

A. PURPOSE

This standard provides instructions for facility licensees and applicants to prepare and the NRC to review initial licensing applications. It also discusses the experience, training, education, and certification requirements and guidelines that an applicant should satisfy before being allowed to take an NRC reactor operator (RO), senior reactor operator (SRO), or limited senior reactor operator (LSRO) licensing examination.

B. BACKGROUND

In accordance with 10 CFR 55.31(a)(4), as amended on March 25, 1987, a license applicant must provide evidence that he or she has successfully completed the facility licensee's requirements to be licensed as an RO or SO. An authorized representative of the facility licensee shall certify this evidence on the license application; the required certification must include the details of the applicant's qualifications, training, and experience. In lieu of these details, the Commission may accept certification that the applicant has successfully completed a Commission-approved training program that is based on a systems approach to training (SAT) and uses a simulation facility that is acceptable to the Commission.

Revision 2 of Regulatory Guide (RG) 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," which was published in conjunction with the 1987 rule change, provided guidance on an acceptable method of implementing this regulation. However, the NRC staff had reviewed¹ the industry's licensed operator training program experience guidelines in effect at the time of the 1987 rule change and determined that they were equivalent to the baseline experience criteria of RG 1.8, Revision 2. Consequently, as indicated in the statement of consideration for the 1987 rule change, a facility licensee's training program would be considered approved by the NRC when it is accredited by the National Nuclear Accrediting Board (NNAB).

On March 19, 1987, Generic Letter (GL) 87-07, "Information Transmittal of Final Rulemaking for Revisions to Operator Licensing - 10 CFR Part 55 and Conforming Amendments," informed facility licensees that they had the option of substituting an accredited, SAT-based program for their operator training program previously approved by the NRC. The GL indicated that this option may be implemented upon written notification to the NRC and that it did not require any staff review. The GL also noted the NRC's expectation that facility licensees would update their licensing basis documents (e.g., their final safety analysis reports (FSARs) and technical specifications (TSs)), as necessary, to conform with their accredited program status.

In November 1987, the NRC published NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, Part 55 on Operators' Licenses," which reiterated and clarified the NRC staff's expectations regarding

¹ This review was conducted pursuant to the Commission's continued endorsement of the industry's accreditation process first conferred in the NRC's Final Policy Statement on Training and Qualification of Nuclear Power Plant Personnel (50 FR 11147; March 20, 1985).

Section 55.31(a), Revision 2 of RG 1.8, accredited training programs, and the need for facility licensees to update their licensing basis documents per 10 CFR 50.71(e). NUREG-1262 reminded facility licensees that Revision 2 of RG 1.8 would go into effect on March 31, 1988. This NUREG also noted that facilities having NNAB accredited license training programs did not need to meet the guidance in Revision 2 of RG 1.8.

In summary, the NRC has not changed its requirements or position with regard to license eligibility for ROs and SOs since 1987. RG 1.8 (Revision 2 or 3) and the NANT's guidelines for education and experience (those that were in effect in 1987 or those that were issued in January 2000) outline acceptable methods for implementing the Commission's regulations in this area. Methods different from those set out in RG 1.8 (Revision 2 or 3) or the NANT's guidelines may be acceptable if a facility licensee provides an adequate basis for such a finding.

The staff encourages all facility licensees to review their requirements and commitments related to RO and SO education and experience and to update their documentation (e.g., FSAR, TS, and training program descriptions) to enhance consistency and minimize confusion.

When a facility licensee's licensed operator training program description or licensing basis documents contain education and experience requirements that are more restrictive than either Revision 3 of RG 1.8 or the current NANT guidelines, the most restrictive requirements will continue to apply pending the initiation of action by the licensee to amend these requirements; any required TS changes would be considered administrative in nature.

Operator license applicants and facility licensees must provide the NRC with sufficient information to enable it to determine whether to grant or deny the applications. However, some facility licensees did not respond to GL 87-07 and/or failed to update their licensing basis documents to eliminate inconsistencies and contradictions. This has made it difficult for the NRC staff to determine whether some license applicants have successfully completed their facility licensee's requirements to be licensed as an RO or SO. The fact that every facility licensee has voluntarily obtained and periodically renewed the accreditation of its licensed operator training program suggests that every facility licensee is implementing the education and experience guidelines endorsed by the NNAB. The NRC staff understands that the current version of those guidelines are outlined by the National Academy for Nuclear Training (NANT)² in its "Guidelines for Initial Training and Qualification of Licensed Operators,"³ (NANT 2000 guidelines) which were issued in January 2000.

² The NANT operates under the auspices of the Institute of Nuclear Power Operations (INPO). It integrates the training efforts of all U.S. nuclear utilities, the activities of the NNAB, and the training-related activities of INPO.

³ The NRC staff has reviewed the NANT guidelines and considers them to be equivalent to the NRC's guidelines in Revision 3 of Regulatory Guide (RG) 1.8, which was published in May 2000. RG 1.8 now endorses American National Standards Institute/American Nuclear Society (ANSI/ANS) 3.1-1993, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants," with certain clarifications, additions, and exceptions. It replaces Revision 2 of RG 1.8, which was issued in conjunction with the 1987 amendment to 10 CFR Part 55 and endorsed the 1981 revision of the same industry standard.

Consequently, unless otherwise informed by a facility licensee, the NRC believes that the education and experience guidelines described in the NANT 2000 guidelines are the facility licensee's education and experience requirements to be licensed as an RO or SO.

In an effort to clarify the situation, the NRC staff has revised NRC Form 398 to make it clear that when a facility licensee certifies, pursuant to 10 CFR 55.31(a)(4), that an applicant has successfully completed a Commission-approved, SAT-based training program, it means that the applicant meets or exceeds the minimum education and experience guidelines currently outlined by the NANT (and by extension, Revision 3 of RG 1.8). Facility licensees can use revised NRC Form 398 to document any exceptions or waivers that the applicant has taken from the baseline education and experience criteria outlined by the NANT. In recognition that the only significant difference between Revision 3 of RG 1.8 and the current accreditation guidelines pertains to certified instructors seeking an SO license, those applicants can use the revised NRC Form 398 to document the details of their experience. This will minimize the potential for misunderstanding and the need to seek additional information.

C. RESPONSIBILITIES

The regulatory requirements associated with the license application process are detailed in Subpart D, "Applications," of 10 CFR Part 55. The medical requirements for license applicants and licensed operators appear in Subpart C, "Medical Requirements," of 10 CFR Part 55. These requirements should be referred to as necessary when preparing and reviewing license applications.

1. Applicant/Facility Licensee

- 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. Applicants and facility licensees should pay particular attention to the instructions and note relating to Item 12. Additional instructions regarding waivers of training, experience, and examination requirements are provided in ES-204.

If the applicant is reapplying after a license denial, 10 CFR 55.35 applies, and the applicant must complete and submit a new Form 398. The applicant may file the second application two months after the date of the first final denial, a third application six months after the date of the second final denial, and successive applications two years after the date of each subsequent denial. Each new Form 398 shall describe the extent of the applicant's additional training since the denial and shall include a certification by the facility licensee that the applicant is ready for reexamination.

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. Such waivers are limited to the first reapplication and must be requested within one year of the date of the failed examination. Refer to ES-204 for a more detailed discussion of this and other waiver criteria.

The medical data in support of NRC Form 396 are normally good for six months from the date of the medical examination. If more than 6 months have passed since the date of an RO or SRO instant applicant's medical examination, the facility licensee shall certify in writing that the applicant has not developed any physical or mental condition that would be reportable under 10 CFR 55.25. If the time since any applicant's last medical examination is expected to exceed 24 months before the licensing action is completed, the applicant shall be reexamined by a physician and the facility licensee shall recertify the applicant's medical fitness on NRC Form 396 before the NRC regional office issues the license.

If an applicant is reapplying after withdrawing a previous application or accepting a final license denial, he or she may request a waiver of a medical reexamination by checking Item 4.f.4 on NRC Form 398. The time since the last medical examination can not exceed 24 months and the applicant must certify in Item 17, "Comments," of the form that he or she has not developed any physical or mental condition that would be reportable under 10 CFR 55.25.

- b. Each applicant (except those applying for an LSRO license) must satisfactorily complete the NRC's generic fundamentals examination (GFE) section of the written operator licensing examination for the applicable vendor. Refer to ES-205 for more information on the GFE program.

Applicants do not need to take the GFE if they were previously issued an RO or SRO license or an instructor certificate based on a site-specific written examination (on the same type of facility) that was administered between February 1982 and November 1989 and included the material covered by the GFE. Enter the date of the examination in Item 4.g on NRC Form 398 and an explanation in Item 17; a waiver is not required.

- c. As noted in ES-201, the facility licensee should submit preliminary, uncertified license applications and medical certifications for review by the NRC regional office at least 30 days before the examination date. This will permit the NRC to make preliminary eligibility determinations, process the medical certifications, evaluate any waivers that might be appropriate, and obtain additional information, if necessary, while allowing the facility licensee to finish training the applicants before the certified applications are due.
- d. The facility licensee's senior management representative on site must certify when an applicant has completed all of the facility licensee's requirements and commitments for the desired license level (i.e., experience, control manipulations, training, and medical). Such certification involves placing a check

in Item 19.b of NRC Form 398, signing the form, and submitting it to the NRC regional office at least 14 days before the examination date.

The facility must also submit a written request that the written examination and operating test be administered to the applicant.

- e. When the NRC regional office denies a license application, the applicant need not accept the proposed denial. In such instances, the applicant may request that the Director, Division of Inspection Program Management (DIPM), Office of Nuclear Reactor Regulation (NRR), 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-502.
- f. The facility licensee is expected to inform the NRC regional office in writing if it desires to withdraw an application before the licensing process is complete.

2. NRC Regional Office

- a. The NRC regional office shall review the preliminary applications as soon as possible after they are received. In that way, the regional office can process the medical certifications, evaluate and resolve any waiver requests in accordance with ES-204, and obtain from the facility licensee any additional information that might be necessary in order to support the final eligibility determinations.

With regard to the medical certifications, the regional office shall forward the applicant's NRC Form 396 and the supporting medical evidence to the NRC physician at the Headquarters Health Unit or the regional contract physician for evaluation any time the examining physician has recommended that the applicant be issued a restricted license or that an existing restriction be changed (by checking block A.4 or A.5 on Form 396). If, on the date of the licensing examination, an applicant's medical certification is still under review by the NRC's physician but there is no reason to expect that the applicant will be disqualified, the NRC regional office should allow the applicant to take the examination, with the understanding that the license will be withheld until the medical certification is approved.

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-502).

Before entering the applicants' data in the operator licensing tracking system (OLTS), the region shall verify that none of the applicants' names appear on the "Restricted Individuals List" found on the NRC's web site at <http://www.internal.nrc.gov/OE/restrict.htm>. The region shall check with the appropriate contact in the Office of Enforcement by telephone or electronic mail to verify that the information on the subject individual is current before using the information on the list to deny a licensing action.

- b. The regional office will verify that the applicant has successfully passed the GFE, if required, and review the data on NRC Form 398 to ensure that it is complete.

Affirmative responses to Items 12.a and 12.b of NRC Form 398, indicate that the applicant has successfully completed a Commission-approved, SAT-based training program that meets the education and experience requirements outlined by the NNAB and that uses a simulation facility acceptable to the Commission under 10 CFR 55.45(b). If the facility licensee checks "yes" in response to these items, the licensee need not complete Items 13, "Training," 14, "Experience," and 15, "Experience Details," of NRC Form 398, except as noted below, and the region may accept the application without further review.

New applications must include the number of significant control manipulations in Item 13.3; at least five are required on the facility for which the license is sought. Every effort should be made to diversify the reactivity and power changes for each applicant. Startups, shutdowns, large load changes, and changes in rod programming are some examples; these changes could be accomplished manually using such systems as rod control, chemical shim control, and recirculation flow control. This requirement can only be waived or deferred under the conditions specified in 10 CFR 55.31(a)(5); situations other than those specified would require an exemption in accordance with 10 CFR 55.11. (Refer to the note following Section D.1.b(2) below for additional information regarding exemptions from this requirement.) For ROs applying for an SRO license, certification that the operator has successfully operated the controls of the facility as a licensed operator shall be accepted as evidence of having completed the required manipulations.

As noted in the instructions for Item 12 on NRC Form 398, certified instructors (who may not have the requisite responsible nuclear power plant experience as defined in RG 1.8, Revision 3) seeking an SRO license must complete Items 14 and 15. Moreover, any exceptions or waivers from the education and experience requirements outlined in the National Academy for Nuclear Training's "Guidelines for Initial Training and Qualification of Licensed Operators" must be explained in Item 17.

If an applicant checks "no" in response to Items 12.a and 12.b, provides information that is not required, or indicates that exceptions or waivers have been taken in Item 17 on NRC Form 398, the region shall review the application against the specific eligibility requirements and commitments applicable to the facility licensee and refer any eligibility issues (e.g., any failure to meet the minimum guidelines established by the NNAB or RG 1.8, Revision 3) and questions to the NRR operator licensing program office for resolution.

If the applicant is reapplying after a previous examination failure and license denial, the region shall evaluate the applicant's additional training to determine if the facility licensee made a reasonable effort to remediate the deficiencies that caused the applicant to fail the previous examination.

- c. The region may determine that the preliminary application is incomplete, that more information is necessary to make a waiver determination, or that the applicant does not meet the requirements in 10 CFR 55.31. In such instances, the region will note the deficiencies and request that the facility licensee supply additional information when it submits the final, certified license application (or sooner if possible).

Conversely, the region may determine that the preliminary application is complete, and the applicant meets the eligibility requirements or is expected to meet the requirements pending the receipt of additional information. In such instances, the region shall enter the applicant's name, docket number, and examination requirements on the examination assignment sheet in accordance with ES-201.

- d. Upon receiving the final, certified license application, the reviewer shall evaluate any new information to ensure that the eligibility criteria are satisfied. If so, the reviewer shall check the "meets requirements" block at the bottom of Form 398, sign and date the form. If necessary, the reviewer shall add the applicant's name and other data to the examination assignment sheet in accordance with ES-201. The reviewer shall also ensure that the assignment sheet accurately reflects any examination waivers that may have been granted in accordance with ES-204.

If the region determines that the applicant still does not meet the eligibility requirements, the regional licensing authority will discuss its decision with the NRR operator licensing program office and notify the applicant in writing that the application is being denied and identify the deficiencies on which the denial is based (Attachment 1). The responsible regional supervisor, or designee, shall check the "does not meet requirements" block at the bottom of Form 398, and shall sign and date the form. The applicant's name shall be stricken from the examination assignment sheet; the applicant shall not be permitted to take the licensing examination until the region determines that he or she meets the eligibility criteria.

In accordance with ES-204, the region may administer a license examination to an applicant who has not satisfied the applicable training or experience requirements at the time of the examination, but is expected to complete them shortly thereafter. Assuming that the applicant passes the examination, the region shall not issue the applicant's license until the facility licensee certifies that all of the requirements have been completed. (Refer to ES-501 for additional guidance.)

D. NRC LICENSE ELIGIBILITY GUIDELINES

Regulatory Guide (RG) 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," describes a method acceptable to the NRC staff for complying with the Commission's regulations with regard to the training and qualifications of nuclear power plant personnel. For

the positions of shift supervisor, senior operator, and licensed operator, Revision 3 of RG 1.8, which was issued in May 2000, endorses the guidelines contained in ANSI/ANS-3.1-1993; specific clarifications, additions, and exceptions are noted in Section C, "Regulatory Position," of RG 1.8. The license eligibility guidelines in RG 1.8, Revision 3, and ANSI/ANS-3.1-1993 are summarized below; refer to those documents for more detailed information. No backfitting is intended or required in connection with the issuance of the revised RG.

As noted in Section B above, the NRC has reviewed the current education and experience guidelines outlined in the National Academy for Nuclear Training's "Guidelines for Initial Training and Qualification of Licensed Operators" and concluded that they are equivalent to the NRC staff guidelines in RG 1.8, Revision 3.

Except as specifically noted below, experience and training are separate aspects of license eligibility. As stated in NUREG-1262 (in response to Question No. 113), a person should meet the experience guidelines before entering the license training program. Time spent in training before entering the license training program may qualify as experience, but time spent in an NRC-approved training program leading up to license eligibility should normally not be double-counted as experience.

1. Reactor Operator

a. Experience

- (1) The applicant should have a minimum of three years of power plant experience, at least one of which should be spent at the nuclear power plant for which the license is sought (preferably in the performance of nonlicensed operator duties) and should not include any of the time spent in the control room as an extra person on shift.
- (2) The applicant should spend at least six months performing plant operational duties as a nonlicensed operator at the nuclear power plant for which the license is sought.

b. Training

- (1) Before being assigned RO duties, the applicant should complete at least three months as an extra person on shift in training for the RO position. This training should include all phases of day-to-day operations and be conducted under the supervision of licensed personnel. This time should not count toward the one-year on-site experience specified in Item D.1(a)(1) above.
- (2) The applicant should complete an RO training program that is established and maintained using a systematic approach to training (SAT).
- (3) The applicant must manipulate the controls of the reactor during five 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 for each applicant. Startups, shutdowns, large load changes, and changes in rod programming are some examples; these changes could be accomplished manually using such systems as rod control, chemical shim control, and recirculation flow control.

[Note: The NRC is preparing a regulatory amendment that, if approved by the Commission, will allow applicants to optionally complete some or all of the required reactivity manipulations on a plant-referenced simulator. While this rulemaking is in progress, the staff is considering requests for exemption from the requirements of §55.31(a)(5) so that a simulation facility may be considered acceptable for completing the requirement on a case-by-case basis. As part of any exemption request, the facility licensee shall provide evidence that the reactivity manipulations are conducted under defined scenario conditions and that simulator fidelity with respect to the current configuration of the reference unit is confirmed before the training session. The staff will consider implementation of ANSI/ANS 3.5-1998 to be sufficient evidence of simulator fidelity to fulfill the experience requirement of §55.31(a)(5) without a need to submit additional information regarding simulator core data and performance testing.]

c. Education

The applicant should have a high school diploma or equivalent.

2. Senior Reactor Operator

a. Experience

- (1) A nonlicensed (i.e., instant SRO) applicant should have a minimum of three years of responsible nuclear power plant experience, as defined in RG 1.8. At least six months of the responsible nuclear power plant experience should be at the plant for which the applicant seeks a license and should not include any of the time spent in the control room as an extra person on shift. A maximum of one year of responsible nuclear power plant experience may be fulfilled by academic or related technical training on a one-for-one basis.
- (2) Applicants for an SRO license who do not hold a bachelor's degree in engineering or the equivalent should have held an operator's license and should have been actively involved in the performance of licensed duties for at least one year or have at least two years in a position equivalent (or superior) to a licensed RO at a military reactor (e.g., propulsion plant watch officer, reactor operator, chief reactor watch, engineering officer of the watch, propulsion plant watch supervisor, and engineering watch supervisor). Maintaining a minimally active operator's license pursuant to 10 CFR 55.53(e) is not sufficient to satisfy this experience guideline.

- (3) During the years of responsible nuclear power plant experience, the applicant should participate in reactor operator activities at power levels greater than 20 percent for at least six weeks.
- (4) The eligibility of equipment operators and non-degreed licensed operator instructors will be evaluated on a case-by-case basis.

b. Training

- (1) Before being assigned SRO duties, the applicant should complete at least three months as an extra person on shift in training for the SRO position. This training should include all phases of day-to-day operations and be conducted under the supervision of licensed personnel. This time does not count toward the six-month on-site responsible experience guideline in Item D.2(a)(1) above. However, any portion of the three months that is spent at or above 20 percent power may also be used to satisfy the experience guideline in Section D.2.a(3).
- (2) If the applicant has not held an RO license at the facility for which a license is sought, the applicant must complete the required control manipulations as discussed in Section D.1.b(3) above.
- (3) The applicant should complete a SAT-based SRO training program.

c. Education

The applicant should have a high school diploma or equivalent.

3. Limited Senior Reactor Operator

a. Experience

The applicant should have three years of responsible nuclear power plant experience that includes active participation in at least one refueling outage at the site for which the license is sought or at a similar facility. Six months of the responsible nuclear power plant experience should be at the site for which the LSRO license is sought or at a similar facility owned by the same facility licensee.

b. Training

The applicant is expected to have satisfactorily completed a SAT-based training program.

c. Education

The applicant should have a high school diploma or equivalent.

4. Cold License Eligibility

Cold examinations are those administered before the unit completes preoperational testing and the initial startup test program as described in the FSAR.

- a. Each applicant must satisfactorily complete the training programs described in Section 13.2 of the FSAR and approved by the NRC. The NRC's review and approval are based on information contained in Section 13.2.1 of the Standard Review Plan (SRP) (NUREG-0800).

Note: These NRC-approved training programs typically require ten startups on a research reactor. This requirement may be waived if the applicant has completed a plant-referenced simulator training program accredited by the Institute of Nuclear Power Operations (INPO).

- b. In lieu of the control manipulations on the facility for which the license is sought (per 10 CFR 55.31(a)(5)), the Commission may accept evidence of satisfactory performance of simulated control manipulations as part of a Commission-approved training program on a simulation facility acceptable to the Commission under 10 CFR 55.45(b).

E. ATTACHMENTS/FORMS

Attachment 1, "Sample Initial Application Denial from Region"

NRC Letterhead

(date)

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

Dear (Name):

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

(Region 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, take one of the following actions:

- You may request that the NRC reconsider the denial of your application by writing to the Director, Division of Inspection Program Management, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 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 request a hearing pursuant to 10 CFR 2.103(b)(2), as described below.
- 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, DC 20555, with a copy to the Associate General Counsel for Hearings, Enforcement, and Administration, Office of the General Counsel, at the same address.

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

Sincerely,

(Regional branch chief or above)

Docket No. 55-(number)cc: (Facility representative who signed the applicant's NRC Form 398)

CERTIFIED MAIL - RETURN RECEIPT REQUESTED