-administered examination or one developed by an outside evaluator(s) from a similar facility and administered by the NRC.

2. Administrative Procedure

(a) Examination Administration

Each portion of the requalification examination includes the appropriate oral briefing or rules handout (Attachment 1, Enclosure 3).

(b) Requalification Program Evaluation

The program will be evaluated for any deficiencies or weaknesses based on examination and test adequacy and operator performance. The wide variance in staff sizes and the relatively small number of operators that will typically be examined precludes performing a statistical program evaluation. However, if any of the following items are noted during the examinations, a subsequent evaluation of the facility's training program will be considered:

1) Greater than 50 percent of the operators fail the examination for which four or more operators are evaluated.

2) A significant deviation exists between the NRC examiners and facility evaluators on pass/fail results (i.e., the facility is less conservative in their evaluation of more than one operator.)

3) The facility evaluator is unable to administer a satisfactory examination (e.g., leading the operator, cueing by providing answers, or performing steps for the operator).
c. Requalification Performance of an Individual

For an operator to pass the requalification examination as graded by the NRC, he/she shall satisfactorily complete the written and operating examinations as described below.

D. IMPLEMENTATION

1. Operating Test

a. Introduction

The operating test portion of the examination is open reference. Each operator will be evaluated on his/her ability to satisfactorily complete at least five tasks, using appropriate facility procedures.

Operators will be evaluated on task/procedure performance by both an NRC and facility evaluator (if applicable). After the completion of each task, the examiner or facility evaluator will ask a minimum of two predetermined questions about the task/procedure or system involved. The NRC evaluator may ask additional questions directly of the operator after completion of each task; however, to the extent possible these questions will be asked through the facility evaluator. These additional questions are for clarification or verification of tasks performed and are not intended to expand the scope of the predetermined questions.

b. Responsibilities

1) Facility

a) The facility identifies those systems and procedural duties applicable to safe operation. For example:

- systems covered during the requalification cycle
- new or recently modified systems
- fuel accountability and handling
- building and pre-startup requirements
- experiment handling
- radiation monitoring and control
- other systems and procedures as appropriate to the safe operation of the facility
b) At least five tasks are selected for each operator to perform. Where appropriate, there should be a differentiation between the RO and SRO level of tasks. An RO is only responsible for RO tasks; an SRO is responsible for all tasks. For each task, the facility specifies the criteria for satisfactory completion and indicates critical steps. Critical steps are those which, if performed incorrectly or not at all would prevent the system from operating safely or prevent completion of an essential safety action. Examples of essential safety actions are the ability to:

- effectively manipulate controls affecting reactivity
- actuate a reactor trip
- comply with technical specifications
- reduce excessive levels of radiation and to guard against personnel exposure

For those tasks for which a written procedure exists, it is acceptable to use a copy of the procedure or procedure section and mark those steps considered critical. If no written procedure exists, a written description of the task, list of expected actions, and indication of critical steps will be generated for the examination.

c) Efforts must be made to avoid compromising the operating test. Operators examined on the same day may all perform the same tasks. If operators are examined on subsequent days they must perform a minimum of two tasks not previously administered, or previous operators must complete a post-examination security agreement. Other reasonable logistics to administer the requisite operating tasks may be agreed to by the chief examiner.

d) Of the tasks that each operator must perform, at least one must be a control console operation involving a reactivity manipulation. This operation may be part of an overall evolution including more than one task. For example, an operator may perform a reactor startup as the first task, then respond to a simulated instrument failure during the startup as a second task.

At least one task must involve a response to an abnormal event. Examples are an instrument failure,
component failure, radiation monitor alarm or similar problem. At least one task must involve a response to an emergency situation. Examples are a building evacuation or a large reactor pool leak or high radiation levels.

At least one task must be performed in the facility (i.e., out of the control room, where appropriate).

Additional tasks are developed at the discretion of the chief examiner.

e) At least two questions will be developed to ask the operator at the completion of each task. Questions may be selected from facility question banks or previously administered NRC examinations. However, to the extent possible, the questions should

- be based on the task or system being operated

- discriminate between RO/SRO responsibilities, where appropriate

- emphasize knowledges required for task performance or procedure implementation and compliance

2) NRC

The NRC examiner(s) will evaluate the facility-identified systems, tasks, and questions to ensure that the examination tests knowledge and abilities appropriate for NPR operators and is applicable to that facility.

3) Examination Team

a) An examination team consisting of NRC examiner(s) and facility representative(s) may be used to review the examination. The NRC and facility representative(s) will jointly review and agree on critical steps before administering the examination.

b) The NRC may substitute any or all of the facility-derived tasks and/or questions with those selected or developed by the NRC. However, facility-developed questions or tasks should be used unless they fail to meet NRC standards. Any added test items, including successful completion criteria and critical steps, will be reviewed with facility evaluators before administration. The NRC chief examiner has the final authority in deciding examination content. If additional questions are asked, on the basis of
observations during task performance, these should be reviewed with the facility as soon as possible after the tasks are completed.

c) The set of tasks and questions to be administered to each operator shall be reviewed by the chief examiner or his designee. Any disagreements in selection of tasks will be resolved by the chief examiner.

c. Requalification Examination Process

1) Conduct of Operating Test

a) The operating test has no pre-determined time limit.

b) The facility evaluator will brief the operator, using the "Briefing Checklist" (Attachment 2). If desired, the operators may be briefed as a group before the start of the operating tests.

c) Normally, passive observations of task performance are made. An operator should not be interrupted during console control manipulations to be asked questions or to be presented the next task. New tasks in an evolution should be presented when the facility is in a steady-state condition.

d) The facility evaluator (if applicable) will conduct the operating test while the NRC examiner grades in parallel. The NRC examiner may ask followup questions directly of the operator after task completion. However, to the extent possible, these questions will be asked through the facility evaluator.

e) The NRC examiner ensures that the facility evaluator is conducting an appropriate examination. If the NRC examiner has determined that the examination being conducted is inadequate to allow a pass/fail determination, the NRC examiner shall discuss this concern with the facility evaluator. If the examination conduct continues to be unsatisfactory, the NRC examiner may choose to conduct the remainder of the examination with the facility evaluator grading in parallel. The chief examiner will be informed at the completion of the individual examination if this option is chosen. As soon as possible after such issues arise the NRC chief examiner shall resolve with the facility representatives all unforeseen technical questions or issues that could result in an operator failing the examination.
2) Evaluation of Operating Tests

a) Any deficiencies noted will be recorded using the "Requalification Examination Operating Test Record" Form ES-601N-1. Significant deficiencies will normally be associated with identified critical steps. Additional or alternative critical steps may be identified after the initiation of a task that resulted from unanticipated operator actions. These will be identified and conflicts resolved in the same manner as the original critical steps, in accordance with the examination team responsibilities contained in paragraph D.1.b.3.a.

b) Should an operator incorrectly perform or fail to perform a critical step, the task may be graded as unsatisfactory if the deficiency jeopardizes the safety of the facility or has significant safety impact on the public. Failure to perform, or incorrectly perform, two or more critical steps shall result in failure of the task.

c) To be evaluated as satisfactory on the operating test, each operator shall

1) successfully complete at least 70 percent of the tasks

2) correctly answer at least 70 percent of the prewritten task questions. Followup questions may be used to confirm step performance and/or to confirm the initial response to a question.

d) The NRC will notify the facility immediately of any operator whose performance on the examination is considered to require immediate removal from licensed duties.

2. Written Examination Evaluations

a. Introduction

The written portion of the examination is open reference. The purpose of the three-section examination is to assess the operator's knowledge of facility systems, procedures, radiological controls/systems, operational theory, and operating limits including the technical specifications.

Section A is composed of theory, thermodynamics, and facility operating characteristics. The questions should be related to facility theory fundamentals and applicable to operations.
Section B relates to procedures, with the focus on facility emergency, normal operation, and abnormal procedures; administrative controls (including technical specifications, emergency plan and administrative procedures); and radiological procedures. Section C is composed of facility and radiation monitoring systems, with the focus on systems applicable to reactor operations.

b. Responsibility

1) Facility Responsibility

a) The facility provides examination questions with the appropriate training material references. There should be sufficient questions to prepare an examination of 20 questions per section. The questions are expected to be objective (multiple choice or matching).

b) The written examination will not discriminate between RO and SRO knowledge level.

c) Three hours will be allowed for the written examination.

d) The facility representative will review all revised test questions, evaluating them for appropriateness, technical accuracy, and clarity.

2) NRC Responsibility

a) The NRC may augment the facility’s questions.

b) Each question should be verified as job related and relevant.

c) If a clear tie to job relevancy does not exist, the applicability of the question shall be discussed with the facility representative.

d) Should it be necessary to develop additional questions to satisfy the examination content, the facility may be requested to do so.

e) Proposed questions may be modified, deleted or replaced if deemed necessary by the NRC.

c. Written Examination Process

1) Written Examination Conduct

The examination will be proctored by a facility representative.
representative or an NRC examiner. The proctor will brief the operators using Attachment 1, Enclosure 3.

2) Written Examination Evaluations

Using the examination and key, the facility and the NRC will independently grade each section of the examination. The grading of all examinations shall be completed within 5 work days of the examination administration date. Grades will be recorded on the "Examination Cover Sheet" Form ES-601N-2.

In order to be judged satisfactory on the examination, each operator must achieve at least a 70-percent overall score as graded by the NRC. Less than 70 percent on one section will not constitute a failure but indicate an area requiring remedial action by the facility.

E. ACTIONS REQUIRED FOR REQUALIFICATION PROGRAM DEFICIENCIES

For any apparent program deficiencies, the following NRC actions will be considered. Additional actions may be taken at the discretion of the NRR Office Director or his designee.

1. Request that the facility review program deficiencies and identify corrective actions needed to improve operator performance.

2. Meet with senior facility management to review program deficiencies and determine root causes, corrective actions proposed, schedule for corrective action implementation, and followup inspections and examinations.

3. Determine:
   a. The significance of generic performance deficiencies identified during the program evaluation.
   b. If recent facility events relate to licensed operator performance.
   c. Recommendations by NRR staff.

F. FINAL REQUALIFICATION PROGRAM EVALUATION REPORT

A final requalification results summary sheet (Form ES-601N-3) shall be prepared when the grading of requalification examinations has been completed. A complete copy of the report shall be filed in the facility examination file.

G. INDIVIDUAL REQUALIFICATION EXAMINATION REPORT

Form ES-601N-4 is filled out for each operator who has received an NRC requalification examination. One copy of this report is sent to the facility, one copy filed in the individual’s docket folder in the HOLB office, and one copy filed in the facility examination file.
H. RECORD RETENTION

1. A facility requalification file will be maintained for each facility. All facility evaluation forms, records, assignment sheets, individual examination reports, and correspondence relating to the requalification program audit will be retained.

2. When the requalification evaluation has been completed by HOLB, a copy of all NRC-administered written and operating examinations shall be supplied to the facility.

3. Material relating to an individual failure will be retained by HOLB as necessary to support denial of license renewal per 10 CFR 55.77(b)(2)(iv). This includes:
   a. examination cover page for all examinations.
   b. the portions of the examination that resulted in failure.

ATTACHMENTS/FORMS:

Attachment 1, "Notification Letter"
Attachment 2, "Briefing Checklist- Operating Test"
Form ES-601N-1, "Requalification Examination Operating Test Record"
Form ES-601N-2, "Examination Cover Sheet"
Form ES-601N-3, "Non-Power Reactor Requalification Results Summary Sheet"
Form ES-601N-4, "Individual Requalification Examination Report"
Dear [Name],

In a telephone conversation between [Name] and [Name], arrangements were made for the performance of requalification examinations at [Location]. The examination visit, which is scheduled for [Date], will be performed in accordance with Operator Licensing Standard ES-601N. You should have a copy of this standard.

For the examiners to adequately prepare for this visit, it will be necessary for the facility to furnish the approved items listed in Enclosure 1, "Reference Material Requirements," at least 60 days before the examination date to the following address:

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
ATTN: (Chief Examiner), Mail Stop ( )

Failure to supply the reference material as required by Enclosure 1 may result in postponement of the examination. The chief examiner may request that the facility submit a proposed examination for use during the examination week in addition to the material requirements of Enclosure 1. Submission of a proposed examination, even if requested, is optional. However, if a proposed examination is submitted, those personnel participating in its development may become subject to the security restrictions described below.

It is requested that the facility provide an employee to complete the examination team. The employee is expected to be a licensed or previously licensed SRO at your facility or similar facility. If desired by the facility, and agreed to by the chief examiner, an additional employee may be a member of the examination team. These individuals must not be scheduled for an NRC-administered examination during this visit. Before commencement of NRC review of the examination, the facility representative will be required to sign a security agreement (Enclosure 4).

The facility representative may continue to train operators with the understanding that he or she will not describe details of the examination, either in scope or content. Should questions arise that are on the examination, these questions may be answered provided no indication is given that the question is on the examination.
The facility management is responsible for providing adequate space and accommodations to properly develop and conduct the examinations. Enclosure 2, "Administration of Requalification Examinations," describes our requirements for developing and conducting the examinations. Enclosure 3 contains the "NRC Rules and Guidance for Examinees" that will be in effect during the administration of the written examination. The facility management is responsible for ensuring that all operators are aware of these rules.

This request is covered by Office of Management and Budget Clearance Number 3150-0101 which expires May 31, 1995. The estimated average burden is 7.7 hours per response, including gathering, copying and mailing the required material. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Records and Reports Management Branch, Division of Information Support Services, Office of Information Resources Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; and to the Paperwork Reduction Project (3150-0101), Office of Management and Budget, Washington, D.C. 20503.

Thank you for your consideration in this matter. If you have any questions on the evaluation process, please contact me at (telephone).

Sincerely,

Chief Examiner
Operator Licensing Branch
Division of Reactor Controls
and Human Factors
Office of Nuclear Reactor Regulation

Enclosures:
1. Reference Material Requirements
2. Administration of Requalification Examinations
3. NRC Rules and Guidance for Examinees
4. Security Agreements

cc w/encls:
_________________, Reactor Supervisor
REFERENCE MATERIAL REQUIREMENTS

Test items to support all aspects of the requalification examination must be provided to the NRC 60 days before the examination date.

1. Existing learning objectives, students handouts, and lesson plans (including training manuals, facility orientation manual, system descriptions, reactor theory, thermodynamics, etc.).

Training materials should include all substantive written material used for preparing applicants for initial RO and SRO licensing. The written material should include learning objectives, if available, and the details presented during lectures, rather than outlines. Training materials should be identified, bound, and indexed. Training materials that include the following should be provided:

   System descriptions including descriptions of all operationally relevant flow paths, components, controls, and instrumentation. System training material should draw parallels to the actual procedures used for operating and to the applicable system.

   Complete and operationally useful descriptions of all safety-system interactions, secondary interactions under emergency and abnormal conditions, including consequences of anticipated operator error, maintenance error, and equipment failure.

   Training material used to clarify and strengthen understanding of emergency operating procedures.

2. Complete Procedure Index (including temporary procedures).

3. All administrative procedures as applicable to reactor operation or safety.

4. All integrated facility procedures, normal or general operating procedures and procedures for experiments.

5. All emergency procedures, emergency instructions, abnormal or special procedures.

6. Standing orders or procedures changed by reactor supervision and important orders or changes that are safety related and may supersede the regular procedures.

7. Applicable procedures (procedures that are run frequently).

8. Fuel-handling and core-loading procedures and initial core-loading procedures, when appropriate.

9. Any annunciator/alarm procedures, as applicable.


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11. Emergency plan implementing procedures.
12. Technical specifications and interpretations, if available.
13. System operating procedures, including experiments.
14. Piping and instrumentation diagrams, electrical single-line diagrams, or flow diagrams, as applicable.
15. Technical data book, and/or facility curve information as used by operators and facility precautions, limitations, and set points for the facility.
16. Questions and answers specific to the facility training program, which may be used in the written or operating examinations (voluntary by facility licensee).
17. Additional material as requested by the examiners to develop examinations that meet the requirements of the Non-Power Reactor Examiner Standards and Regulations.

The above reference material should be approved final issues and so marked. If a facility has not finalized some of the material, the NRC chief examiner should verify with the facility that the most complete, up-to-date material is available and that agreement has been reached with the licensee for limiting changes before the administration of the examination.
ENCLOSURE 2

ADMINISTRATION OF REQUALIFICATION EXAMINATIONS

1. The reference material will be reviewed by the chief examiner.

2. A single room shall be provided for the written examination. The location of this room and supporting rest room facilities shall be such as to minimize contact with other facility personnel for the duration of the examination.

3. Minimum spacing is required to ensure examination integrity and will be evaluated by the chief examiner. Minimum spacing consists of one examinee per table and a 3-foot space between tables. No wall charts, models, and/or other training materials shall be present in the examination room.

4. Copies of reference material for the written examination shall be provided for each examinee. The reference material will be reviewed by the chief examiner and will consist of technical specifications, operating/abnormal procedures, administrative procedures, and emergency plans as available to the facility operators.

5. An attempt will be made to distinguish between RO and SRO knowledge and abilities to the extent that such a distinction is supported by the facility training materials.

6. Prudent scheduling of the activities for examination week is important to help alleviate undue stress on the operators. Your training staff and the chief examiner should work very closely in formulating a schedule that does not result in excessive delays of individuals being administered their examination.
ENCLOSURE 3

NRC RULES AND GUIDANCE FOR EXAMINEES

1. Use black ink or dark pencil only to facilitate legible reproduction.

2. Print your name in the blank provided on the cover sheet of the examination.

3. Fill in the date on the cover sheet of the examination, if necessary.

4. Answer each question on the answer sheets.

5. The point value for each question is indicated in parentheses after the question.

6. If parts of the examination are not clear with respect to their intent, ask questions of the examiner only.

7. You must sign the statement on the cover sheet that indicates the work on the examination is your own and that you have not received or been given any assistance in completing the examination. This must be signed after the examination has been completed.

8. Rest room trips are to be limited and only one examinee at a time may leave. You must avoid all contact with anyone outside the examination room to avoid even the appearance or possibility of examination compromise.

9. Cheating on the examination would result in a revocation of your license and could result in more severe penalties.

10. Each section of the examination is designated to take approximately 60 minutes to complete. You will be given 3 hours to complete the examination.

11. When you are finished and have turned in your completed examination, leave the examination area.
ENCLOSURE 4

PRE-EXAMINATION SECURITY AGREEMENT

I __________________ agree that I will not knowingly divulge any
information concerning the requalification examination for
________________________ to any unauthorized persons.

__________________________/________
Signature Date

POST-EXAMINATION SECURITY AGREEMENT

I __________________ did not, to the best of my knowledge, divulge
any information concerning the examination administered on
________________________ to any unauthorized persons.

__________________________/________
Signature Date
1. If the NRC examiner is a visitor, escort responsibility for ensuring compliance with safety, security, and radiation protection procedures is the responsibility of the facility.

2. Facility equipment should not be operated unless specifically allowed by procedure, management direction, standing order, routine operating procedures, or other administrative allowances. If equipment operation is specifically prohibited, nothing the facility or NRC examiner says or asks will be intended to violate that principle.

3. If clarification of questions is needed during the walk-through, there should be no hesitation to request that the examiner reword or clarify the question.

4. The examiner will be taking notes throughout the test to document operator performance. Frequently an examiner will stop questioning for this purpose. The amount of notetaking is not dependent upon the operator’s level of performance. The examiner must document satisfactory as well as less than satisfactory performance.

5. The operating test is considered "open reference." The reference material in the facility/control room that is normally available to operators is available, including calibration curves, previous log entries, piping and instrument diagrams, calculation sheets and procedures. However, operators are responsible for knowing from memory the immediate actions of emergency and other procedures as appropriate to the facility.

6. The operating test has been planned for approximately 90 minutes in length. However, there is no specific time limit. The examiner will take whatever time is necessary to cover the areas selected, in the depth and scope required. There will be a minimum of 5 tasks evaluated.

7. The examiner will explain what tasks are to be completed, which steps to simulate or discuss and provide initial conditions. The operator is to proceed with completing the task as if directed by facility procedures and/or shift supervision. During the task the examiner will supply the necessary facility conditions and/or parameters needed to simulate the task. The operator should explain each step of the task to the examiner before doing it.
8. The examiner is not allowed to reveal the results of the examination at its conclusion.

9. The NRC examiner may ask clarifying questions of the operator at the end of each task. To the extent possible and reasonable, these questions will be asked via the facility evaluator.

10. The NRC examiner will indicate to the operator that no aspects of the examination should be discussed with any other examinees until the conclusion of the examination.

11. The operator may request a break at any time during the operating test.
Name: ____________________________ License Number: ________________

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<th>Oral Questions Number/Correct</th>
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Control Console Reactivity

Response to Abnormal Event

Response to Emergency

In-Facility Evolution

Any Task

Totals

Percentage: __________________

Overall Evaluation: __ Satisfactory >=80%  >=70%

____ Unsatisfactory

Facility Examiner: ___________________________ Date: ____________

NRC Chief Examiner: ___________________________ Date: ____________

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INSTRUCTIONS TO CANDIDATE:

Answers are to be written on the answer sheets provided. Attach all answer sheets to the examination. Points for each question are indicated in parentheses for each question. A 70 percent overall is required to pass the examination.

Examinations will be picked up 3 hours after the examination starts.

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<th>% OF CATEGORY VALUE</th>
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<th>% OF CANDIDATE'S TOTAL</th>
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All work done on this examination is my own. I have neither given nor received aid.

Candidate's Signature ____________________________

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# Non-Power Reactor Requalification Results Summary Sheet

**Facility:**

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**Examiners:**

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*Privacy Act Information - For Official Use Only*

Examiner Standards: 23 of 24

Rev. 1, 06/01/95
INDIVIDUAL REQUALIFICATION EXAMINATION REPORT

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EXAM SUMMARY

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| NO. CORRECT TASKS | OF | % |
| NO. QUES. CORRECT | OF | % |

NRC EXAMINER RECOMMENDATIONS

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SECTION CHIEF REVIEW

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Examiner Standards 24 of 24
Rev. 1, 06/01/95
A. PURPOSE

The NRC staff should use the procedures herein for processing license renewal applications, requests for administrative reviews and hearings by 10 CFR Part 55 licensees in connection with failures of NRC-conducted requalification examinations, and denials of applications for license renewal.

B. BACKGROUND

The renewal license application differs in some respects from the initial license. To address these differences, the staff is establishing the procedures herein for processing licensee's renewal application and requests for administrative reviews and hearings for the denial of license renewal.

C. PROCEDURE FOR RESPONDING TO THE RESULTS OF NRC-CONDUCTED REQUALIFICATION EXAMINATIONS

1. Passing an NRC-Conducted Requalification Examination

If a licensee passes all portions of the requalification examination, he or she will be so informed by the HOLB staff using Attachment 1.

2. Failure of Written Examination Section(s)

If one or two sections are failed, but an overall passing grade of 70 percent or better is attained, the facility would determine the appropriate corrective action and retest the operator on the failed section(s). No further NRC involvement is necessary.

3. Failing an NRC-Conducted Requalification Examination
   a. If a licensee fails any part of an NRC-conducted requalification examination, the facility licensee is expected to remove those licensees who failed the requalification examination from licensed duty, and take corrective action consistent with the provisions of its requalification program before returning the licensees to licensed duty.
   b. HOLB will inform the licensee of the results of the requalification examination using Attachment 2, "Requalification Examination Failure Letter," or Attachment 3, "Requalification Examination Second Failure Letter," as appropriate. Upon receiving the failure notification, the licensee has 20 days in which to request an informal review of the portion of the
examination that was failed. The licensee may submit the request for reconsideration to the Director, Division of Reactor Controls and Human Factors (DRCH), U. S. Nuclear Regulatory Commission, Washington, D. C. 20555. Note 5 provides for additional information on the requirements for supporting documentation.

c. Although the regulation (10 CFR 55.57(b)(2)(iv)) that requires an operator to pass an NRC-administered requalification examination as a prerequisite for license renewal was deleted effective March 11, 1994, the license of any operator who failed to pass any NRC-conducted requalification examination, before or after the effective date of the rule, will not be renewed without some level of NRC involvement in the retesting process. The amount of NRC involvement may include actually conducting the retest in accordance with the applicable Examiner Standard(s), inspecting the facility licensee as it retests the operator, or simply reviewing an examination prepared by the facility licensee. HOLB will determine the appropriate level of involvement on a case-by-case basis depending on the quality of the facility licensee’s program. As long as the operator submits a timely renewal application, the term of the operator’s license will continue until the renewal requirements are satisfied or until the operator has failed three NRC-conducted examinations as discussed in Section C.2.e.

d. The NRC will normally conduct a second (first retake) examination approximately 6 months after issuing the first failure notification in accordance with Section C.2.b of this standard, and will concentrate on the areas in which the licensee exhibited deficiencies.

e. The NRC will conduct a third (second retake) examination approximately 6 months after issuing the failure notification in accordance with Section C.2.b of this standard. The third examination will be a comprehensive requalification examination.

If a licensee fails a third requalification examination, the NRC will review the licensee’s performance and the facility licensee’s training program. The third failure may be grounds for suspending or revoking the licensee’s license. If a licensee has an application pending for license renewal with the NRC at the time of a third requalification failure, that failure will provide the basis for denying the application. Notification of the licensee will be handled on a case-by-case basis and coordinated through HOLB.
D. MAINTAINING MEDICAL STANDARDS FOR LICENSEES

1. Temporary Disability

If a licensee is temporarily unable to meet medical standards but is expected to meet those standards again in the future, the facility licensee may administratively classify that operator's license as "inactive" until the licensee is once again certified to meet all medical standards by the facility licensee. The facility licensee need not notify the NRC nor request a conditional license for the temporary disability provided the licensee is administratively prevented from performing licensed duties during the period of his or her temporary disability. If the disability extends beyond the date of license expiration, the licensee may apply for timely license renewal in accordance with 10 CFR 55.55(a) and 10 CFR 55.57(a). The facility licensee should document the nature of the licensee's temporary disability on the medical certificate and submit a revised certificate to the NRC after the physician determines that the licensee meets the requirements of 10 CFR 55.33(a)(1). The NRC will not renew the operator's license until it finds that all of the conditions specified in 10 CFR 55.57(b) are satisfied.

2. Permanent Disability

If the facility licensee determines that a licensee's medical condition is permanently disqualifying in accordance with Section 5.3 of ANSI/ANS 3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," the facility licensee shall notify the NRC within 30 days of learning of the diagnosis (see 10 CFR 50.74 and 55.25).

E. PROCESSING LICENSE RENEWAL APPLICATIONS

If the licensee wishes to renew the license, he or she must comply with the requirements of 10 CFR 55.57(a).

- The licensee must submit NRC Forms 398 and 396 not less than 30 days before the date of expiration of the license. In accordance with 10 CFR 55.55(b), if the licensee files a proper application for renewal at least 30 days before the date of expiration, the license shall not expire until the application for renewal has been denied or a new license has been issued. If a licensee is waiting to be given a reexamination after failing an NRC-conducted requalification examination, his or her license will be extended under the timely application provisions of 10 CFR 55.55(b) until the NRC makes a renewal decision.

The staff may allow for transit time and accept a license renewal application received 25 days before the license expiration date, provided all signatures on NRC Forms 398 and 396 are dated before the 30-day timely renewal cutoff date. The submittal will not be considered
timely if it is received less than 25 days before the date of license expiration unless positive evidence of receipt (e.g., postmark or docketing stamp) by the U.S. Postal Service or the NRC is available. If the application is received less than 25 days before the date of license expiration and too late for processing in the HOLB office, the license shall expire on the expiration date. A new license may be issued when processing of the application is completed.

- The licensee will complete NRC Form 398, including the licensee’s experience under the current license, the approximate number of hours the licensee spent on operating shifts, and the date and results of the applicant’s most recent NRC-conducted requalification examination, if taken. The senior management representative on site shall provide evidence that the licensee has safely and competently discharged his or her license responsibilities and satisfactorily completed the facility’s approved requalification program by signing Item 19.c on Form 398.

- The facility licensee must certify on NRC Form 396 that a physician has performed the medical examination (within the previous two years) as required by 10 CFR 55.21 and submit that form along with NRC Form 398.

The staff will approve the application and renew the license if it finds that the conditions in 10 CFR 55.57(b) are satisfied.

If the staff determines that the renewal applicant does not meet the requirements of 10 CFR 55.57, it shall inform the facility licensee of the deficiencies and request supplemental information required to make a relicensing decision be forwarded by the licensee to the NPRS within 20 days. If, after evaluating the supplemental information, the staff still concludes that the applicant does not meet the requirements for license renewal, it shall issue a proposed denial letter to the licensee following the procedure in section F of this standard.

F. PROCEDURE FOR DENYING AN APPLICATION FOR LICENSE RENEWAL

If the staff concludes after reviewing any additional information supplied by the licensee, or if the licensee declines to supply additional information, that the application is still inadequate for license renewal, the licensee will be issued a proposed denial of the license renewal application using Attachment 4.

Within 20 days of the date of the letter of notification of proposed denial, the licensee may exercise one of the following options:

1. Submit a written request for the NRC to review the application. Such a request should be sent to the Director, Division of Reactor Controls and Human Factors, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, and should include the reasons for the review request and supporting documentation as applicable. Note 5 provides for additional information on the requirements for supporting documentation.
2. Submit a written request for a hearing pursuant to 10 CFR 2.103(b)(2). A hearing request is required to be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Assistant General Counsel for Hearings, Office of General Counsel, at the same address.

If the licensee exercises option (1) and the staff sustains its denial of the application, the Director, DRCH will so inform the licensee using Attachment 5. The applicant has the option at this time to request a hearing pursuant to 10 CFR 2.103(b)(2).

G. PROCEDURE FOR OVERTURNING REQUALIFICATION EXAMINATIONS OR RENEWAL DENIALS

If, upon conducting a hearing or an informal review, the staff reverses its decision regarding the failure of a requalification examination or application denial, the staff will take one or more of the following actions, as appropriate:

1. reinstate the license;
2. allow the licensee to renew the license pursuant to 10 CFR 55.57, if all other requirements are satisfied; or
3. allow the licensee to perform licensed duties when he or she has successfully completed the facility's requalification program and the provisions of 10 CFR 55.53(e) or (f).

If, upon conducting a hearing, the staff reverses its decision regarding the failure of the requalification examination, the staff will inform the licensee that he or she has passed the examination using Attachment 1.

If, upon conducting a hearing, the staff reverses its denial of a licensee's renewal application, the licensee will be eligible for license renewal pursuant to 10 CFR 55.57 if all other requirements which were not at issue in the hearing are satisfied.

H. NOTES

1. Letters informing a licensee of a proposed denial or examination failure must be signed by a branch chief or higher. In the event of an appeal, a copy of DRCH's correspondence will be distributed to HOLB for tracking purposes.
2. A copy of the correspondence sent to the licensee as a result of this process will be provided the facility licensee's representative authorized to sign the renewal application.
3. All examination failures or denial correspondence sent to the licensee should be sent by certified mail with return receipt requested.
4. It is inappropriate to ask the facility licensee to reassess the need for a licensee's license while conducting an informal review or hearing.

5. Requests for informal reviews by the NRC must (a) list the items for which additional review is being requested and (b) include documentation supporting the contentions made by the licensee. The package containing the supporting documentation for the review and the review request must be mailed or delivered to the Director's office (DRCH) within 20 days of the date of the failure or denial notification. The DRCH staff should complete the review within 45 days of receiving the package. The staff will review requests using the guidance in ES-502N.

ATTACHMENTS/FORMS:

Attachment 1, "Requalification Examination Pass Letter"
Attachment 2, "Requalification Examination Failure Letter"
Attachment 3, "Requalification Examination Second Failure Letter"
Attachment 4, "Renewal Application Denial Letter (HOLB)"
Attachment 5, "Renewal Application Denial Letter (DRCH)"
Docket No. 55-(Number)

(Applicant Name) (Street Address) City, State Zip)

Dear (Name):

I am writing you to inform you that you passed the requalification written examination and operating test conducted by the U.S. Nuclear Regulatory Commission (NRC) on (date). Enclosed is a copy of your Individual Requalification Examination Report (Form ES-601N-5) summarizing the results of your examination. Your facility training department has copy of the master answer key.

If you have a question, please contact (Name) at (number).

Sincerely,

(HOLB Branch Chief)

cc: (Facility-authorized representative who signs NRC Form 398)
Docket No. 55-(Number)
(Applicant Name) (Street Address) (City, State Zip)

Dear (Name):

I am writing to inform you that you did not achieve an acceptable score on the requalification (written examination and/or operating test) conducted by the U.S. Nuclear Regulatory Commission (NRC) on (date). Enclosed is a copy of the results indicating the area(s) in which you exhibited deficiencies. Your facility training department has a copy of the master answer key.

This failure places you in the same status as if you had failed a facility-conducted requalification examination. Therefore, you are subject to the requirements set forth in the NRC-approved requalification program for the facility for which you are licensed and must meet those requirements prior to resuming licensed duties. The NRC will conduct a second requalification examination in the areas in which you exhibited deficiencies.

If you believe an error was made in grading your examination, you may request within 20 days of the date of this letter that the NRC informally regrade the examination. Requests for informal regrade should be sent to the Director, Division of Reactor Controls and Human Factors, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. In the request, please state the items you wish to have reviewed and provide supporting documentation as applicable.

If you have any questions, please contact (name) at (number).

Sincerely,

(HOLB Branch Chief or above)

cc: (Facility authorized representative who signs NRC Form 398)

CERTIFIED MAIL-RETURN RECEIPT REQUESTED
Docket No. 55-(Number)
(Applicant Name) (Street Address) (City, State Zip)

Dear (Name):

This is to inform you that, based on the grading of the NRC-conducted requalification (written examination and/or operating test) taken on (date), you did not achieve an acceptable score. Enclosed is a copy of the results indicating the area(s) in which you exhibited deficiencies. Your facility training department has a copy of the master answer key.

This failure places you in the same status as if you had failed an facility-conducted requalification examination. Therefore, you are subject to the requirements set forth in the NRC-approved requalification program for the facility for which you are licensed and you must meet those requirements prior to resuming licensed duties. The NRC will conduct a third requalification examination that will be comprehensive in scope.

If you believe an error was made in grading your examination, you may request within 20 days of the date of this letter that the NRC informally regrade the examination. Requests for informal regrade should be sent to the Director, Division of Reactor Controls and Human Factors, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. In the request, please state the items you wish to have reviewed and provide supporting documentation as applicable.

If you have any questions, please contact (name) at (number).

Sincerely,

(HOLB Branch Chief or above)

cc: (Facility authorized representative who signs NRC Form 398)

CERTIFIED MAIL-RETURN RECEIPT REQUESTED
Docket No. 55-(Number)

(Applicant Name) (Street Address) (City, State Zip)

Dear (Name):

I am writing to inform you that your renewal application for a (senior) reactor operator license submitted in connection with the (facility name) does not demonstrate your eligibility for license renewal for the following reason(s): (HOLB to discuss deficiencies and applicable part(s) of the Examiner Standards and 10 CFR Part 55 that apply.)

If you do not accept this proposed denial, you may exercise one of the following options within 20 days of the date of this letter.

1. Request reconsideration of the application denial by submitting a request to the Director, Division of Reactor Controls and Human Factors, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, stating the reasons for the request and providing supporting documentation as applicable. If the proposed denial is upheld, you may then request a hearing pursuant to 10 CFR 2.103(b)(2).

2. Request a hearing pursuant to 10 CFR 2.103(b)(2). To make this request, you must submit a written request for a hearing to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Assistant General Counsel for Hearings, Office of the General Counsel, at the same address.

If you have any questions, please contact (name) at (number).

Sincerely,

(HOLB Branch Chief or above)

cc: (Facility authorized representative who signs NRC Form 398)

CERTIFIED MAIL-RETURN RECEIPT REQUESTED
Dear (Name):

I am writing to inform you that the U.S. Nuclear Regulatory Commission (NRC) has reviewed the proposed denial of your renewal application for a (senior) reactor operator license. Upon reviewing the information that has been submitted, the NRC has denied your renewal application.

(DRCH to discuss deficiencies and applicable part(s) of the Examiner Standards, and 10 CFR Part 55 that apply.) When you have met these requirements, you may submit another application to the appropriate regional office.

If you do not accept this denial, you may, within 20 days of the date of this letter, request a hearing pursuant to 10 CFR 2.103(b)(2). To make this request, you must submit a written request for a hearing to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D. C. 20555, with a copy to the Assistant General Counsel for Hearings, Office of the General Counsel at the same address.

If you have any questions, please contact (name) at (number).

Sincerely,

(Director, Division of Reactor Controls and Human Factors Office of Nuclear Reactor Regulation or above)

cc: (Facility authorized representative who signs NRC Form 398)

CERTIFIED MAIL-RETURN RECEIPT REQUESTED
**Non-Power Reactor Operator Licensing Examiner Standards**

**Abstract**

The Non-Power Reactor Operator Licensing Examiner Standards provide policy and guidance to NRC examiners and establish the procedures and practices for examining licensees and applicants for NRC operator licenses pursuant to Part 55 of Title 10 of the Code of Federal Regulations (10 CFR Part 55). They are intended to assist NRC examiners and facility licensees to better understand the examination process and to ensure the equitable and consistent administration of examinations to all applicants. These standards are not a substitute for the operator licensing regulations and are subject to revision or other internal operator examination licensing policy changes. As appropriate, these standards will be revised periodically to accommodate comments and reflect new information or experience.