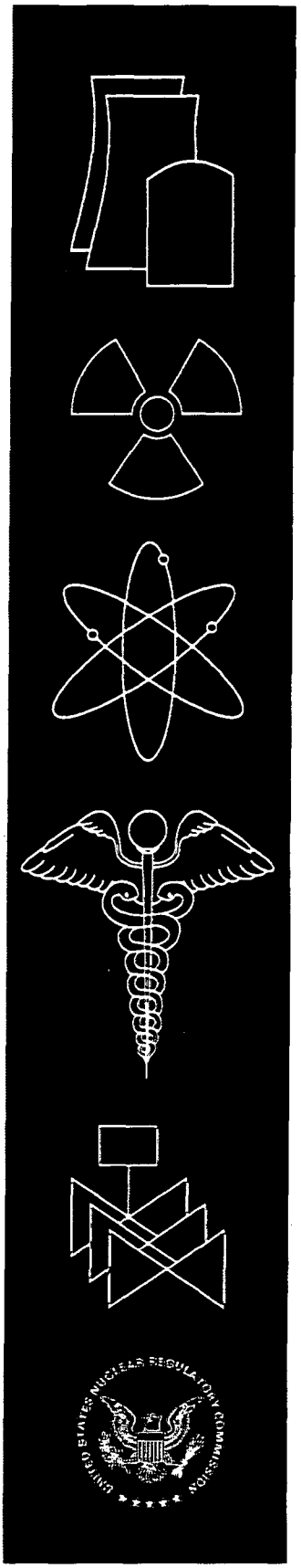

NUREG-1021
Rev. 9, Supp. 1

Operator Licensing Examination Standards For Power Reactors

Draft Report for Comment

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, DC 20555-0001

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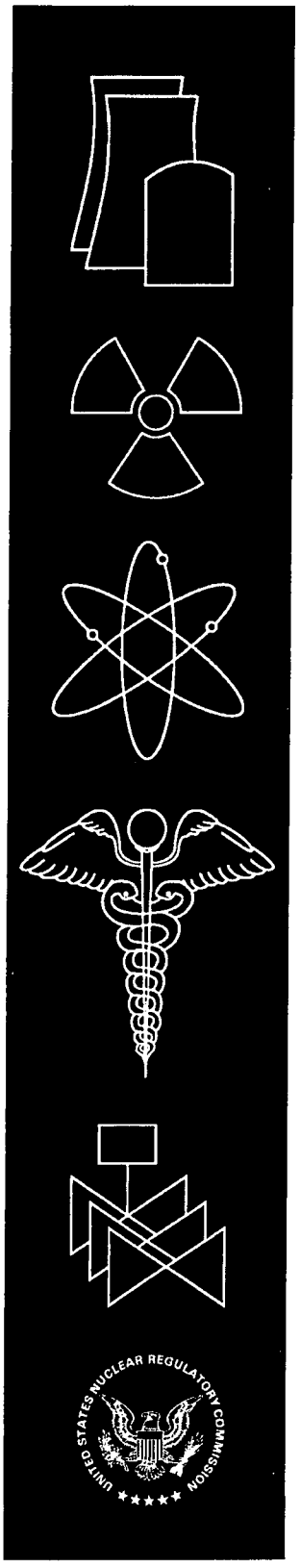

NUREG-1021
Rev. 9, Supp. 1

Operator Licensing Examination Standards For Power Reactors

Draft Report for Comment

Manuscript Completed: April 2007
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Prepared by
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U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

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Any interested party may submit comments on this report for consideration by the NRC staff. Comments may be accompanied by additional relevant information or supporting data. Please specify the report number, NUREG-1021, Revision 9, Draft Supplement 1, in your comments, and send them within 60 days to the following address:

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ABSTRACT

The U.S. Nuclear Regulatory Commission (NRC) publishes NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," to establish the policies, procedures, and practices for examining licensees and applicants for reactor operator and senior reactor operator licenses at power reactor facilities pursuant to Title 10, Part 55, of the *Code of Federal Regulations* (10 CFR Part 55). The related guidance that was previously published in the "Examiners' Handbook for Developing Operator Licensing Written Examinations" (NUREG/BR-0122, Rev. 5, dated March 1990) has been incorporated herein. NUREG/BR-0122 is no longer in effect.

These examination standards are intended to help NRC examiners and facility licensees better understand the processes associated with initial and requalification examinations. The standards also ensure the equitable and consistent administration of examinations for all applicants. These standards are *for guidance purposes* and are not a substitute for the operator licensing regulations (i.e., 10 CFR Part 55), and they are subject to revision or other changes in internal operator licensing policy. Minor policy clarifications that become necessary before the next formal revision of these standards will be promulgated on the NRC's operator licensing Web page at http://www.nrc.gov/reactors/operator-licensing.html.

The NRC issued Revision 9 in July 2004 primarily to (1) improve efficiency by reducing the length of the reactor operator written examination, without sacrificing validity or reliability; (2) clarify and simplify the design of the senior reactor operator written examination; (3) better risk-inform both written examinations; (4) better balance the administrative and systems portions of the walk-through operating test; (5) clarify the grading criteria for the simulator operating test to improve objectivity and ensure proper emphasis on competence; and (6) incorporate guidance that was previously promulgated on the NRC's operator licensing Web page regarding the suppression of inappropriate knowledge and ability (K/A) statements and the conduct of peer checks. The changes are identified with bars in the margins and described in the Executive Summary.

Draft Supplement 1 to Revision 9 is being issued to (1) clarify licensed operator medical requirements, including the use of prescription medications; (2) clarify the use of surrogate operators during dynamic simulator scenarios; (3) clarify the selection process for generic knowledge and ability (K/A) statements; (4) qualify the NRC review of post-examination comments; (5) provide additional guidance for maintaining an active license (watchstander proficiency) and license reactivation; and (6) conform with proposed updates to NUREGs-1122 [and -1123], "Knowledge and Abilities Catalog[s] for Nuclear Power Plant Operators: Pressurized [and Boiling] Water Reactors." The proposed changes are identified in redline and strikeout format.

Revision 9, Supplement 1, will become effective for corporate notification letters issued 60 days after publication of the final revision is noticed in the *Federal Register*. This will provide facility licensees with at least 180 days notice that the examinations will be administered in accordance with the revised policies, procedures, and practices. Facility licensees may make arrangements for earlier implementation by contacting their NRC regional office.

PAPERWORK REDUCTION ACT STATEMENT

The information collections contained in this final regulatory guidance are covered by the requirements of Title 10, Part 55 of the Code of Federal Regulations, which the Office of Management and Budget has approved under OMB control number 3150-0018.

Public Protection Notification

The NRC may neither conduct nor sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

NUREG-1021, REVISION 9, SUPPLEMENT 1, RECORD OF PROPOSED CHANGES

ES-#	NATURE OF THE CHANGE	AFFECTED PAGE(S)
201	Added guidance on procedure "freezes;" reference new attachment.	3, 6, 15, 18
	Added criteria for 30 day separation of written and operating test. Separation not allowed to better prepare applicants.	8
	Revised the Exam Approval Letter (Attachment 5) to include wording that the facility agrees that the examination meets the requirements of NUREG-1021. Added Supplement 1 to letter.	9, 24
	Removed requirement to send list of applicants form (Form ES-201-4) to headquarters.	9
	Added new policy to minimize the use of surrogate operators during the simulator scenario exam.	12
	Updated the OMB clearance date and added Supplement 1 on Attachment 4.	22, 23
	The footnote explaining that the (*)'d items are not applicable to NRC-prepared exams was restored to the form.	26
	Revised attachment numbers throughout ES-201.	7, 15, 19-25
202	Changed wording of availability of forms 396 and 398.	3
	Clarified medical guidance that a RO upgrading to a SRO license does not require a waiver if >6 months since exam. Added allowed waiver for exam delays.	4
	Clarified the submittal of license applications in electronic format, including a follow-on phone call to the region.	6
	Updated Division of Inspection Program Management (DIPM) to Division of Inspection and Regional Support (DIRS).	6
	Changed "Restricted Individuals List" to "Escalated Enforcement Actions Issued to Individuals."	7

NUREG-1021, REVISION 9, SUPPLEMENT 1, RECORD OF PROPOSED CHANGES

ES-#	NATURE OF THE CHANGE	AFFECTED PAGE(S)
202	For new plants, cold license training programs will likely not do start-ups on research reactors. Deleted this wording.	12
	Updated DIPM to DIRS. Added address for express mail.	13
204	Corrected paragraph C.2.g to reference Form ES-201-4, the list of applicants, instead of the old assignment sheet.	3
	Clarified D.1.c to cover delayed exams that may cause medicals to extend beyond 6 months.	3
	For clarity and consistency, revised D.1.c and f to reflect that the region may grant the waiver.	3, 4
205	Updated the title and address for the Chief, Operator Licensing, and DIRS in Attachments 1 & 2.	6, 7, 10
301	Changed administrative topics to line up with the new K/A catalogs.	2, 3, 11, 12
	Added clarifying guidance that JPMs from the past 2 NRC exams must be randomly selected.	10
	Added control room ESF as a required JPM for SRO-U on JPM outline form (Form ES-301-2).	23
	Revised attachment number to conform with ES-201.	4
	If a SRO-I performs in an additional scenario as balance of plant operator (BOP), allow credit for one malfunction as BOP.	26
302	Added new guidance on using surrogate operators only when necessary. Applicants may be exposed to one scenario above the minimum, but not two scenarios above the minimum.	4
401	Moved K/A elimination guidance out of Attachment 2 and into the body of ES-401. Revised K/A sampling guidance for generic K/As, to include changes from new K/A catalogs. Added clarification for developing RO and SRO-only exam questions. Deleted Attachment 2.	4, 5, 6, 14, 16, 17, 22

NUREG-1021, REVISION 9, SUPPLEMENT 1, RECORD OF PROPOSED CHANGES

ES-#	NATURE OF THE CHANGE	AFFECTED PAGE(S)
401	Revised attachment number to conform with ES-201.	2
	Added requirement to include the version number, when noting the required technical reference for each written examination question.	9, 29
	Added new E/APE to Tier 1 of the BWR and PWR outlines (Forms 401-1 and 401-2), for Generator Voltage and Electric Grid Disturbances.	18, 23
	Added column on Form ES-401-9 to track and check bank/modified/new questions.	33, 34
402	Added wording that licensees should submit all applicant post exam comments, provide the docket number to identify which applicant made which comment, and provide a facility position on applicant comments.	6
	Added words that licensees should consider the guidance in ES-403 D.1 prior to submitting post-examination comments.	6
403	Added examples of what types of post-exam comments are likely to be accepted, and what types won't, given the facility and NRC pre-review of any exam.	3
	On post-exam comments, two correct answer choices will not both be accepted correct, if the answer choices conflict with each other.	3, 4
501	Added wording for chief examiners to refer to ES-403 D.1 when reviewing post-exam comments.	4
	Fixed typo, item "f" should be item "d."	8
	Revised attachment numbers to conform with ES-201.	13
	Fixed the typos in the sample license letters; the Energy Reorganization Act of 1974 is PL 93-438.	18, 19
	Updated DIPM to DIRS on Attachment 4. Added address for express mail to license denial letter.	20, 21
502	Updated DIPM to DIRS. Added address for express mail for informal reviews and hearings.	1, 2, 3

NUREG-1021, REVISION 9, SUPPLEMENT 1, RECORD OF PROPOSED CHANGES

ES-#	NATURE OF THE CHANGE	AFFECTED PAGE(S)
601	Revised attachment number to conform with ES-201.	5
	Updated the OMB clearance date and added Supplement 1 to Attachment 2.	19, 20
603	Added requirement that JPMs cannot test solely for simple recall or memorization.	3
605	Clarified the 2 year/24 month allotted time to complete a requal program. Clarified when the biennial requal written exam must be completed.	1
	Added watch standing proficiency guidance - tech spec vs. non tech spec positions, minimum number of SRO watches in an SRO position, re-activation under-direction watches, etc.	3-6
	Clarified the expectations related to medical conditions.	8-10
	Added the wording to specify LSRO no solo license restriction.	9
	Allow ROs to renew license if attending SRO upgrade training in lieu of requal. training	11, 12, 13
	Included electronic submittals as an option for license renewals and medicals. Added follow on phone call to the region.	12
	Updated DIPM to DIRS. Added address for express mail for informal reviews and hearings.	12, 13
701	Due to the elimination of ES-401 Attachment 2, replaced text with Section D.1 of ES-401	2, 7, 10
	Clarified in text that written exams are no more than 30 bank questions, with at least 4 new questions and the rest significantly modified. Made text agree with words on QA sheet, Form ES-701-6.	3
	Eased up on limits for repeating JPMs from previous 2 exams for LSROs. Only check for repeats from last NRC exam, vice previous two NRC exams.	14, 15
	Add * footnote to Form ES-701-5 for NRC-developed examinations.	15
App. C	Added requirement that JPMs cannot test solely for simple recall or memorization, and to refer to ES-602, Attachment 1.	2, 3, 10

eligibility questions with their NRC regional office *before* commencing an initial license training class.

In accordance with 10 CFR 55.40(c), facility licensees who elect to have the NRC prepare, proctor, and grade any portion of their operator licensing examinations shall submit written requests (to the responsible NRC regional office) for those examinations pursuant to 10 CFR 55.31(a)(3). A response to the NRC's annual letter will satisfy this requirement.

b*. In accordance with 10 CFR 55.49, facility licensees and applicants shall not engage in any activity that compromises the integrity of any application, test, or examination that is required by 10 CFR Part 55. Attachment 1 to this examination standard summarizes several examination security and integrity considerations. NUREG-1600, "General Statement of Policy and Procedures for NRC Enforcement Actions," dated May 1, 2000, addresses possible enforcement actions against parties who are subject to the requirements in the regulation (i.e., Part 55 license applicants and licensees and Part 50 licensees).

c. Pursuant to 10 CFR 55.40(b)(2), facility licensees who elect to prepare their own examinations shall establish, implement, and maintain procedures to control examination security and integrity. Attachment 1 discusses a number of examination security and integrity guidelines that may be appropriate for incorporation in those procedures.

d*. All facility and contractor personnel involved with an examination are subject to the restrictions stated in Section D of this examination standard. Any questions regarding those restrictions should be resolved with the NRC chief examiner before granting an individual access to the licensing examination.

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

e*. The facility contact shall submit the required reference materials, examination outlines, and examinations, as applicable, based on the level of facility participation. Form ES-201-1 specifies target due dates for the various materials; the actual dates may be adjusted with prior agreement from the NRC regional office. For the purposes of operator training and examination, the facility licensee may "freeze" the plant procedures at a particular revision in order to facilitate examination development. The facility licensee shall discuss this option with the NRC chief examiner in advance and refer to Attachment 2 for additional guidance on procedure freezes.

f. The examination outlines and examinations shall be prepared in accordance with the guidelines in ES-301, ES-401, and ES-701, as applicable. The proposed outlines and examinations shall cover all portions of the license

should use that information to estimate the required number of NRC examiners and to make preliminary work assignments.

c. The regional office should contact the facility licensee by telephone at least 4 months before the scheduled examinations to reconfirm the expected number of applicants and the examination dates, and to make other preliminary arrangements for developing the examinations. The person who contacts the facility licensee shall discuss the following examination arrangements, as applicable, depending on the facility licensee's level of participation in the examination development process:

- the examination integrity and security requirements and considerations (refer to Attachment 1)
- the guidance related to freezing plant procedure changes (refer to Attachment 2)
- the requirement that an authorized representative of the facility licensee must approve the examination outlines and examinations before they are submitted to the NRC for review
- the need to have the examination outlines delivered to the NRC approximately 75 days before the scheduled examination date
- the need to have the reference materials necessary for the NRC to develop the examination (if applicable; refer to Attachment 3) delivered to the regional office at least 75, but preferably 90, days before the scheduled examination date
- the guidelines for developing, administering, and grading the written examinations, as applicable (i.e., the effective version of ES-401, ES-402, and ES-403, respectively)
- the need to ensure simulator fidelity in accordance with 10 CFR 55.46(c)(1)(I), and to have the simulator and a list of uncorrected performance deficiencies and deviations from the reference plant available at the time of the operating tests
- the guidelines for developing and administering the operating tests (i.e., the effective version of ES-301 and ES-302, respectively)
- the need to have the examinations and the supporting reference materials (refer to Attachment 3) delivered to the NRC regional office approximately 45 days before the scheduled examination date
- the option to submit some sample test items (e.g., 5 to 10 written questions, 1 scenario, and 1 to 2 job performance measures) for preliminary NRC review and comment (this could increase the efficiency of the examination review process by promoting early identification and correction of generic examination development concerns)

- the requirements (refer to 10 CFR 55.31) and guidelines (refer to ES-202) for submitting the license applications

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

d. The NRC regional office shall normally issue a letter confirming the arrangements no later than 120 days before the examination begins. The letter should be addressed to the person at the highest level of corporate management who is responsible for plant operations (e.g., Vice President of Nuclear Operations). Attachment 4 is an example of such a letter; the exact wording may be modified, as necessary to reflect the situation.

e. Approximately 4 months before the scheduled examination, the NRC regional office will assign the required number of examiners to develop, prepare for, and administer the examination as arranged with the facility licensee. The regional office will also designate a chief examiner to coordinate the examination project with the facility licensee and other examiners assigned to the examination. When making assignments, the regional office should consider each examiner's certification status, other examination commitments, possible conflicts of interest (as discussed in Section D of this examination standard), and general availability.

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

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

f. The regional office will evaluate each examination assignment to determine if some or all of the assigned examiners should make a separate preparatory site visit. The purposes of such a visit may include providing examiner orientation, retrieving additional reference material, auditing the accuracy of the license applications per ES-202, or reviewing and validating the examinations. When making a decision, the regional office should carefully weigh the costs and benefits associated with each additional trip to the facility. The regional office should also consider such factors as the experience of the assigned examiners, the quality of the facility licensee's examinations (if applicable), the number of written examinations and operating tests to be validated, and the status of the simulation facility (e.g., is it new or recently upgraded?). In addition, the regional office should consider the alternative of reviewing the written examination(s) and operating test(s) with the facility licensee via telephone (if the examination quality is high) or in the regional office, as well as the alternative of validating the operating test(s) on-site at the beginning of the examination week.

g. Upon receiving the preliminary license applications, approximately 30 days before the examination date, the regional office shall review the applications in accordance with ES-202. In addition, the regional office shall evaluate any waiver requests in accordance with ES-204 to determine if the applicants meet the eligibility criteria specified in 10 CFR 55.31.

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

If any of the facility-developed examination materials (written, walk-through, or simulator) require substantive changes and cannot be made to conform with the examination standards by the end of the designated examination review week, regional management shall consult the NRR operator licensing program office and make a decision whether to proceed with the facility-developed examinations or develop the examinations in-house. If the regional office does not have the resources to ensure that acceptable examinations are prepared by the scheduled administration date, regional management shall negotiate with the facility licensee to reschedule the examinations as necessary. Although it is generally easier to postpone the written examination and focus on the operating tests so that they can be administered on schedule and without affecting examinations at other facilities, regional management may delay either part (written examination or operating test) of an examination for up to 30 days to allow additional time for examination development or to address other scheduling concerns. It is *not* appropriate to delay one part of an NRC examination based on license applicant performance on another part of an NRC examination that has already been administered, or based on applicant performance on facility-administered audit examinations. However, the entire NRC examination may be delayed for other reasons (e.g., applicant readiness) as agreed upon by the regional office. The regional office shall consult the NRR operator licensing program office regarding any delay and notify the facility licensee in writing of the reasons for delaying the examination(s).

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

i. After the chief examiner has verified that the necessary changes and corrections have been made, the responsible supervisor will review and approve the examinations for administration. Before signing the applicable quality checklist (i.e., Form ES-301-3 and/or Form ES-401-6), the supervisor must be satisfied that the examination is acceptable for administration.

After approving the examination and license applications, including resolving all waiver requests, the region will prepare an "Examination Approval Letter"

(in the format of Attachment 5) and a "List of Applicants" (Form ES-201-4). The letter will notify the facility licensee that the NRC has completed its review of the license applications, confirm that both the NRC and the facility licensee agree that the examination meets the guidelines of NUREG-1021, and provide authorization to the facility licensee to administer the written examinations, if applicable. Form ES-201-4 will identify the approved applicants by name, docket number, and type of examination to be administered (e.g., SRO upgrade, SRO-only written, RO written only). All applicants listed on the form will be administered complete examinations (written and operating) as indicated unless waivers have been granted in accordance with ES-204. A copy of Form ES-201-4 will be distributed to all assigned examiners ~~and the NRR operator licensing program office~~; however, because it contains information that is protected by the *Privacy Act*, the form will not be attached to the approval letter, but will be provided separately to the facility licensee.

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

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

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

3. <u>Assigned NRC Examiners</u>

a. When assigned to administer operating tests for the first time at a particular facility, the examiner should inform the chief examiner and the responsible supervisor so that arrangements can be made to conduct an orientation trip to the facility as described in Item C.2.f, if deemed appropriate.

i. As soon as possible after the responsible supervisor has approved the operating tests for administration, the chief examiner shall distribute copies of the scenarios, job performance measures (JPMs), and questions to the other assigned examiners so that they can familiarize themselves with those materials and be better prepared to probe the applicants' deficiencies if required.

j. The chief examiner should work with the designated facility contact to schedule the operating tests to optimize efficiency and the mix of RO and SRO applicants in the crews assembled for the simulator examinations. The chief examiner may elect to make or change the facility licensee's crew assignments; however, crew changes will generally not be made less than 2 weeks before the date on which the examinations are scheduled to begin, so that the affected applicants have some time to adapt to working as a crew. When assembling crews for the simulator examinations, surrogate operators should be used only when they are necessary to complete an operating crew. A facility licensee may not replace license applicants with surrogates solely because the applicants have performed the minimum required number of events or scenarios. If an applicant would be exposed to only *one* additional scenario above the minimum required, a surrogate operator should not be used in place of a license applicant. However, no applicant will be required to participate in *more* than one scenario above the minimum required, in which case, a surrogate operator should be used. If, at the discretion of the chief examiner, it is desired to use surrogate operators contrary to the above guidance, the operator licensing program office should be consulted prior to implementation.

The number of applicants on a crew shall not exceed the number of assigned examiners (i.e., one-on-one evaluations are mandatory), except as noted below. However, if the facility licensee's technical specifications routinely require more than two ROs to be stationed in the control room, the chief examiner may authorize the use of additional surrogates. Only one individual (applicant or surrogate) is allowed to fill a shift supervisor or manager position during the simulator operating test.

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

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

- all on-the-job training, practice, coaching, and sign-offs

- the preparation, review, grading, and evaluation of periodic quizzes, examinations, and simulator exercises (Individuals on the security agreement may prepare and grade the audit examination, subject to an NRC review for test item duplication.)

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

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

E. Attachments/Forms

Attachment 1,	"Examination Security and Integrity Considerations"
Attachment 2,	"Guidelines for Freezing Plant Procedures"
Attachment 3,	"Reference Material Guidelines for Initial Licensing Examinations"
Attachment 4,	"Sample Corporate Notification Letter"
Attachment 5,	"Sample Examination Approval Letter"
Form ES-201-1,	"Examination Preparation Checklist"
Form ES-201-2,	"Examination Outline Quality Checklist"
Form ES-201-3,	"Examination Security Agreement"
Form ES-201-4,	"List of Applicants"

The NRC understands that facility licensees may wish to train and examine their license applicants using the same version of plant procedures. At their discretion, facility licensees may "freeze" plant procedures to a particular revision for purposes of applicant training and examination development (either for facility-prepared examinations or as reflected in the reference materials submitted for NRC-prepared examinations). The NRC does not have specific requirements related to the timing of procedure freezes, but offers the following general guidance and cautions:

- Clearly, the later the procedures are frozen the better, thereby limiting the disparity between training/testing and current plant operations. Alternatively, facility licensees could choose to not freeze procedures at all, but rather track any procedure changes and make adjustments to the training and examinations as required. However, depending on the nature and volume of changes, this alternative could impose a significant additional burden on the facility and NRC examiners to ensure that procedure revisions affecting test items are reconciled prior to exam administration.

- Note that applicants will be exposed to the current version of the procedures when they spend time in the control room. Therefore, freezing procedures for the exam has the potential to confuse applicants, by testing them on a different version of procedures than they have seen. There have been cases in which such confusion contributed to applicants' failure on the written examination, because they based their answers on the wrong version of procedures. If the procedures are frozen, the applicants must have a complete understanding of which version of the procedures the NRC examination is based upon. Note that freezing different procedures at different times would probably just add to applicant confusion.

- Examination authors and NRC reviewers need to consider the implications of the freeze when they develop the examination; for example, the plausibility and correctness of a distractor should not hinge on a procedure change that has not yet been incorporated into the frozen version of the procedure. Another consideration is whether the simulator will support the implementation of both procedure versions - the new one for license holders and the old one for the applicants.

- If changes in the procedures occur after the freeze and before the licensing date, the NRC would expect the facility licensee to provide training to fill the gap; if the changes are significant, the NRC would likely request more information about the nature of such training and testing. In at least one instance, applicants were trained and tested on a new version of the emergency operating procedures (EOPs) that had not yet been implemented in the plant; this eliminated the need to retrain the applicants but prompted the NRC to delay their licensing until the new EOPs went into effect.

The facility contact should discuss the details of and basis for their freeze proposal with their NRC contact when confirming the examination arrangements as discussed in Section C.2.c of ES-201 of NUREG-1021. The chief examiner, in consultation with the regional operator licensing supervisor (and the operator licensing program office, if deemed necessary), will review the facility's proposal and negotiate a mutually acceptable plan and cut-off date before beginning examination development.

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

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

All reference materials provided for the license examinations should be approved, final issues and should be so marked; any personal, proprietary, sensitive, or safeguards information should be marked and submitted in a separate enclosure. If any of the material is expected to change before the scheduled examination date, the facility licensee should reach agreement with the NRC chief examiner regarding changes before the examinations are administered.

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

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

1. Materials used by the facility licensee to ensure operator competency

   a. The following types of materials used to train applicants for initial RO and SRO licensing, as necessary to support examination development:

      - learning objectives, student handouts, and lesson plans

      - system descriptions, drawings, and diagrams of all operationally relevant flow paths, components, controls, and instrumentation

- material used to clarify and strengthen understanding of normal, abnormal, and emergency operating procedures

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

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

b. Questions and answers specific to the facility training program that may be used in the written examinations or operating tests

c. Copies of facility-generated simulator scenarios that expose the applicants to abnormal and emergency conditions, including degraded pressure control, degraded heat removal capability, and containment challenges, during all modes of operation, including low-power conditions (A description of the scenarios used for the training class may also be provided.)

d. All JPMs used to ascertain the competence of the operators in performing tasks within the control room complex and outside the control room (i.e., local operations) as identified in the facility's job task analysis (JTA) (JPMs should evaluate operator responsibilities during normal, abnormal, and emergency conditions and events, and during all modes of operation including cold shutdown, low power, and full power.)

2. Complete index of procedures (including all categories sent)

3. All administrative procedures applicable to reactor operation or safety

4. All integrated plant procedures (normal or general operating procedures)

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

6. Standing orders (important orders that are safety-related and may modify the regular procedures)

7. Surveillance procedures that are run frequently (i.e., weekly) or that can be run on the simulator

8. Fuel handling and core loading procedures (if SRO applicants will be examined)

9. All annunciator and alarm procedures

10. Radiation protection manual (radiation control manual or procedures)

11. Emergency plan implementing procedures

12. Technical Specifications or similar technical requirements documents (and interpretations, if available) for all units for which licenses are sought

13. System operating procedures

14. Technical data book and plant curve information used by operators, as well as the facility precautions, limitations, and set points document

15. The following information pertaining to the simulation facility:

    a. list of all initial conditions

    b. list of all malfunctions with identification numbers and cause-and-effect information, including a concise description of the expected result or range of results that will occur upon initiation and an indication of which annunciators will be actuated as a result of the malfunction

    c. a description of the simulator's failure capabilities for valves, breakers, indicators, and alarms

    d. the range of severity of each variable malfunction (e.g., the size of a reactor coolant or steam leak, or the rate of a component failure such as a feed pump, turbine generator, or major valve)

    e. a list of modeling conditions (e.g., simplifications, assumptions, and limits) and problems that may affect the examination

    f. a list of any known performance test discrepancies not yet corrected

    g. a list of differences between the simulator and the reference plant's control room

    h. simulator instructor's manual

16. Any additional plant-specific material that the NRC examiners have requested to develop examinations that meet the guidelines of these standards and the regulations

(Date)

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

Dear (Name):

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

As agreed during the telephone conversation, [your staff][[the staff of the U.S. Nuclear Regulatory Commission (NRC)]] will prepare the examinations based on the guidelines in Revision 9, Supplement 1, of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." [The NRC's regional office will discuss with your staff any changes that might be necessary before the examinations are administered.][[Your staff will be given the opportunity to review the examinations during the week of (date).]]

To meet the above schedule, it will be necessary for your staff to furnish the [examination outlines by (date). The written examinations, operating tests, and supporting] reference materials identified in Attachment 3 to ES-201 [will be due] by (date). [Pursuant to Title 10, Section 55.40(b)(3), of the Code of Federal Regulations (10 CFR 55.40(b)(3)), an authorized representative of the facility licensee shall approve the outlines, examinations, and tests before they are submitted to the NRC for review and approval. All materials shall be complete and ready-to-use.] We request that any personal, proprietary, sensitive unclassified, or safeguards information in your response be contained in a separate enclosure and appropriately marked. Any delay in receiving the required [examination and] reference materials, or the submittal of inadequate or incomplete materials, may cause the examinations to be rescheduled.

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

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

To permit timely NRC review and evaluation, your staff should submit preliminary reactor operator and senior reactor operator license applications (Office of Management and Budget (OMB) approval number 3150-0090), medical certifications (OMB approval number 3150-0024), and waiver requests (if any)(OMB approval number 3150-0090) at least 30 days before the first examination date. If the applications are not received at least 30 days before the examination

date, a postponement may be necessary. Signed applications certifying that all training has been completed should be submitted at least 14 days before the first examination date.

This letter contains information collections that are subject to the *Paperwork Reduction Act of 1995* (44 U.S.C. 3501 et seq.). These information collections were approved by OMB, under approval number 3150-0018, which expires on June 30, 2009. The public reporting burden for this collection of information is estimated to average [500] [[50]] hours per response, including the time for reviewing instructions, gathering and maintaining the data needed, [writing the examinations,]and completing and reviewing the collection of information. Send comments on any aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail to BJS1@nrc.gov; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0018), Office of Management and Budget, Washington, DC 20503.

The NRC may neither conduct nor sponsor, and a person is not required to respond to, an information collection, unless it displays a currently valid OMB control number.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the Electronic Reading Room page of the NRC's public Web site at http://www.nrc.gov/reading-rm/adams.html.

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

Sincerely,

(Appropriate regional representative, Title)

Docket No.: 50-(Number)

Distribution: Public
NRC Document Control System
Regional Distribution

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

(Date)

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

SUBJECT: OPERATOR LICENSING EXAMINATION APPROVAL

Dear (Name):

The purpose of this letter is to confirm the final arrangements for the upcoming operator licensing examinations at (Facility).

The NRC has completed its review of the operator license applications submitted in connection with this examination and separately provided a list of approved applicants to (Name, Title). Note that any examination waivers and application denials have been addressed in separate correspondence.

The NRC has approved the subject examinations and hereby authorizes you to administer the written examinations in accordance with Revision 9, Supplement 1, of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," on (date). The NRC staff will administer the operating tests during the week of (date). This examination has undergone extensive review by my staff and representatives responsible for licensed operator training at your facility. Based on this review, I have concluded that the examination meets the guidelines of NUREG-1021 for content, operational, and discrimination validity. By administering this examination, you also agree that it meets NUREG-1021 guidelines and is appropriate for measuring the qualifications of licensed operator applicants at your facility. If you determine that this examination is not appropriate for licensing operators at your facility, do not administer the examination and contact me at (phone number).

Please contact your Chief Examiner, (Name), at (phone number), if you have any questions or identify any errors or changes in the license level (RO or SRO) or type of examination (partial or complete written examination and/or operating test) specified for each applicant.

Sincerely,

(Appropriate regional representative, Title)

Docket No.: 50-

cc: Public
NRC Document Control System
Regional Distribution

Facility: _____ Date of Examination: _____

Developed by: Written - Facility ☐ NRC ☐ // Operating - Facility ☐ NRC ☐

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	
-120	3. Facility contact briefed on security and other requirements (C.2.c)	
-120	4. Corporate notification letter sent (C.2.d)	
[-90]	[5. Reference material due (C.1.e; C.3.c; Attachment 3)]	
{-75}	6. Integrated examination outline(s) due, including Forms ES-201-2, ES-201-3, ES-301-1, ES-301-2, ES-301-5, ES-D-1's, ES-401-1/2, ES-401-3, and ES-401-4, as applicable (C.1.e and f; C.3.d)	
{-70}	{7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)}	
{-45}	8. Proposed examinations (including written, walk-through JPMs, and scenarios, as applicable), supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, and ES-401-6, and any Form ES-201-3 updates), and reference materials due (C.1.e, f, g and h; C.3.d)	
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.l; C.2.g; ES-202)	
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.l; C.2.i; ES-202)	
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	
-7	14. Final applications reviewed; 1 or 2 (if >10) applications audited to confirm qualifications / eligibility; and examination approval and waiver letters sent (C.2.i; Attachment 5; ES-202, C.2.e; ES-204)	
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	

* Target dates are generally based on facility-prepared examinations and are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.
[Applies only] {Does not apply} to examinations prepared by the NRC.

Facility:		Date of Examination:		
Item	Task Description	Initials		
		a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.			
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.			
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
2. SIMULATOR	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.			
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.			
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	d. Check for duplication and overlap among exam sections.			
	e. Check the entire exam for balance of coverage.			
	f. Assess whether the exam fits the appropriate job level (RO or SRO).			

	Printed Name/Signature	Date
a. Author		
b. Facility Reviewer (*)		
c. NRC Chief Examiner (#)		
d. NRC Supervisor		

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines.

2000 guidelines constitute the facility licensee's education and experience requirements to be licensed as an RO or SRO.

In an effort to clarify the situation, the NRC staff revised NRC Form 398, "Personal Qualifications Statement: Licensee," to clarify 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 the revised NRC Form 398 to document any exceptions or waivers that the applicant has taken from the baseline education and experience guidelines outlined by the NANT. In addition, recognizing that the only significant difference between Revision 3 of RG 1.8 and the current accreditation guidelines pertains to certified instructors seeking an SRO 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, while the medical requirements for license applicants and licensed operators appear in Subpart C, "Medical Requirements." NRC staff and license applicant should refer to these requirements 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 NRC Form 398, and NRC Form 396, "Certification of Medical Examination by Facility Licensee." (Computer-generated facsimiles 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 related to Item 12. Additional instructions regarding waivers of training, experience, and examination requirements are provided in ES-204. Instructions for completing NRC Form 396 are also provided with the form. Both Form 396 and 398 are available on the NRC's operator licensing Web page at http://www.nrc.gov/reactors/operator-licensing/licensing-process.html.

If the applicant is reapplying following a license denial, 10 CFR 55.35 applies, and the applicant must complete and submit a new Form 398; however, as discussed below, a new Form 396 may not be required. The applicant may file the second application 2 months after the date of the first final denial, a third application 6 months after the date of the second final denial, and successive applications 2 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 re-application and must be requested within 1 year of the date on which the applicant completed the original examination. The NRC staff will also consider written examination waivers for ROs in good standing who prefer to take only the 25-question, SRO portion of the written examination when they apply to upgrade their licenses. Refer to ES-204 for a more detailed discussion of these and other waiver criteria.

Prior to licensing, every applicant must have a complete medical examination that meets the guidelines in the applicable version of ANSI/ANS 3.4, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," as endorsed by RG 1.134, "Medical Evaluation of Licensed Personnel at Nuclear Power Plants." Although licensed operators can go up to 24 months between medical examinations, new license applicants are generally expected to be examined and certified as fit (on NRC Form 396) no more than 6 months before the anticipated date of licensing. However, if more than 6 months have passed since the date of an applicant's last medical examination or fitness certification on NRC Form 396, the applicant/facility licensee may request a waiver of medical reexamination by checking Item 4.f.4 on NRC Form 398 and certifying in writing, in Item 17, "Comments," that the applicant has not developed any physical or mental condition that would be reportable under 10 CFR 55.25. The NRC staff will consider such a waiver if an applicant is reapplying for a license (because of ~~after~~ withdrawing a previous application, ~~accepting a~~ final license denial on a previous application, or terminating a previous license at the same facility), or if an examination is delayed from its originally scheduled date. (Refer to ES-204 for more information on waivers.) However, if an applicant's physical or mental condition has changed, or the time since the applicant's last complete 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. Licensed ROs upgrading to an SRO license need not have an additional medical examination or waiver request, as long as their medical status as a licensed RO is up to date at the time of application, including a complete medical examination within the past 24 months.

In accordance with Section 3.1 of ANSI/ANS 3.4-1996, which the NRC endorsed in Revision 3 of RG 1.134, the examining physician may delegate portions of the medical examination to a licensed nurse practitioner or licensed physician's assistant who is familiar with the ANSI/ANS 3.4-1996 and the activities required of a nuclear power plant operator or senior operator. However, the physician has the ultimate responsibility for certifying that the medical examination was conducted in accordance with the standard and that the applicant meets the medical requirements. The names and license numbers of all medical practitioners (but not laboratory technicians) who were substantially involved in the examination should be entered on NRC Form 396.

b. Each new applicant (except those applying for an LSRO license or an SRO upgrade license at the same facility) must satisfactorily complete the NRC's generic fundamentals examination (GFE) section of the written operator

the examination date. The senior management representative must also sign Item B, "Certification," on NRC Form 396.

Pursuant to 10 CFR 55.5, "Communications," facility licensees may submit these forms to the NRC by mail, in person, or, where practicable, via electronic information exchange (EIE) or on CD-ROM. Electronic submissions must be made in a manner that enables the NRC to receive, read, authenticate, distribute, and archive the submission, and process and retrieve it one page at a time. Detailed guidance on making electronic submissions can be obtained by visiting the NRC's public Web site at http://www.nrc.gov/site-help/e-submittals.html, calling (301) 415-6030, sending an email message to EIE@nrc.gov, or writing to the Office of the Chief Information Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Forms that only have a single signature, such as NRC Form 396, may be submitted electronically using an electronic digital signature. However, forms with multiple signatures, such as NRC Form 398, must rely on handwritten optically scanned signatures because of the limited digital signature capability of the EIE system. For any textual documents submitted in an optically scanned format, please note that Searchable Image (Exact) PDF is required to preclude optical character recognition errors. When sending these forms via EIE, facility licensees are encouraged to follow up with a phone call or e-mail message to the operator licensing assistant in the regional office to ensure the forms are received.

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

g. When the NRC's 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 and Regional Support ~~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.

h. The facility licensee is expected to inform the NRC's regional office in writing if it wishes to withdraw an application before the licensing process is complete.

2. NRC Regional Office

a. The NRC's regional office shall review 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 medical certifications, the regional office shall forward the applicant's NRC Form 396 and supporting medical evidence to the NRC's contract physician for evaluation any time the examining physician recommends that the NRC should issue a restricted license to the applicant, that the NRC should grant the applicant a waiver (exception) of any requirement set forth in the applicable ANSI/ANS standard, or that the NRC should change

an existing restriction(by checking block A.4 or A.5 on Form 396). If, on the date of the licensing examination, the NRC's physician is still reviewing an applicant's medical certification but there is no reason to expect that the physician will disqualify the applicant, the NRC's regional office should allow the applicant to take the examination, with the understanding that the NRC will withhold the license 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 NRC's regional office shall verify that none of the applicants' names appear on the list of "Escalated Enforcement Actions Issued to Individuals." The regional office shall check with the appropriate contact in the Office of Enforcement by telephone or email to verify that the information on the subject individuals 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 on NRC Form 398, indicate that the applicant has successfully completed a Commission-approved, SAT-based training program that (1) meets the education and experience requirements outlined by the NNAB and (2) 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 Item 13, "Training," or Item 15, "Experience Details," on NRC Form 398, except as noted below, and the regional office may accept the application without further review.

The regional office will verify that new applications include at least five significant control manipulations affecting reactivity or power level in Item 14 of NRC Form 398 (refer to Section C.1.c).

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, or RNPPE, defined in RG 1.8, Revision 3) seeking an SRO license must complete Item 15. Moreover, any exceptions or waivers from the education and experience requirements outlined in the NANT "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 regional office shall review the application against the specific eligibility requirements and commitments applicable to the facility licensee and shall 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.

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 pre-operational testing and the initial startup test program as described in the FSAR.

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 10 startups on a research reactor. This requirement may be waived if the applicant has completed a plant-referenced simulator training program accredited by INPO.~~

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, dated (date), for a (reactor operator, senior reactor operator) license, submitted in connection with (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 Title 10, Section 55.31, of the Code of Federal Regulations (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 and Regional Support ~~Program Management~~, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555. If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address. 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 Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, with a copy to the Associate General Counsel for Hearings, Enforcement, and Administration, Office of the General Counsel, at the same address. (Refer to 10 CFR 2.302 for additional filing options and instructions.) If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, 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

f. NRC examiners assigned to a particular examination will be notified of approved waivers by the appropriate regional supervisor and by an entry on the "List of Applicants" (Form ES-201-4) ~~examination assignment sheet (ES-202, Attachment 4)~~.

g. If the applicant is determined to be ineligible to take the licensing examination, the regional office shall issue a denial letter in accordance with ES-202.

D. Waiver Criteria

1. Routine Waivers

a. If an applicant failed *only* one portion of the site-specific initial licensing examination (i.e., either the written examination overall, the SRO-only section of the written examination, the simulator operating test, the walk-through overall, or the administrative portion of the walk-through), the region may waive those examination areas that were passed. This is only applicable for the first retake examination and only if it takes place within 1 year of the date on which the original examination was completed.

Note that an SRO applicant who passed the operating test, achieved a score of 80 percent on the RO portion of the written examination, 76 percent on the SRO-only questions, and 79 percent overall would ***not*** be eligible for a waiver of the RO portion because the overall 80-percent cut score was not achieved. An SRO-instant applicant who passed everything except the SRO-only portion of the written examination may reapply for an RO license, and a full RO examination waiver, after accepting a final denial of the original SRO application; however, this is ***not*** considered a routine waiver and must be forwarded to NRR for approval as discussed in Section C.2.b. Such a waiver would be contingent upon the applicant's eligibility for an RO license (refer to the training and experience guidelines in ES-202) and the applicant's demonstration of control board competence during the simulator operating test (refer to ES-303).

b. The region may waive training requirements specified in the final safety analysis report (FSAR) when the FSAR authorizes waiver of those specific requirements and the applicant otherwise meets NRC requirements (e.g., waiver of some training requirements for applicants previously licensed at a comparable facility).

c. The medical data in support of NRC Form 396 are normally good for 6 months from the date of the medical examination for a person applying for an RO or SRO instant license. For re-applications (e.g., following a license denial or withdrawal of an application, or to request reinstatement of a terminated license) or for an examination that is delayed from its originally scheduled date, the NRC regional office may grant waivers extending the 6-month period, provided that the date of the original medical examination is within 24 months of the anticipated licensing date and Item 17, "Comments," of NRC Form 398 certifies that the applicant has not developed any physical or mental condition that would

be reportable under 10 CFR 55.25. 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.

Waivers/exceptions and license conditions/restrictions that might be requested if an applicant does not meet the medical standards in the applicable version of ANSI/ANS 3.4, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," will be coordinated with the NRC contract physician as discussed in ES-202.

d. Substitutions allowed by Regulatory Guide (RG) 1.8, Revision 3, are not considered to be waivers and, therefore, do not require approval. For example, substitution of related technical training for up to 1 year of experience for an SRO is not a waiver. However, training for the examination applied for may not be counted as related technical training.

e. If the facility licensee certifies that the applicant has successfully completed a training program accredited by the Institute of Nuclear Power Operations using an acceptable simulation facility, the region may waive the requirement for 10 startups on a research reactor, which is typically required by NRC-approved cold license training programs.

f. For those applicants who are unable to meet the requirement for 6 weeks on shift at greater than 20 percent power (because of extended plant shutdowns or other extraordinary circumstances), the NRC regional office may waive this requirement upon application if the following criteria are satisfied:

   (1) Facility training objectives for the desired licensed position have been developed using a properly validated job task analysis (JTA).

   (2) The facility licensee's training program is based on a systems approach to training (SAT) using the five elements defined in 10 CFR 55.4.

   (3) The facility licensee can accomplish the required training objectives for plant operation at greater than 20 percent power using a plant-referenced or NRC-approved simulation facility.

g. If an operator was previously licensed at a facility and reapplies for a license at the same facility and the same or lower license level, the regional office may, pursuant to 10 CFR 55.47, waive the requirement for the applicant to pass a written examination (including the generic fundamentals examination (GFE)) and an operating test if it finds that the applicant meets the following criteria:

   (1) previously discharged his or her responsibilities competently and safely and is capable of continuing to do so

   (2) terminated participation in the facility licensee's requalification program less than 2 years (24 months) before the date of the license application

NRC Letterhead

(Date)

(Name, Title)
(Facility name)
(Street address)
(City, State Zip code)

Dear (Name):

The U.S. Nuclear Regulatory Commission (NRC) plans to administer the generic fundamentals examination (GFE) section of the written operator licensing examination on the following dates during this calendar year:

March ##, 200#
June ##, 200#
September ##, 200#
December ##, 200#

To register personnel to take the GFE, an authorized representative of your facility must submit a letter to the appropriate regional administrator with a copy addressed as follows:

Chief, Operator Licensing and Human Performance ~~Reactor Operations~~ Branch, NRR
~~Mail Stop OWFN 6F2 12H2~~
U.S. Nuclear Regulatory Commission
Washington, DC. 20555-0001

Your letter should identify the individuals who will take the examination, and it should certify that they are enrolled in a facility licensee-sponsored program leading to NRC operator or senior operator licensing and that they will have completed their fundamentals training by the date of the examination. The letter should also identify the personnel who will have access to the examinations before they are administered (e.g., proctors) and the address to which the examinations are to be sent. To allow the NRC to assign docket numbers, your letter should be received by both the NRC regional administrator and the Chief, Operator Licensing and Human Performance ~~Reactor Operations~~ Branch, **30 days before each desired examination date** shown above. A sample registration letter is enclosed.

Copies of the administered GFEs and their answer keys will be available for review in the NRC's Public Document Room approximately 45 days following each examination. The NRC's GFE Web page (which is available at http://www.nrc.gov/reactors/operator-licensing/generic-fundamentals-examinations.html) will be updated semi-annually, approximately 60 days following the June and December examinations.

Sincerely,

(Appropriate regional representative)

Docket No. 50-(Number)
Enclosure: As stated

Enclosure

(Name)
Regional Administrator
U.S. Nuclear Regulatory Commission
Region (Number)
(Street address)
(City, State Zip code)

Dear (Name),

(Facility name) requests approval from the U.S. Nuclear Regulatory Commission (NRC) to have the following (number) individuals take the (BWR or PWR) generic fundamentals examination (GFE) section of the written operator licensing examination to be administered on (date):

Name	Date of Birth	Previous Docket No.

(Insert the name, date of birth, and previous 10 CFR Part 55 Docket Number (if applicable) for each person.)

All of the listed personnel are enrolled in the (facility name) operator licensing training program and will have completed the generic fundamentals portion of the program by the examination date.

The following personnel will have access to the examinations before they are administered:

Name	Title

(Insert the name and title of each person who will have access to the examinations before they are administered (e.g., proctors).

Please address the examinations to the **overnight mail** address, as follows (note that home addresses are not acceptable):

Name, Title
Street address
City, State Zip code

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

Sincerely,

(Name, title)

cc:
Chief, Operator Licensing and Human Performance ~~Reactor Operations~~ Branch, NRR

Mail all of the above exam-related materials addressed as follows:

(Name)
(Name of contractor)
(Street address)
(City, State Zip code)

For further questions regarding the specifics of this exam, please contact (Name) at (telephone number). For questions regarding the GFE in general, please contact (Name), NRC, at (telephone number).

For matters regarding candidate withdrawals or cancellations, contact either (Name) or (Name) at (telephone numbers) for specific guidance.

(Name), Chief
Operator Licensing and Human Performance ~~Reactor Operations~~ Branch
Division of Inspection and Regional Support ~~Program Management~~
Office of Nuclear Reactor Regulation

Enclosures:
As stated

Distribution: w/o enclosures
Director, DIRS ~~DIPM~~
Chief, Operator Licensing and Human Performance ~~Reactor Operations~~ Branch
NRR GFE Coordinator
Project Manager
Public

1. "Administrative Topics"

This part of the walk-through operating test covers K/As that are generally associated with administrative control of the plant. It implements items 9–12 of 10 CFR 55.45(a) and is divided into four administrative topics, as described below. The scope and depth of coverage required in each topic is based on the applicant's license level. The applicant's competence in each topic is evaluated by administering job performance measures (JPMs) and asking specific "for cause" followup questions, as necessary, based on the applicant's performance (refer to ES-302).

The first topic, "Conduct of Operations," evaluates the applicant's knowledge of the daily operation of the facility. The following subjects are examples of the types of information that could be evaluated under this topic:

- shift turnover
- shift staffing requirements
- access controls for vital/controlled plant areas
- operator responsibilities and procedure usage
- purpose, function, and controls for plant systems
- fuel handling and refueling
- ~~temporary modifications of procedures~~
- ~~reactor plant startup requirements~~
- ~~mode changes~~
- ~~plant parameter verification [estimated critical position (ECP), heat balance, etc.]~~
- short-term information (e.g., night and standing orders)
- ~~key control~~
- ~~security (awareness and familiarity)~~
- ~~familiarity with and use of piping and instrument drawings~~

The second topic, "Equipment Control," addresses the administrative requirements associated with managing and controlling plant systems and equipment. The following subjects are examples of the types of information that could be evaluated under this topic:

- surveillance testing
- pre-startup activities
- maintenance
- tagging and clearances
- temporary modification of systems
- changes to procedures and plant design
- technical specifications, including plant mode
- familiarity with and use of piping and instrument drawings
- ~~fuel handling~~

The third topic, "Radiation Control," evaluates the applicant's knowledge and abilities with respect to radiation hazards and protection (of plant personnel and the public). The following subjects are examples of the types of information that could be evaluated under this topic:

- use and function of portable radiation and contamination survey instruments and personnel monitoring equipment

- significant radiation hazards
- radiological safety principles and procedures
- ~~the ability to perform procedures to reduce excessive levels of radiation and to guard against personnel exposure~~
- radiation exposure limits under normal or emergency conditions ~~and contamination control, including permissible levels in excess of those authorized~~
- radiation work permits
- control of radiation releases

The fourth topic, "Emergency Plan," evaluates the applicant's knowledge of the facility's emergency plan, including, as appropriate, the responsibility of the RO or SRO to decide whether the plan should be executed and duties assigned under the plan. The following subjects are examples of the types of information that could be evaluated under this topic:

- lines of authority during an emergency
- operator responsibilities during an emergency
- emergency operating procedures
- emergency action levels and classifications
- emergency facilities
- emergency communications
- emergency protective action recommendations
- security event procedures

The "Administrative Topics" are administered in a one-on-one, walk-through format in accordance with ES-302 and graded in accordance with ES-303.

2. **"Control Room/In-Plant Systems"**

This part of the walk-through operating test is used to determine whether the applicant has an adequate knowledge of plant system design and is able to safely operate those systems. This part implements the requirements of items 3, 4, 7, 8, and 9 identified in 10 CFR 55.45(a) and encompasses several types of systems, including primary coolant, emergency coolant, decay heat removal, auxiliary, radiation monitoring, and instrumentation and control.

This part of the walk-through focuses primarily on those systems with which licensed operators are most involved (i.e., those having controls and indications in the main control room). To a lesser extent, it also ensures that the applicant is familiar with the design and operation of systems located outside the main control room. The applicant's knowledge and abilities relative to each system are evaluated by administering JPMs and, when necessary, specific followup questions based on the applicant's performance of each JPM.

This part of the operating test is administered in a one-on-one, walk-through format in accordance with ES-302 and graded in accordance with ES-303.

3. "Simulator Operating Test"

This part of the operating test implements items 1–8 and 11–13 of 10 CFR 55.45(a). This is the most performance-based aspect of the operating test and is used to evaluate the applicant's ability to safely operate the plant's systems under dynamic, integrated conditions.

The simulator test is administered in a team format with up to three applicants (or surrogates) filling the RO and SRO license positions (as appropriate) on an operating crew. (Refer to ES-201, "Initial Operator Licensing Examination Process," for additional guidance on crew composition and ES-302 for test administration instructions.) This format enables the examiner to evaluate each 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. [Refer to 10 CFR 55.45(a)(13).]

Each team or crew of applicants is administered a set of scenarios designed so that the examiners can individually evaluate each applicant on a range of competencies applicable to the applicant's license level. Appendix D describes those competencies, and Forms ES-303-3 and ES-303-4, the "Simulator Competency Grading Worksheets" for ROs and SROs, break down each competency into a number of specific rating factors to be considered during the grading process (refer to ES-303).

Each applicant must demonstrate proficiency on every competency applicable to his or her license level. The only exception is that SRO Competency Number 3, "Control Board Operations," is optional for SRO-upgrade applicants (i.e., SRO-upgrade applicants do not have to fill a position that requires control board operations; however, if they do rotate into such a position, they will be graded on this competency even though they may not be individually observed by an NRC examiner, as discussed in ES-302).

C. Responsibilities

1. Facility Licensee

The facility licensee is responsible for the following activities, as applicable, depending upon the examination arrangements confirmed with the NRC's regional office in accordance with ES-201 approximately 4 months before the scheduled examination date:

a. Prepare proposed examination outlines in accordance with Section D and submit them to the NRC's regional office for review and approval in accordance with ES-201.

b. Submit the reference materials necessary for the NRC regional office to prepare and/or review the requested examination(s). (Refer to ES-201, Attachment 3.)

of the walk-through test is repeated from the last two NRC licensing examinations at the facility. A significant modification means that at least one condition has been substantively changed in a manner that alters the course of action of the JPM. If JPMs are repeated from the past two NRC examinations, they must be randomly selected from all the JPMs used on the past two examinations. Refer to Forms ES-301-1 and ES-301-2 for specific limits on JPM bank use and repetition.

b. JPMs should include the elements identified in Appendix C (e.g., initiating and terminating cues, critical steps, and performance criteria). The guidelines and forms (or equivalents) in that appendix should be used when developing new JPMs. Facility procedures may be adapted for use as JPMs by identifying critical steps and entering comments on how to execute particular steps.

c. The JPMs should, individually and as a group, have meaningful performance requirements that will provide a legitimate basis for evaluating the applicant's understanding of and ability to safely operate the plant (as required by 10 CFR 55.45).

4. Specific Instructions for the "Administrative Topics" Walk-Through

Although the administrative topics may be examined separately, it is preferable, whenever possible, to link, associate, or integrate them with tasks and events conducted during the systems and simulator portions of the operating test. However, it is important to keep in mind that the applicant's proficiency in the administrative topics should be deliberately evaluated and not inferred solely from observations made during the other portions of the operating test.

a. For each of the administrative topics listed below, select the required number of subjects to be evaluated during the operating test based on the applicant's license level.

Topic	Number of Subjects	
	RO	SRO and RO Retakes
"Conduct of Operations"	1 (or 2)	2
"Equipment Control"	1 (or 0)	1
"Radiation Control"	1 (or 0)	1
"Emergency Plan"	1 (or 0)	1
Total	4	5

RO applicants need not be evaluated on every topic (as indicated above, "Equipment Control," "Radiation Control," or "Emergency Plan" can be omitted by doubling-up on "Conduct of Operations"), unless the applicant is retaking only the "Administrative Topics" (with a waiver of the systems walk-through and simulator test pursuant to ES-204).

K/As associated with each administrative topic shall be selected from Section 2 of the applicable NRC K/A catalog for pressurized- or boiling-water reactors (i.e., NUREG-1122 and 1123, respectively). For the "Emergency Plan" topic, only those K/As related to the emergency plan and implementing procedures [not those associated with the emergency operating procedures (EOPs)] are applicable to this category of the operating test.

b. For each administrative subject, select a performance-based activity for which an administrative JPM can be developed. The administrative JPMs may require the applicant to identify and respond to one or more postulated administrative errors in a manner similar to the alternate path methodology discussed in Appendix C.

c. In general, SROs have more administrative responsibilities than ROs, so SRO applicants should be evaluated in greater depth on the administrative topics. RO applicants need only understand the mechanics and intent of the related subjects, as they pertain to tasks at the facility.

d. The following specific guidelines should be applied when selecting or developing JPMs to confirm the applicant's competence with regard to each topic:

"Conduct of Operations"

Many of these subjects can be covered within the framework of a shift turnover or by integrating them into other discussions, as they apply, throughout the examination.

The applicant's ~~security~~ awareness of access controls for vital/controlled plant areas should be evaluated by observing his or her behavior during the operating test. However, passive observations, in and of themselves, are insufficient to justify an evaluation in that subject area.

The subject of fuel handling can be covered in the control room, but attempt to cover this subject in the fuel handling areas of the plant whenever possible. The RO applicant should be aware of his or her duties in the control room during fuel handling. These duties include monitoring instrumentation and responding to alarms from the fuel handling area, communicating with the fuel handling and storage facility, and operating systems from the control room in support of (re)fueling operations. For the SRO applicant, evaluate topics such as core alterations, new and spent fuel storage and movement, the design of the fuel handling area, use of the fuel handling tools, and fuel handling casualties.

"Equipment Control"

These subjects can be evaluated within the framework of a normal maintenance evolution. For example, have the applicant demonstrate how he or she would take a failed system or component out of service, initiate maintenance on the system, and test the system before placing it back in service. During the

maintenance evolution, have the applicant demonstrate the use of piping and instrument drawings and technical specifications.

"Radiation Control"

This topic is best covered in conjunction with the JPMs prepared for the in-plant systems walk-through. It is most appropriate to evaluate these subjects during the required entry into the radiologically controlled area (RCA).

The levels of knowledge expected of RO and SRO applicants in some radiation control subjects are significantly different. The RO's duties generally require knowledge of radiation worker responsibilities and operation of plant systems associated with liquid and gaseous waste releases. Therefore, the depth to which RO applicants are evaluated should be limited to their responsibilities and the monitoring requirements before, during, and after the release. The SRO, however, may be involved in reviewing and approving 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. The SRO applicants may be asked to simulate a planned release (e.g., liquid, gaseous, or containment purge) when examining these topics.

"Emergency Plan"

There are significant differences between the knowledge required of RO and SRO applicants in this area. RO applicants should be familiar with the emergency plan and with their plant-specific responsibilities under the emergency plan implementing procedures (EPIPs). By contrast, SRO applicants must demonstrate additional knowledge based upon their responsibility to direct and manage the implementation of the EPIPs during the initial phases of an emergency. As a result, SRO applicants should have a more detailed understanding of the EPIPs, in general, and should be familiar with event classification procedures, protective action recommendations, and communication requirements and methods. As discussed in Section D.1, ensure that the test does not become predictable by always performing a different variation of the same activity (e.g., repetitive emergency classifications with different events).

This topic is best evaluated by linking a JPM to a simulator transient that requires implementation of the emergency plan. Such a JPM can be conducted immediately following a simulator scenario or during the walk-through examination.

e. The planned administrative subjects should normally take no more than 1 hour and 1.5 hours to administer to RO and SRO applicants, respectively.

f. On Form ES-301-1, "Administrative Topics Outline," briefly describe the specific administrative activities selected for evaluation.

g. Forward the completed outline to the NRC's chief examiner so that it is *received* by the date agreed upon with the NRC regional office at the time

Facility: _____ Date of Examination: _____
Exam Level: RO ☐ SRO-I ☐ SRO-U ☐ Operating Test No.: _____

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a.		
b.		
c.		
d.		
e.		
f.		
g.		
h.		
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i.		
j.		
k.		

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility:						Date of Exam:						Operating Test No.:					
APPLICANT	EVENT TYPE	Scenarios													TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions. Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

j. The number of persons present during an operating test should be limited to ensure the integrity of the test and to minimize distractions to the applicants:

- Except for the simulation facility operators, no other member of the facility's staff shall be allowed to observe an operating test without the chief examiner's permission. Facility management and other personnel deemed necessary by the facility licensee should generally be allowed access to the examination (under security agreements, as appropriate), provided that the simulation facility can accommodate them and there is no impact on the applicants.

  Although the simulation facility operator will normally assume the role of the other personnel that the applicants direct or notify regarding plant operations, the chief examiner may permit other members of the facility training or operations staff (e.g., a shift technical advisor (STA)) to augment the operating shift team if necessary. In such instances, the chief examiner shall fully brief those individuals regarding their responsibilities, reporting requirements, duties, and level of participation before the operating test begins. All participants in the testing process must also be mindful of their responsibilities with regard to examination integrity pursuant to 10 CFR 55.49.

  Although the applicants will generally be expected to perform "peer checks" in accordance with the facility licensee's operations and training procedures and practices, additional personnel may not be stationed or called upon for this purpose.

  Surrogate operators should be used only when they are necessary to complete an operating crew. A facility licensee may not replace license applicants with surrogates solely because the applicants have performed the minimum required number of events or scenarios. If an applicant would be exposed to only *one* additional scenario above the minimum required, a surrogate operator should not be used in place of a license applicant. However, no applicant will be required to participate in *more* than one scenario above the minimum required, in which case, a surrogate operator should be used. If, at the discretion of the chief examiner, it is desired to use surrogate operators contrary to the above guidance, the operator licensing program office should be consulted prior to implementation.

  When surrogate operators are required to complete the operating crew (e.g., during retake tests or for a class consisting entirely of ROs), the chief examiner shall ensure that the surrogate operator(s) are briefed regarding the content of the scenario(s) and their expected actions in response to every event. The examiners must not restrict the surrogate operators' activities to such an extent that the applicants being evaluated are required to assume responsibilities beyond the scope of their respective positions. The surrogate operators do not need to be licensed at the facility, but they must have the knowledge and abilities required to assume the full responsibilities of the roles they take in the operating test.

C. Responsibilities

1. Facility Licensee

The facility licensee will perform the following activities, as applicable, depending upon the examination arrangements confirmed with the NRC's regional office (in accordance with ES-201, "Initial Operator Licensing Examination Process") approximately 4 months before the scheduled examination date:

a. Prepare the proposed examination outline(s) in accordance with Section D.1, and submit the outline(s) to the NRC's regional office for review and approval in accordance with ES-201.

b. Submit the reference materials necessary for the NRC's regional office to prepare and/or validate the requested examination(s). (Refer to ES-201, Attachment 3.)

c. Prepare the proposed examination(s) in accordance with Sections D.2 through D.4, review the examination(s) in accordance with Section E, and submit the examination(s) to the NRC's regional office in accordance with ES-201.

d. Meet with the NRC staff in the regional office or at the facility, when and as necessary, to review the proposed examination(s) and discuss potential changes. (Refer to ES-201.)

e. Revise the proposed examination outline(s) and examination(s) as agreed upon with the NRC's regional office; however, the NRC retains final authority to approve the examination.

f. Facility licensees that prepare the examination shall ensure that appropriate controls are implemented to keep the comprehensive audit or screening examination that is given at or near the end of the license training class (as well as any practice exams and quizzes that are developed after beginning work on the licensing examination) from compromising the integrity of the licensing examination. Examples of acceptable control measures are as follows (other methods may also be acceptable, but will have to be reviewed and approved on a case-by-case basis):

- The facility licensee could prepare the audit examination using a systematic and random sampling process that is similar to that used to prepare the NRC's licensing examination as discussed in Section D.
- The facility licensee could prepare and finalize the audit examination (and any practice exams and quizzes) before it begins developing the NRC's licensing examination outline as discussed in Section D.
- The facility licensee could develop the audit (as well as any practice exams and quizzes) and the licensing examinations using independent examination teams.
- The facility licensee could certify as part of the examination submittal that there is no question duplication between the facility licensee's audit and the NRC's licensing examinations.

When submitting its examination outline to the NRC, the facility licensee shall describe the process that was used to develop the examination outline (in sufficient detail for the NRC to confirm that it meets the systematic and random selection criteria). Examples of adequate documentation include (1) a statement that the facility licensee used the sampling process described in Attachment 1; (2) identification of the industry standard or widely-available commercial product that was used; or (3) a description or copy of the facility licensee's process document.

Because the NRC's K/A catalogs are based on generic job and task analyses and not all facilities are the same, examination authors can eliminate inapplicable or inappropriate K/A statements by (1) discarding randomly selected K/As during the outline development process and/or (2) pre-screening the entire K/A catalog to eliminate inappropriate K/As before beginning the random selection process.

The topics for the generic K/A category in Tiers 1 and 2 (i.e., Column "G" on Forms ES-401-1 and ES-401-2) shall be selected from Section 2, "Generic Knowledge and Abilities," of the applicable K/A catalog. However, only those topics that are relevant to the selected evolution or system shall be included; therefore, generic K/As for Tiers 1 and 2 should be randomly selected from the following: 2.1.7, 2.1.19, 2.1.20, 2.1.23, 2.1.25, 2.1.27, 2.1.28, 2.1.30, 2.1.31, 2.1.32, 2.2.3, 2.2.4, 2.2.12, 2.2.22, 2.2.25, 2.2.36, 2.2.37, 2.2.38, 2.2.39, 2.2.40, 2.2.42, 2.2.44, 2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.6, 2.4.8, 2.4.9, 2.4.11, 2.4.18, 2.4.20, 2.4.21, 2.4.30, 2.4.31, 2.4.34, 2.4.35, 2.4.41, 2.4.45, 2.4.46, 2.4.47, 2.4.49, and 2.4.50. All other generic K/As for Tiers 1 and 2 may be eliminated before or after the random selection process, and single-unit facilities may also eliminate K/As 2.2.3 and 2.2.4.

For the four K/A categories in Tier 3, all of the generic K/As in Section 2 of the applicable NRC K/A catalog shall remain eligible for random selection, and all K/As that are linked to 10 CFR 55.43 are eligible for the SRO-only portion of an examination. Generic K/As used in Tier 3 with importance ratings of less than 2.5 may be eliminated before or after the random selection process, and single-unit facilities may also eliminate K/As 2.2.3 and 2.2.4.

Examination authors and reviewers should ask themselves the following questions to help determine whether or not any K/A statement is appropriate for testing:

- Is the subject K/A relevant (e.g., is the system, component, process, procedure, or event installed, in use, or possible) at the subject facility?
- Is the importance rating of the K/As equal to or greater than 2.5 for the license level of the proposed examination, or is there a site-specific priority that justifies keeping the K/A if its importance rating is below 2.5?
- Is it possible to prepare a psychometrically sound question related to the subject K/A?

- Is it possible to prepare a question at the correct license level related to the subject K/A? A question at the RO level should test one (or more) of the 14 items listed under 10 CFR 55.41(b) that the K/A is linked to, or test at a RO level as determined from the facility's learning objectives. A question at the SRO-only level should test one (or more) of the 7 items listed under 10 CFR 55.43(b) that the K/A is linked to, or test at a level that is unique to the SRO job position as determined from the facility's learning objectives.

If these questions can all be answered in the affirmative, then the subject K/A is probably appropriate for testing. The fact that a K/A does not have a corresponding facility learning objective, was not covered in training, or is subject to selection in multiple tiers, are not sufficient bases for eliminating the K/A from any tier of the outline.

Facility licensees that elect to pre-screen and eliminate any K/A statements from the random selection process should make arrangements for their NRC regional office to review their screening process and results before they submit their next examination outline. Any subsequent changes to the list of K/As from which the examination outline is generated would also have to be documented, justified, and reviewed by the NRC. All K/A statements that are eliminated after they have been randomly selected to fill an examination outline shall be documented on Form ES-401-4, "Record of Rejected K/As," or equivalent, and submitted to the NRC's regional office for review in conjunction with the proposed examination outline.

Enter the K/A statement numbers, a brief description of each topic, the topics' importance ratings for the license level of the exam (use the RO and SRO ratings for the RO and SRO-only portions, respectively), and the point totals (system, category, group, and tier) on the examination outline. The proposed point totals for each group and tier must match the number specified on Forms ES-401-1 and ES-401-2, as applicable.

If a facility licensee proposes to use an outline that was previously used at the subject or another facility, the licensee shall identify the source of the outline and explain what effect its reuse is expected to have on examination integrity.

c. Special attention is required to ensure that the SRO examination tests at the appropriate license level. The SRO outline (refer to the right-hand portion of Forms ES-401-1 or -2, as applicable) shall include 25 K/A statements that relate to the topics in 10 CFR 55.43(b).

A number of the generic K/As in Section 2 of the catalogs are specifically linked to one or more topics specified in 10 CFR 55.43(b), and all of the Category A2, AA2, and EA2 K/A statements are (or, in the case of NUREG-1123, should be) similarly linked. Consequently, the K/As for the SRO examination will be drawn from those K/A categories (denoted by Columns "A2" and "G" in the SRO-only section of the applicable examination outline), and from all K/A categories related to the fuel handling facilities, which are specifically identified for sampling

in 10 CFR 55.43(b)(7). The fact that a K/A is linked to both 10 CFR 55.41 and 10 CFR 55.43 does not mean that the K/A cannot be used to develop an SRO-only question, nor does it exclude the K/A from sampling on the RO examination. However, to be used on the SRO-only section of an examination, a question developed from a K/A linked to both 10 CFR 55.41 and 10 CFR 55.43 should test at the level of the 10 CFR 55.43(b) item number(s) that the K/A is linked to, or test at a level that is unique to the SRO job position as determined from the facility's learning objectives. K/A topics linked to 10 CFR 55.41(b) may also be appropriate for developing SRO-level questions, if the questions developed evaluate knowledge and abilities at a 10 CFR 55.43(b) level, or at a level that is unique to the SRO job position as determined from the facility's learning objectives.

d. After completing the outline, check the selected K/As for balance of coverage within and across the three tiers. Ensure that every applicable K/A category is sampled at least twice within each of the three tiers so that a valid sample will likely be maintained in the event that some questions are deleted as a result of post-examination comments. Similarly, ensure that no emergency/abnormal plant evolution (E/APE), system, or K/A category is over-sampled (e.g., avoid selecting more than two K/A topics from a given system unless they relate to plant-specific priorities. Make any adjustments that might be necessary by systematically and randomly selecting replacement K/A statements. Also check the overall balance of the entire licensing examination, including the walk-through and the dynamic simulator test, and make any necessary adjustments. Document and justify all changes on Form ES-401-4 and submit the documentation with the completed outline.

e . Review and submit the completed outline to the NRC's chief examiner for review and approval in accordance with ES-201. Facility-developed outlines shall be independently reviewed by a facility supervisor or manager before being submitted to the NRC's regional office in accordance with ES-201. Facility licensees are responsible for ensuring that contractor-prepared outlines meet the guidelines herein. The NRC must receive the outlines by the date agreed upon when the examination arrangements were confirmed (normally approximately 75 days before the scheduled examination date).

f. The NRC's chief examiner will ensure that the outline is independently reviewed within 5 working days (or as otherwise agreed with the facility licensee) and provide comments and recommended changes, as appropriate. The NRC's examiner shall review the sampling methodology, including all K/A rejections and changes, to ensure it is unbiased. The examiner shall also review and approve the site-specific item or topic substitutions. Refer to Section C.3 of ES-201 for additional guidance regarding outline reviews.

in the stem and at least one distractor. Changing the conditions in the stem such that one of the three distractors in the original question becomes the correct answer would also be considered a significant modification. The intent or objective of the question does not necessarily have to be changed. Adding or deleting irrelevant information and making minor changes (e.g., the unit number, component train, or power level when it makes no difference) would not be considered a significant modification to the question.

g. A technical reference, including the reference's revision or version number (if applicable), and a cross-reference to the facility licensee's examination question bank, if applicable, shall be noted for every question. If the facility licensee has a learning objective applicable to the question, it should also be referenced. However, the absence of a learning objective does not invalidate the question, provided that it has an appropriate K/A and technical reference. Refer to ES-201 for additional instructions regarding documenting the source of questions on facility-written examinations.

To facilitate the review process, examination authors should consider providing a brief explanation of why the answer is correct, and each of the distractors is plausible but incorrect. This ***optional*** practice increases the efficiency of the examination review process and promotes the detection and correction of problem questions before the examinations are administered.

Reference materials (such as diagrams, sketches, and portions of facility procedures) may be used on a selective basis as attachments to the written examination. Ensure that any reference material used in the examination is easy to read and clearly marked, provides an effective and objective way for the applicant to demonstrate knowledge of the topic or concept, and does not give away the answers to other questions on the examination or improve the applicant's chances of guessing the correct answer by eliminating incorrect distractors.

Form ES-401-5 is a sample worksheet for use in preparing the written examination questions. Facility licensees may use that or a similar form to document the information related to each proposed question that is submitted to the NRC for review and approval.

3. Review and Submit the Examination

a. Review the entire examination to ensure that it satisfies the criteria on Form ES-401-6, "Written Examination Quality Checklist."

b. Forward the examination package, including all proposed attachments and the completed quality checklist, to the first reviewer. Section E provides instructions for conducting the quality reviews.

Facility-developed examinations must be reviewed by a supervisor or manager before they are sent to the NRC's regional office in accordance with ES-201.

and corrected in time for the scheduled examination date, the regional office should continue the review using Form ES-401-9 and provide comments to the facility licensee for correction.

c. The responsible supervisor should ensure that any significant deficiencies in the original examinations submitted by a facility licensee are evaluated in accordance with ES-201 to determine the appropriate course of action. At a minimum, the supervisor should ensure that they are addressed in the final examination report in accordance with ES-501.

d. Following the facility review, the responsible supervisor should again review the examination to ensure that the concerns expressed by the facility licensee and the NRC have been appropriately addressed. The supervisor shall not sign Form ES-401-6 until he or she is satisfied that the examination is acceptable to be administered.

4. Facility Peer Review

As a final check of the examination's technical accuracy, facility management should consider administering the examination (under security agreements) to one or more licensed personnel who were previously uninvolved in developing the examination. In light of examination security concerns, the NRC discourages the use of certain individuals (e.g., the applicants' supervisors or coworkers) to validate the examination. Any comments made and problems identified during the trial administration shall be discussed with the NRC's chief examiner and resolved before the examination is administered to the license applicants. The intent of the review is to identify and correct deficiencies that may affect the validity of the examination.

F. Attachments/Forms

Attachment 1,	"Example Systematic Sampling Methodology"
~~Attachment 2,~~	~~"K/A Elimination Guidance"~~
Form ES-401-1,	"BWR Examination Outline"
Form ES-401-2,	"PWR Examination Outline"
Form ES-401-3,	"Generic Knowledge and Abilities Outline (Tier 3)"
Form ES-401-4,	"Record of Rejected K/As"
Form ES-401-5,	"Sample Written Examination Question Worksheet"
Form ES-401-6,	"Written Examination Quality Checklist"
Form ES-401-7,	"Site-Specific RO Written Examination Cover Sheet"
Form ES-401-8,	"Site-Specific SRO Written Examination Cover Sheet"
Form ES-401-9,	"Written Examination Review Worksheet"

1. When preparing the outline for Tier 1 (E/APEs) and Tier 2 (Plant Systems), the examination author shall not exclude from the random selection process for Category "G" any of the following K/As from Section 2 of the applicable K/A Catalog: 2.1.2, 2.1.14, 2.1.23, 2.1.27, 2.1.28, 2.1.30, 2.1.32, 2.1.33, 2.2.22, 2.2.25, 2.4.4, 2.4.6, 2.4.30, 2.4.31, 2.4.49, and 2.4.50. However, these K/As may be rejected and justified on a case-by-case basis while developing the examination outline. The NRC will review the author's justification for each rejected K/A. The remaining Section 2 K/As may be excluded from the random selection process and/or rejected without explanation or justification.

   [Note: With the exception of K/A #2.4.6, the listed K/As equate to the "Old System-Generic K/As" identified on page xiv of NUREG-1122 (Revision 2) and page xiii of NUREG-1123 (Revision 2). K/A #2.4.6 replaces old E/APE-generic K/A #12, "ability to utilize symptom-based procedures," which was omitted from Revision 2 of the catalogs.]

2. All[†] of the K/As in Section 2 of the applicable NRC K/A Catalog shall remain eligible for random selection for Tier 3 (generic knowledge and abilities) of the outline for RO examinations; all[†] K/As that are linked to 10 CFR 55.43 are eligible for SRO-only examinations. They may not be pre-screened out; however, they may be rejected and justified on a case-by-case basis while developing the examination outline. The NRC will review the author's justification for each rejected K/A.

   [Note: As stated in Section D.2.a of ES-401, the intent of Tier 3 questions is to evaluate the applicants' knowledge in areas applicable to generic plant operation and not a specific system or procedure. If one of the Old System-Generic K/As is randomly selected for Tier 3, the question should avoid testing knowledge specific to a particular system or procedure but test a plant-wide generic concept.]

3. Examination authors and reviewers should ask themselves the following questions to help determine whether or not any K/A statement is appropriate for testing:

   - Is the subject K/A relevant (e.g., is the system, component, process, procedure, or event installed, in use, or possible) at the subject facility?
   - Is the subject K/A's importance rating equal to or greater than 2.5 for the license level of the proposed examination, or is there a site-specific priority that justifies keeping the K/A if its importance rating is below 2.5?
   - Is it possible to prepare a psychometrically sound question related to the subject K/A?

   If these questions can all be answered in the affirmative, then the subject K/A is probably appropriate for testing. The fact that a K/A does not have a corresponding facility learning objective, was not covered in training, or is subject to selection in multiple tiers, are not sufficient bases for eliminating the K/A from any tier of the outline.

4. Facility licensees that elect to pre-screen and eliminate any K/A statements from the random selection process should make arrangements for their NRC regional office to review their screening process and results before they submit their next examination outline. Any subsequent changes to the list of K/As from which the examination outline is generated would also have to be documented, justified, and reviewed by the NRC.

5. Except as noted in Item 1 above, all K/A statements that are eliminated after they have been randomly selected to fill an examination outline shall be documented on Form ES-401-4, "Record of Rejected K/As," or equivalent, and submitted to the NRC's regional office for review in conjunction with the proposed examination outline.

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[1] Single-unit facilities may pre-screen out multi-unit generic K/As 2.2.3 and 2.2.4.

Facility: Date of Exam:

Tier	Group	RO K/A Category Points											SRO-Only Points		
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total
1. Emergency & Abnormal Plant Evolutions	1				N/A					N/A			20			7
	2												7			3
	Tier Totals												27			10
2. Plant Systems	1												26			5
	2												12			3
	Tier Totals												38			8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7

Note:

1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to Section D.1.b of ES-401 ~~, Attachment 2,~~ for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)								Form ES-401-1
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4									
295003 Partial or Complete Loss of AC / 6									
295004 Partial or Total Loss of DC Pwr / 6									
295005 Main Turbine Generator Trip / 3									
295006 SCRAM / 1									
295016 Control Room Abandonment / 7									
295018 Partial or Total Loss of CCW / 8									
295019 Partial or Total Loss of Inst. Air / 8									
295021 Loss of Shutdown Cooling / 4									
295023 Refueling Acc / 8									
295024 High Drywell Pressure / 5									
295025 High Reactor Pressure / 3									
295026 Suppression Pool High Water Temp. / 5									
295027 High Containment Temperature / 5									
295028 High Drywell Temperature / 5									
295030 Low Suppression Pool Wtr Lvl / 5									
295031 Reactor Low Water Level / 2									
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1									
295038 High Off-site Release Rate / 9									
600000 Plant Fire On Site / 8									
700000 Generator Voltage and Electric Grid Disturbances									
K/A Category Totals:							Group Point Total:		20/7

Facility: Date of Exam:

Tier	Group	RO K/A Category Points											SRO-Only Points		
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total
1. Emergency & Abnormal Plant Evolutions	1				N/A					N/A			18			6
	2												9			4
	Tier Totals												27			10
2. Plant Systems	1												28			5
	2												10			3
	Tier Totals												38			8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7

Note:

1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to Section D.1.b of ES-401 ~~,Attachment 2,~~ for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7. * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)								Form ES-401-2
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1									
000008 Pressurizer Vapor Space Accident / 3									
000009 Small Break LOCA / 3									
000011 Large Break LOCA / 3									
000015/17 RCP Malfunctions / 4									
000022 Loss of Rx Coolant Makeup / 2									
000025 Loss of RHR System / 4									
000026 Loss of Component Cooling Water / 8									
000027 Pressurizer Pressure Control System Malfunction / 3									
000029 ATWS / 1									
000038 Steam Gen. Tube Rupture / 3									
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4									
000054 (CE/E06) Loss of Main Feedwater / 4									
000055 Station Blackout / 6									
000056 Loss of Off-site Power / 6									
000057 Loss of Vital AC Inst. Bus / 6									
000058 Loss of DC Power / 6									
000062 Loss of Nuclear Svc Water / 4									
000065 Loss of Instrument Air / 8									
W/E04 LOCA Outside Containment / 3									
W/E11 Loss of Emergency Coolant Recirc. / 4									
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4									
000077 Generator Voltage and Electric Grid Disturbances									
K/A Category Totals:							Group Point Total:		18/6

Examination Outline Cross-Reference:

Level	RO	SRO
Tier #	_____	_____
Group #	_____	_____
K/A #	_____	
Importance Rating	_____	_____

Proposed Question:

Proposed Answer: _____

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)
(including version/revision number) _____

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source:
Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____
(Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level:
Memory or Fundamental Knowledge _____
Comprehension or Analysis _____

10 CFR Part 55 Content:
55.41 _____
55.43 _____

Comments:

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation

Instructions

[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
2. Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable).
3. Check the appropriate box if a psychometric flaw is identified:
   - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
   - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
   - The answer choices are a collection of unrelated true/false statements.
   - The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable.
   - One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).
4. Check the appropriate box if a job content error is identified:
   - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
   - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
   - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
   - The question requires reverse logic or application compared to the job requirements.
5. Check questions that are sampled for conformance with the approved K/A and those that are *designated SRO-only* (K/A and license level mismatches are unacceptable).
6. Enter question source: (B)ank, (M)odified, or (N)ew. Check that (M)odified questions meet criteria of ES-401, Section D.2.f.
7. Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
8. At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation

E. Post-Examination Reviews

1. If the NRC administered the examination, the chief examiner shall ensure that the master copy of the examination reflects all changes made to questions during the administration of the examination. The chief examiner will then provide a copy of the master examination and answer key to the facility staff and answer any questions they may have regarding the NRC's examination review and comment process.

2. If the NRC developed the examination, the chief examiner will also provide the facility licensee with a copy of the examination as edited during the facility prereview. If the facility reviewers believe that the NRC did not adequately resolve the prereview comments, they should address those concerns in a formal comment letter.

3. The NRC's chief examiner will ask the facility prereviewers to confirm that they did not divulge any information about the examination(s) by having them sign the post-examination security statement (Form ES-201-3) after the examinations are completed.

4. The facility licensee should submit formal comments within 5 working days after the examination is administered. However, the facility licensee may expedite the grading process by giving draft comments to the NRC chief examiner before he or she leaves the site. The NRC will consider comments not submitted within the requested time on a case-by-case basis; however, late comments may delay the examination grading process.

   The facility licensee should collect all comments from the license applicants and submit them to the NRC. When submitting applicant comments to the NRC, the facility licensee should identify by docket number which applicant made the comment, and include a facility position for each applicant comment.

5. The facility licensee should submit all comments in the following format:

   - List the question, answer, and reference.
   - State the comment and make a recommendation as to whether the answer should be changed or the question should be deleted. If the facility licensee does not support an applicant's comment, it should briefly explain the reason for its rejection.
   - 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's comment.)

6. Formal comments should be signed by an authorized facility representative and addressed to the responsible NRC regional office, with a copy to the NRC's chief examiner.

7. Although the NRC will review all post-examination comments submitted by a facility licensee, the agency is less likely to approve certain kinds of comments. In the interest of efficiency, facility licensees should consider the guidance contained in ES-403, Section D.1, before submitting post-examination comments to the NRC.

was not accepted; this information will be included in the examination report, as discussed in ES-501.

b. Despite the extensive reviews performed by both the NRC and the facility licensee prior to examination administration (refer to ES-201, Attachment 5), it is possible that a few isolated errors may be discovered only after an examination has been administered. The following types of errors, if identified and adequately justified by the facility licensee, are most likely to result in post-examination changes agreeable to the NRC:

- a question with an unclear stem that confused the applicants or did not provide all the necessary information
- unintended typographical errors in a question or on the answer key
- newly discovered technical information that supports a change in the answer key
- a question that is at the wrong license level (RO versus SRO) or not linked to job requirements

Given that both the NRC and the facility licensee agreed that the examination met NUREG-1021 prior to examination administration, the following types of question errors, identified *after* examination administration, are less likely to result in examination changes:

- a question that does not exactly match its referenced K/A statement
- a question for which references would be needed to provide the correct answer, even though the facility licensee and NRC previously agreed that the question should be closed-reference
- a question that contains psychometric errors that do not increase its difficulty or make the question confusing. For example, a question with two implausible distractors or a collection of true/false answers would be unsatisfactory during examination pre-review, but neither problem would justify deleting a question after examination administration.

Although the NRC will review all post-examination comments submitted by a facility licensee, in the interest of efficiency, facility licensees should consider the above examples prior to submitting post-examination comments to the NRC. Facility licensees with post-examination comments are encouraged to discuss them with the chief examiner prior to formally submitting any comments in writing.

c. If it is determined that there are two correct answers, both answers will be accepted as correct. If, however, both answers contain conflicting information, the question will likely be deleted. For example, if part of one answer states that operators are required to insert a manual reactor scram, and part of another

answer states that a manual scram is not required, then it is unlikely that both answers will be accepted as correct, and the question will probably be deleted.

If three or more answers could be considered correct or there is no correct answer, the question shall be deleted.

Annotate the recommended changes on the master examination and answer key, and document the reason for every change or deletion.

d. Those applicant questions, facility comments, and recommendations that do not result in answer key changes or question deletions, should be evaluated to determine whether the associated test questions might benefit from editorial changes before they are used on another examination.

e. Before depositing the questions in any examination bank, revise the questions to incorporate all changes, comments, and enhancements, as appropriate.

2. Grade the Examinations

a. Copy each applicant's answer sheet, and set the copies aside for later use during the grading review process.

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

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

c. If it is necessary to change a grade during the grading process, do so by lining out the original grade in such a way that it remains legible. Briefly explain the reason for the change on the applicant's answer sheet, and initial the change. Under no circumstances will a grader use "white-out" or other methods that obscure the change.

d. After grading all the questions, enter the applicable "Examination Value(s)" (i.e., the original test point total minus the point value of any deleted questions) for the RO, SRO-only, and overall exams in the "Results" section of the applicant's written examination cover sheet (Form ES-401-7 for ROs, ES-401-8 for SROs, or ES-701-8 for SROs limited to fuel handling). Also enter the "Applicant's Score" and"Applicant's Grade" (i.e., the Applicant's Score divided by the Examination Value) on each part of the examination (RO, SRO, and overall) in the spaces provided on the form.

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

a. If the facility licensee graded the written examinations, the chief examiner shall immediately inventory the examination package to ensure that all required materials have been submitted. The chief examiner shall inform the responsible supervisor of any obvious deficiencies, and shall contact the facility licensee to determine the status of any missing documentation.

b. The chief examiner shall independently analyze *each* examination and answer key change that was made or recommended by the facility licensee or a license applicant to determine whether it is justified. During the analysis, the chief examiner will keep in mind that both the facility licensee and the NRC had previously agreed that the examination met the requirements of NUREG-1021 (refer to ES-201, Attachment 5). Therefore, as discussed in Section D.1 of ES-403, certain kinds of post-examination comments and recommendations are less likely to justify grading or answer key changes.

The chief examiner shall ensure that the reason for accepting or rejecting each change or recommendation is documented in the examination report. The report shall briefly state the region's basis for accepting or rejecting each facility comment; simply stating concurrence with no explanation is not sufficient. The chief examiner will not accept a change to the examination unless the facility licensee submits a valid reference to support its recommendation.

c. The chief examiner shall review the remaining items on Form ES-403-1. In so doing, the chief examiner should apply his or her judgment when reviewing the examination results and should adjust the level of the review based on the performance of the applicants and the facility licensee (e.g., the number of questions changed or deleted, the average grade, the number of borderline or failing grades, etc.). If the examination was graded by machine or using a template, the chief examiner shall ensure that the template accurately parallels the approved answer key.

The chief examiner shall independently grade every borderline examination [i.e., those between 78 and 82 percent overall and between 66 and 74 percent on the SRO-only portion (or 76 and 84 percent if the RO portion was waived), as applicable] using the final, approved answer key and the clean applicant answer sheets provided by the facility licensee.

d. The chief examiner should review the written examination results and the facility licensee's performance analysis (if applicable) for indications of the following:

- deficiencies in the applicants' training program, so that they may be addressed in the examination report
- poor question construction, so that the applicants are not graded unfairly, any significant problems can be addressed in the examination report, and the questions are corrected before reuse
- any indications that the examination was compromised

E. Examination Followup

1. Notify Facility Licensee of Results

The NRC's regional office will notify the facility licensee and applicants of the examination results (as described below) only after they are reviewed and approved by the licensing official.

a. The regional office should normally notify the facility licensee's designated representative of the examination results by telephone, and may confirm the results by mailing a copy of Form ES-501-2 under a separate cover letter. For each applicant who failed or had significant deficiencies that warrant further evaluation and retraining by the facility licensee, the regional office will also send the facility licensee a copy of the applicant's Form ES-303-1 and written examination answer sheet. These form(s) shall *not* be placed in the NRC's Public Document Room or distributed with the final examination report.

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

b. After the licensing official has signed the license, denial, and notification letters, the regional office shall send each applicant's letter along with the following materials:

- a copy of Forms ES-303-1, ES-303-2, and ES-D-1 (and Form ES-D-2 if the applicant failed the simulator operating test) reflecting the "as run" scenario conditions but *without* any rough examiner notes regarding the applicant's performance (pen-and-ink markups of the original, approved scenarios are acceptable)

- a copy of the applicant's written examination cover and answer sheets (as well as a copy of the master written examination and answer key if the applicant failed the written examination)

c. The regional office shall send a copy of Form ES-501-2 to the NRR operator licensing program office. If any of the examinations are later regraded in response to an applicant's request for review (refer to ES-502, "Processing Requests for Administrative Reviews and Hearings After Initial License Denial"), the original Form ES-501-2 on file in the regional office shall be corrected by lining out the old grade, entering the new grade, and initialing the change. Whenever a change is made, the regional office shall mail a copy of the revised form to the program office.

d. ~~f.~~ The responsible supervisor should consider phoning the facility licensee management counterpart to discuss the examination outcome and lessons learned. Any pertinent feedback on the examination process should be forwarded to the operator licensing program office for consideration.

b. Once the licensing decisions are complete, the NRC examiners should discard any marked-up documentation or rough notes for those applicants who receive licenses (except as noted below). In accordance with ES-502, NRC examiners should retain all applicable notes and documentation associated with proposed denials until the denials become final; this may include simulator operating test notes regarding crew members who passed the test if the notes contain information relevant to the failing applicant's performance. Examiners are advised that such notes would be subject to disclosure if requested under the Freedom of Information Act.

c. Agency policy requires that all documents that are not classified, proprietary, sensitive or otherwise protected (e.g., under the Privacy Act or Freedom of Information Act) must be made available to the public. Therefore, the NRC's regional office shall ensure that all documents associated with the licensing examination (i.e., those listed in Section F.1, below), excluding those containing the applicants' names or grades, are placed in the NRC's Public Document Room as soon as possible after the examinations have been completed. NRC Manual Chapter 0620, "Inspection Documents and Records," and SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," provide additional policies and guidance in this area.

F. NRC Record Retention

1. The NRC's regional office shall ensure, for the most recent initial examination at each facility, that originals (whenever possible) or copies of the following items either are retained in the facility's master examination file or are electronically available via the NRC's Agencywide Documents Access and Management System (ADAMS). The italicized items should be retained or available for the last two examinations at each facility so that examiners can verify compliance with the guidelines for test item repetition.

   a. ES-201, Attachment 4, "Corporate Notification Letter"

   b. ES-201, Attachment 5, "Examination Approval Letter," with pen-and-ink changes on Form ES-201-4, "List of Applicants," to identify the applicants who were actually examined

   c. Form ES-201-1, "Examination Preparation Checklist"

   d. the written examination and operating test outline(s), along with Form ES-201-2, "Examination Outline Quality Checklist," and Form ES-401-4, "Record of Rejected K/As" (or the equivalent LSRO forms from ES-701)

   e. the proposed NRC- or facility-developed operating tests and written examination (including comments made by the facility licensee or the NRC, as applicable)

   f. *the final written examination and answer key* with all changes incorporated (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),

NRC Letterhead

(Date)

LICENSE

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

Pursuant to the *Atomic Energy Act of 1954*, as amended; the *Energy Reorganization Act of 1974* (Public Law 93-438), as amended; and subject to the conditions and limitations incorporated herein, the U.S. Nuclear Regulatory Commission hereby licenses you to manipulate all controls of the (Name of facility, facility license number).

Your License No. is OP-(number), and your Docket No. is 55-(number). The effective date is (date). Unless sooner terminated, renewed, or upgraded, this license shall expire 6 years from the effective date.

This license is subject to the provisions of Title 10, Section 55.53, of the *Code of Federal Regulations* (10 CFR 55.53), 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 authorizing 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 U.S. Nuclear Regulatory Commission,

(Name and title of licensing official)

Docket No. 55-(number)

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

NRC Letterhead

(Date)

LICENSE

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

Pursuant to the *Atomic Energy Act of 1954*, as amended; the *Energy Reorganization Act of 1974* (Public Law 93-438), as amended; and subject to the conditions and limitations incorporated herein, the U.S. Nuclear Regulatory Commission hereby licenses you to direct the [licensed] [[fuel handling]] activities of [licensed] operators at, and to manipulate [all] [[fuel handling]] controls of the (Name of facility, facility license number).

Your License No. is SOP-(number), and your Docket No. is 55-(number). The effective date is (date). Unless sooner terminated, renewed, or upgraded, this license shall expire 6 years from the effective date.

This license is subject to the provisions of Title 10, Section 55.53, of the *Code of Federal Regulations* (10 CFR 55.53), 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 authorizing operation of the facility. You shall also comply with the following condition(s):

- 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 U.S. Nuclear Regulatory Commission,

(Name and title of licensing official)

Docket No. 55-(number)

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

[ ] Include only for unrestricted senior operators.
[[ ]] Include only for senior operators limited to fuel handling.

NRC Letterhead

(Date)

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

Dear (Name):

This is to inform you that your grade on the (operating test, written examination, or both) taken on (date(s)), in connection with your application for a (reactor operator, senior reactor operator) license for the (facility name), indicates that you ***did not*** pass that (test, examination, or both). As a result, the U.S. Nuclear Regulatory Commission (NRC) proposes to deny your application. Enclosed is a copy of the (operating test, written examination, 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 Title 10, Section 55.35, of the *Code of Federal Regulations* (10 CFR 55.35), subject to the following conditions:

* a. Because you passed (a written examination and/or the administrative/systems/simulator operating test) on (date(s)), you may request a waiver of (that or those) portion(s).

* b. Because you did not pass the (SRO portion of or written examination overall or administrative/systems/simulator operating test) administered to you on (date), you will be required to retake that portion.

* c. You may reapply for a license 2 months from the date of this letter.

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

** b. You may reapply for a license (6, 24) months from the date of this letter.

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

*** b. You may reapply for a license (2, 6, 24) months from the date of this letter.

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

- You may request an informal NRC staff review of the grading of your examination. Send your written request to Director, Division of Inspection and Regional Support, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address. 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.

- You may request a hearing pursuant to 10 CFR 2.103(b)(2). Submit your request, in writing, to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, with a copy to the Associate General Counsel for Hearings, Enforcement, and Administration, Office of the General Counsel, at the same address. (Refer to 10 CFR 2.302 for additional filing options and instructions.) If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address.

Pursuant to 10 CFR 55.35, you may not reapply for a license until your license has been finally denied. Failure on your part to exercise either of the above options within 20 days constitutes a waiver of your opportunity for informal review and your right to demand a hearing. For the purpose of re-application under 10 CFR 55.35, such a waiver 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 official)

Docket No. 55-(number)

Enclosures: As stated

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

CERTIFIED MAIL, RETURN RECEIPT REQUESTED

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

** Use for second and subsequent retake applicants.

*** Use for applicants who failed both the operating test and the written examination.

ES-502
PROCESSING REQUESTS FOR ADMINISTRATIVE REVIEWS AND HEARINGS AFTER INITIAL LICENSE DENIAL

A. Purpose

This standard describes the options and associated responsibilities regarding administrative reviews and hearings related to license application denials and license denials resulting from examination failures. This standard also addresses license re-applications after a denial becomes final.

B. Background

Operator license applicants who are denied the opportunity to take an NRC licensing examination because they do not meet the eligibility requirements for a license pursuant to Title 10, Part 55, of the *Code of Federal Regulations* (10 CFR Part 55) and those applicants who are denied a license because they failed a written examination or operating test administered pursuant to 10 CFR Part 55 are notified of their denials in writing. The proposed denial letters describe the nature of the deficiencies noted and inform the applicants of their available response options. Applicants may reapply pursuant to the provisions of 10 CFR 55.35. However, the NRC will not accept a re-application as long as a request is pending for either an administrative NRC review or a hearing.

C. Responsibilities

1. Applicant

a. An applicant who does not appear to meet the experience and training requirements for a license may be asked to provide additional information to the NRC's regional office in accordance with ES-202, "Preparing and Reviewing Operator License Applications." If the NRC still denies the application after the applicant provides the additional information requested by the NRC, the applicant may exercise one of the following options within 20 days after the date on the proposed denial letter from the regional office:

(1) Do nothing. The proposed denial letter then becomes the final denial. The applicant may reapply after obtaining the requisite training or experience.

(2) Request reconsideration of the application denial. Applicants must submit such requests to the Director, Division of Inspection and Regional Support, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address. The applicant's submittal must clearly state the basis for the request.

(3) Request a hearing pursuant to 10 CFR 2.103(b)(2). Applicants must submit such requests to the Office of the Secretary, U.S. Nuclear

Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, with a copy to the Associate General Counsel for Hearings, Enforcement, and Administration, Office of the General Counsel, at the same address. (Refer to 10 CFR 2.302 for additional filing options and instructions.) If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address.

b. If an applicant fails the operator licensing written examination or operating test (or both) and receives a proposed license denial letter issued by an NRC regional office in accordance with ES-501, "Initial Post-Examination Activities," the applicant has 20 days from the date on the letter to exercise one of the following three options:

(1) Do nothing. The proposed denial letter then becomes the final denial. The applicant may reapply, pursuant to 10 CFR 55.35, 2 months after the date on the first denial letter, 6 months after the second denial, and 24 months after each successive denial.

(2) Request that the NRC administratively regrade the written examination, the operating test, or both, in light of new information to be provided by the applicant. Applicants must submit such requests to the Director, Division of Inspection and Regional Support, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address. If the applicant submits such a request, the NRC will not consider a re-application pursuant to 10 CFR 55.35 until a denial is final.

The applicant's request for administrative review must identify the item(s) for which additional review is requested and must include documentation supporting the item(s) in contention. The applicant is responsible for ensuring that the request and the supporting documentation are sent to the NRR operator licensing program office within 20 days after the date on the proposed denial letter.

If the NRC administratively reviews a failure and determines that the applicant did not provide sufficient basis to justify passing grades on all sections of the licensing examination, the NRC will issue a letter to the applicant sustaining the proposed denial. The applicant may then request a hearing pursuant to 10 CFR 2.103(b)(2). In such instances, the applicant must submit a request for a hearing after an administrative review within 20 days after the date on the letter from the NRR operator licensing program office sustaining the proposed denial. In addition, the applicant must submit the hearing request in accordance with Section C.1.b(3), below.

If the applicant does not request a hearing when the NRR operator licensing program office sustains the proposed denial, the proposed

denial becomes the final denial. The applicant may then reapply for a license, pursuant to 10 CFR 55.35, 2 months after the date of the first sustained denial letter, 6 months after the second denial, and 24 months after each successive denial.

(3) Request a hearing as provided by 10 CFR 2.103(b)(2). The applicant must submit the hearing request to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, with a copy to the Associate General Counsel for Hearings, Enforcement, and Administration, Office of the General Counsel, at the same address. If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address. (Refer to 10 CFR 2.302 for additional filing options and instructions.) If the applicant requests a hearing, the NRC will not consider a re-application pursuant to 10 CFR 55.35 until the denial is final.

2. Facility Licensee

a. The NRC may ask the facility licensee to provide reference materials, technical support, and (if the facility licensee prepared the examination) a confirmation of the validity of the test items, as necessary for the NRC staff to evaluate and resolve any concerns raised by a license applicant who asked the NRC to reconsider a proposed denial of an application or license.

b. If the facility licensee prepared the examination, it should ensure that any written examination questions that are determined to be invalid (e.g., those that have no or multiple correct answers) are retrieved from any examination bank into which they have been deposited and corrected or discarded.

3. NRC

a. The NRC will conduct administrative reviews of Part 55 license application denials based on eligibility as described in Section D.1, below.

b. The NRC will conduct administrative reviews of Part 55 license denials based on examination failures as described in Section D.2, below.

c. The NRC will conduct Part 55 operator licensing hearings in accordance with 10 CFR Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders."

3. Reference Material

a. The NRC expects the facility licensee to supply the reference materials requested in the corporate notification letter (see Enclosure 1 to Attachment 2). The NRC will evaluate the facility's reference materials for adequacy before the scheduled preparation week, using the "Evaluation Checklist for Facility Reference Material," Form ES-601-2.

b. The NRC reserves the right to prepare the requalification examinations using the facility's background reference materials if the facility licensee's test items are inadequate for examination preparation. If the NRC prepares the examination, the staff may require reference materials comparable to those listed in ES-201, Attachment 3, "Reference Material Guidelines for Initial Operator Licensing Examinations."

c. The NRC expects the facility licensee to provide a sample plan that meets the guidelines of Attachment 3, "Examination Sample Plan," for the NRC's use in developing the examination.

4. Examination Team Selection

a. The NRC will contribute no fewer than two examiners to the examination team. The regional office should consider assigning additional examiners if the operating crews for the dynamic simulator examinations contain five or more operators. To promote consistency in requalification program administration, regional office management should try to assign an examiner who participated in a prior requalification inspection or examination at the facility to be part of the NRC's examination team.

In most cases, the NRR operator licensing program office will send a representative to observe the examination process or an examiner to participate as an additional member of the examination team. The program office will work with the responsible regional supervisor to make the necessary arrangements.

b. The facility licensee is expected to provide an employee to work with the NRC as part of the requalification examination team. The employee must be drawn from the operations staff, and must be an active senior reactor operator (SRO) as defined in 10 CFR 55.53(e) or (f). The NRC encourages the facility licensee to designate another employee from the training staff to be a member of the examination team. This employee should also be a licensed SRO, but may be a certified instructor. If the facility licensee desires, and the chief examiner agrees, the facility licensee may also include additional employees from the operations or training staffs who have qualifications comparable to the facility's other examination team members.

NRC Letterhead

(Date)

(Name, Title)
(Name of facility)
(Street address)
(City, State Zip code)

SUBJECT: REQUALIFICATION PROGRAM EVALUATION

Dear (Name):

In a telephone conversation on (date), (Name, title) and (Name, title) arranged to evaluate the requalification program and licensed personnel at the (facility name). The evaluation is scheduled for the week of (date). NRC examiners and evaluators from your facility will conduct requalification examinations, and the NRC will evaluate your requalification program in accordance with Sections ES-601 through ES-604 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1. You are encouraged to ensure that your training staff and proposed examinees are familiar with these standards.

For the NRC to adequately prepare for this evaluation, the facility licensee will need to furnish the NRC with the approved items listed in Enclosure 1, "Reference Material Guidelines." You are also requested to submit, at your option, a proposed examination for use during the examination week. However, if you do submit a proposed examination, the personnel participating in its development will become subject to the security restrictions described in this letter.

Please review the guidance promulgated in Revision 9 of NUREG-1021 concerning the content and scope of simulator examination scenarios. The scenario examination bank should cover the entire spectrum of emergency operating procedures (EOPs), including alternative decision paths within the EOPs, and it should incorporate a range of failures with various degrees of severity for the same type of event. Each scenario should contain simultaneous events that require the senior reactor operators (SROs) to prioritize their actions and to assign particular tasks to other crew members. Each scenario should also require the SROs to decide when to make the transition between EOPs and which actions to take within EOPs.

You are requested to designate at least one employee to be a member of a joint NRC-facility examination team. That employee is expected to be an active SRO [as defined by Title 10, Section 55.53(e) or (f) of the *Code of Federal Regulations* (10 CFR 55.53(e) or (f))] from the (facility name) operations department. You are encouraged to designate a second employee from the training staff to be a member of the examination team. This employee should also be a licensed SRO, but may be a certified instructor. If desired and agreed to by the chief examiner, you may designate one additional employee from the training staff who has appropriate qualifications to be a member of the examination team. In addition to these individuals, you will need to designate a simulator operator for scenario preview and validation during the onsite examination preparation week. In some cases, you may also need to designate a simulator operator during the test item review period. All of these individuals will be subject to the examination security agreement.

The NRC restricts any facility licensee representatives under the security agreement from knowingly communicating (by any means) the content or scope of the examination to unauthorized persons, and/or participating in any facility licensee programs (such as instruction, examination, or tutoring) in which an identified requalification examinee will be present. These restrictions apply from the day that the facility licensee representative signs the examination security agreement indicating that the representative understands that he or she has specialized knowledge of the examination. The chief examiner will determine when a facility licensee representative has received specialized knowledge concerning the examination and will execute an examination security agreement. In most cases, the examination team members will not be required to enter into an examination security agreement more than 60 days before the examination week. The simulator operator will normally become subject to the security restrictions during the examination preparation and validation week; however, this may occur as much as 45 days before the examination week.

Sixty days before the examination administration date, please provide the NRC's regional office with a proposed list of operators, including crew composition, for the examination. The list should include at least 12 operators, comprising three or more crews, and the current mailing address for each proposed operator, if different from that listed on the most recent Form 398 submitted to the NRC. Your training staff should send this information directly to the NRC's chief examiner, ensuring that each operator's address is sent in a manner to ensure privacy.

The facility licensee may request that the NRC chief examiner or another NRC representative meet with the licensee managers and the operators to be examined during the examination preparation week, normally 2 weeks before the examination. However, if the schedule does not allow them to meet during the preparation week, they may meet at any mutually agreeable time. The NRC examiner will explain the examination and grading processes and will respond to any questions that the operators may have about the NRC's examination procedures. If such a meeting is desired, your training staff should schedule it with the NRC's chief examiner.

The facility licensee staff 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. Also, a facility operations management representative above a shift supervisor level should observe the simulator examination process at the site.

This letter contains information collections that are subject to the *Paperwork Reduction Act of 1995* (44 U.S.C. 3501 et seq.). These information collections were approved by the Office of Management and Budget, under approval number 3150-0018, which expires on June 30, 2009.

The public reporting burden for this collection of information is estimated to average 25 hours per response, including the time for reviewing instructions, gathering and maintaining the necessary data, and completing and reviewing the collection of information. Send comments on any aspect of this collection of information, including suggestions for reducing the burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by electronic mail to bjs1@nrc.gov; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0018), Office of Management and Budget, Washington, DC 20503.

and/or at the proper time, will prevent the system from functioning properly or preclude successful completion of the task. Form ES-C-1, "Job Performance Measure Worksheet," or an equivalent facility form should be used to construct and format the JPMs.

In accordance with 10 CFR 55.59(a)(2)(ii), requalification operating tests require operators and senior operators to demonstrate an understanding of and ability to perform necessary actions. Therefore, JPMs selected for the walk-through examination shall not test solely for simple recall or memorization. Although it was written in a style to address written examinations, refer to ES-602, Attachment 1, "Guidelines for Developing and Reviewing Open-Reference Examinations," when preparing JPMs as well. Although an operating test does not require every JPM to be alternate path or demonstrate detailed system understanding, simple one-step JPMs or JPMs that only require directly looking up the correct answer are not appropriate. JPMs that incorporate the testing of immediate action steps from memory are acceptable. However, JPMs should not solely test immediate action steps, and should include testing additional steps or items that are not from memory.

The majority of the JPMs selected for the walk-through examination will cover topics from the most recent requalification training cycle. In addition, the facility is expected to create at least 10 new JPMs each year until they have a JPM bank that is representative of Sections C.1.a and C.1.b of this examination standard. The NRC anticipates that a facility's bank will comprise approximately 125–150 JPMs; however, the exact number will depend on the facility's JTA. New JPMs should generally be based on recent requalification training, industry events, facility changes, and tasks for safety-significant systems.

e. The NRC staff expects each facility to develop "time-critical" JPMs to evaluate time-critical tasks identified in the facility's JTA for each licensed position. To facilitate the selection of time-critical JPMs for the requalification examination, the facility licensee is expected to uniquely identify these JPMs. To successfully complete a time-critical JPM, the operator must perform the "time-critical" steps within a pre-specified time period, in addition to successfully performing all of the critical steps that are not time-critical. The time period identified in the time-critical JPM should be based on a regulatory requirement or a facility commitment to the NRC.

f. The NRC staff also expects each facility to develop "alternate-path JPMs" and include them in the JPM bank. To facilitate the selection of alternate-path JPMs for the requalification examination, the NRC staff expects the facility licensee to uniquely identify these JPMs. Appendix C provides guidance for use in developing these JPMs.

2. NRC Examination Team Members' Responsibilities

a. The NRC's examination team will review and approve the JPMs selected by the facility. The majority of the selected JPMs should be based on the systems covered during the most recent requalification cycle. However, the facility should also select JPMs in systems that are important to safety, regardless of when they were reviewed in requalification training.

ES-605
LICENSE MAINTENANCE, LICENSE RENEWAL APPLICATIONS, AND REQUESTS FOR ADMINISTRATIVE REVIEWS AND HEARINGS

A. Purpose

This standard describes the requirements for maintaining an NRC operator's license and the procedures for processing license renewal applications, licensed operators' requests for administrative reviews and hearings 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 application. The staff developed this standard to establish the procedures for processing operators' renewal applications and requests for administrative reviews and hearings regarding the denial of renewal applications resulting from failures of NRC-conducted requalification examinations.

C. License Maintenance

1. Requalification Training and Testing

a. Title 10, Section 55.53(h), of the *Code of Federal Regulations* [10 CFR 55.53(h)] imposes a condition that requires licensed operators to complete a requalification program as described by 10 CFR 55.59; the requirement applies to all operators, even if they do not maintain watch-standing proficiency pursuant to 10 CFR 55.53(e). 10 CFR 55.59(a)(1) requires licensed operators to successfully complete a requalification program not to exceed 24 months in duration, and 10 CFR 55.59(c)(1) requires the requalification program to be conducted for a continuous period not to exceed 2 years. To keep from exceeding the 24 month/ 2 year duration requirement, a requalification program must be completed within the anniversary month of the second year. For example, if a licensed operator requalification program was started on June 1, 2004, the facility licensee would have until June 30, 2006, to complete the program to ensure compliance with 10 CFR 55.59(a)(1) and (c)(1).

Under 10 CFR 55.59(a)(2), licensed operators must pass a comprehensive requalification written examination as part of a 24-month requalification program; therefore, the exam must occur ***during*** the requalification program, rather than after its completion. Although the comprehensive written examinations are generally conducted on the same 24-month frequency, their timing can be adjusted somewhat near the end of the 24-month program to account for outages and other events, thereby resulting in some longer testing intervals if an examination is advanced during one 24-month program cycle and returned to its normal timing during the following cycle. Thus, the interval between the administration of successive comprehensive written requalification examinations may exceed 24 months for individual licensed operators. As long as a licensed operator successfully

If the regional office approves the temporary suspension, it will amend the operator's license to prohibit the performance of licensed duties during the reassignment. The regional office will also confirm its expectations regarding the operator's return to licensed duties and the need for the facility licensee to certify when the actions have been completed. These expectations will be documented in a letter to the facility licensee with a copy to the operator.

The regional office shall refer situations outside the specified parameters to the NRR operator licensing program office for evaluation.

2. Proficiency Watches

a. In accordance with 10 CFR 55.53(e), licensed operators are required to maintain their proficiency by "actively performing the functions of an operator or senior operator" on at least seven 8-hour or five 12-hour shifts per calendar quarter. This requirement may be completed with a combination of complete 8- and 12-hour shifts (in a position appropriately credited for watch-standing proficiency as discussed below ~~required by the plant's technical specifications~~) at sites having a mixed shift schedule, and watches shall not be truncated when the operator satisfies the minimum quarterly requirement (56 hours). Overtime may be credited if the overtime work is in a position appropriately credited for watch-standing proficiency. ~~required by the plant's technical specifications.~~ Overtime as an extra "helper" after the official watch has been turned over to another watchstander does not count toward proficiency time.

b. In accordance with 10 CFR 55.4, "actively performing the functions of an operator [RO] or senior operator [SRO]" means that an individual has a position on a shift crew that requires the individual to be licensed as defined in the facility's technical specifications. Watch-standing proficiency credit may also be appropriate for certain licensed RO or SRO shift crew positions that are in excess of those required by a facility's technical specifications. However, in order to credit watch-standing proficiency for such excess positions, the facility licensee shall have in place the following procedural administrative controls:

(1) A list of all the licensed shift crew positions, including title, description of duties, and indication of which positions are required by technical specifications.

(2) For each shift crew position in excess of those required by technical specifications, a description of how the position is *meaningfully and fully* engaged in the functions and duties of the analogous minimum licensed position(s) required by technical specifications. For example, a dual unit facility with a common control room where technical specifications require two SROs per shift, could credit watch-standing proficiency for three SROs per shift, with one SRO responsible for overall plant operation and the other two SROs each responsible for the command and control of a single unit. In this case, the third SRO would be entitled to watch-standing proficiency credit, because he or she is performing duties analogous to the second SRO (who is required by technical

specifications). Similarly, a dual unit facility with a common control room could credit watch-standing proficiency for four ROs (two per unit) per shift, at a facility where technical specifications require only three ROs, if the fourth RO is performing duties analogous to the third RO (who is required by technical specifications).

If a facility cannot justify, as explained above, crediting watch-standing proficiency for shift crew positions in excess of technical specifications, or does not implement administrative controls as described above, then an individual who stands watch in an excess position shall not receive proficiency credit. In order to maintain an active license under such circumstances, each licensed individual would have to rotate into a licensed shift crew position required by technical specifications for the minimum of seven 8-hour or five 12-hour shifts per calendar quarter, with sufficient administrative controls to document those activities.

Facility licensees that are uncertain if their shift crew positions in excess of those required by technical specifications qualify for watch-standing proficiency credit should contact their NRC regional office.

c. It is permissible for an individual with an SRO license to maintain only the RO portion of his or her license in an active state by performing the functions of an RO for a minimum of seven 8-hour or five 12-hour shifts per calendar quarter pursuant to 10 CFR 55.53(e). Moreover, an inactive SRO may reactivate only the RO portion of his or her license, pursuant to 10 CFR 55.53(f)(2), by completing a minimum of 40 hours of shift functions, including a plant tour, under the direction of an operator and in the position to which the individual will be assigned. However, the fact that an SRO license holder is routinely standing watches only as an RO does ***not*** maintain his or her proficiency as an SRO. Therefore, before such an SRO can resume duties that require an SRO license, he or she must reactivate that portion of the license, pursuant to 10 CFR 55.53(f)(2), by completing a minimum of 40 hours of shift functions, including a plant tour, under the direction of a senior operator and in the SRO position to which the individual will be assigned.

d. To maintain the supervisory portion of a SRO license active, a SRO must stand at least **one** complete watch (8- or 12-hour shift) per calendar quarter in a shift crew position credited for SRO-only supervisory licensed duties. The remainder of complete watches (to meet the required minimum of seven 8-hour or five 12-hour shifts per calendar quarter) may be performed in either a credited SRO or RO position. A SRO may stand all of his or her required watches in credited SRO-only supervisory positions, and the RO portion of the license will still be considered active. Similarly, for a SRO to reactivate the supervisory portion of his or her SRO license, pursuant to 10 CFR 55.53(f)(2), a SRO must complete a minimum of 40 hours of shift functions, including a plant tour, under the direction of a SRO in a credited SRO-only supervisory position. A SRO who reactivates his or her license in this manner automatically reactivates the RO portion of the license; an additional 40 hours of under-direction watches in a credited RO position is not required.

e. Individuals who are licensed on two (or more) similar units at a facility are not required to establish proficiency on each of the similar units unless they hold a separate license on each unit. Performing the required seven 8-hour or five 12-hour shifts of watch-standing per calendar quarter on a single unit maintains the license active for all similar units identified on the license. Similarly, individuals who are licensed on two (or more) similar units at a facility are not required to reactivate their license on each of the similar units identified on the license. Performing the required 40 hours of under-direction watches on a single unit reactivates the license for all similar units at a facility.

f. In addition to the under-direction watch requirements discussed above, the following also apply to license reactivation pursuant to 10 CFR 55.53(f):

- The 40 hours of under-direction watches required by 10 CFR 55.53(f)(2) shall only be credited for standing watches in a RO or SRO position appropriately credited for maintaining license proficiency. It is not appropriate to credit reactivation watch hours while under the direction of an active license holder who is standing watch in an "extra" or non-credited position.

- When performing under-direction watches, only **one** under-direction watchstander shall be assigned to an active license holder. Given that the inactive operator is required to complete (not just observe) 40 hours of shift functions, it would not be appropriate to divide under-direction watch functions among multiple individuals.

- The 40 hours of under-direction watches for license reactivation do not need to occur in complete shifts or be completed on consecutive days. All 40 hours must occur within the same calendar quarter, and at least one complete on-coming shift turnover and one complete off-going shift turnover must be performed while under the direction of the active license holder.

- All 40 hours of under-direction watches do not need to occur in the control room; they may be performed wherever the duties of the credited licensed position are performed.

- The 40 hours of under-direction watches must include at least one complete plant tour. Since it is a part of the 40 hours of under-direction watches, the plant tour must be performed under the direction of an active license holder. Although the regulations do not define the scope of a complete plant tour, the NRC expects that this tour will include all readily accessible major areas of the plant, including areas that: (1) are routinely toured by in-plant operators, (2) contain safety-related equipment, and (3) contain structures, systems and components governed by the NRC's maintenance rule (10 CFR 50.65). If a facility has developed a checklist of areas to tour, it is generally inappropriate to skip plant areas and mark the items as "non-applicable," unless there is sufficient justification (e.g., a personnel or radiation hazard).

g. The regulations does not include provisions for SROs who are limited to fuel handling (i.e., LSROs) to maintain proficiency between refueling outages. Consequently, unless such LSROs are licensed on multiple units that have refueling outages during successive calendar quarters, they would generally have to reestablish proficiency by standing an "under-direction" watch pursuant to 10 CFR 55.53(f)(2). Ideally, such a watch should be performed primarily in the fuel handling area during refueling operations [i.e., at a time when the presence of a senior operator is required pursuant to 10 CFR 50.54(m)(2)(iv)]. This would clearly meet the requirements of 10 CFR 55.53(f)(2), which mandates that the licensee must complete one shift of shift functions under the direction of a senior operator in the position to which the licensee will be assigned, as well as the definition of *actively perform the functions of a senior operator* (in 10 CFR 55.4), which requires that the licensee must fill a position on the shift crew that requires the individual to be licensed and to carry out and be responsible for the duties covered by that position. This also ensures that the trainee's activities are adequately supervised.

However, given the infrequency and short duration of shift functions that require the presence of an LSRO on the refueling floor, it may not always be practical for a facility licensee to delay its LSRO reactivations until those shift functions are actually underway. In such instances, the facility licensee can satisfy the intent of the regulation by implementing a reactivation program that specifies, in detail, the refueling tasks, activities, and procedures that an LSRO must satisfactorily complete or simulate in order to demonstrate watch-standing proficiency. Moreover, such a program shall exercise positive control to ensure that the LSRO completes the required tasks, activities, and procedures within a reasonable period of time (ideally, no more than 1 week) before he or she is assigned to supervise refueling shift functions.

To properly reactivate an LSRO license in accordance with 10 CFR 55.53(f), the individual should stand a watch under the direction and ***in the presence of*** an active SRO or LSRO, who will directly oversee the trainee's activities, provide feedback as appropriate, and enable an authorized representative of the facility licensee to certify that the operator's qualifications are current and valid, as required by 10 CFR 55.53(f)(1). Permitting trainees to perform self-directed activities on the refueling floor eliminates the opportunity for meaningful feedback, thereby casting doubt on the validity of the resulting certification. The NRC's requirements regarding the conduct of under-instruction or training watches are reflected in 10 CFR 55.13, which allows trainees to manipulate the controls of a facility "under the direction and in the presence of a licensed operator or senior operator..." This position is also evident in the responses to Questions 252 and 276 in NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, *Code of Federal Regulations*, Part 55 on Operators' Licenses," which indicate that a trainee's activities are to be closely monitored by the responsible person.

If a facility licensee needs to reactivate a regular SRO license for the purpose of supervising refueling activities, the operator must complete one shift under direction on the refueling floor, as discussed above, and the facility licensee

a. If, during the term of the license, an 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" or require compensatory measures, such as taking any medications as prescribed during the temporary period to maintain medical qualifications, or impose other operating restrictions to accommodate the operator's medical condition until the operator is once again certified to meet all medical standards by the facility licensee. Similarly, if the operator's medical condition precludes the operator from completing the requalification training program pursuant to 10 CFR 55.59(a), the facility licensee shall administratively control the operator's activities until he or she completes the requirements of 10 CFR 55.59(b), "Additional Training," including notification of the NRC.

The facility licensee need not notify the NRC nor request a conditional license concerning an operator's temporary disability, including the temporary use of prescribed medications, provided that the facility licensee administratively prevents the operator from performing licensed duties or otherwise compensates or restricts the operator, as appropriate, throughout the period of his or her temporary disability. If the disability extends beyond the date of license expiration, the operator may apply for timely license renewal in accordance with 10 CFR 55.55(b) and 10 CFR 55.57(a). In that event, the facility licensee should document the nature of the operator's temporary disability on the medical certificate and submit a revised certificate to the NRC after the physician determines that the operator meets the requirements of 10 CFR 55.33(a)(1). The NRC will not renew the operator's license until the staff finds that all of the conditions specified in 10 CFR 55.57(b) are satisfied.

b. If the facility licensee determines that an operator's medical condition is *permanently* disqualifying in accordance with ANSI/ANS-3.4, the facility licensee shall notify the NRC within 30 days of learning of the diagnosis (see 10 CFR 50.74 and 55.25). If an operator develops a permanent medical condition that is not identified in ANSI/ANS-3.4, but the examining physician believes that it could affect the operator's performance or cause operator errors, then it would be prudent to report it to the NRC or at least contact the NRC to inquire whether it should be reported.

While most of the medical conditions/disabilities identified in ANSI/ANS-3.4, including those that result in failure to meet the minimum requirements for medical qualification, are likely to be permanent, the examining physician is responsible for evaluating each operator's medical condition on a case-by-case basis and assessing whether the operator will be capable of meeting medical standards in the foreseeable future. For example, the facility licensee should report to the NRC a condition for an operator who takes medication to meet the minimum standard for blood pressure (i.e., less than or equal to 160/100 mmHg), unless the physician has reasonably determined that the condition will be controllable without medication in the foreseeable future. In addition, many physicians prescribe blood pressure medication prior to an individual reaching the 160/100 mmHg limit, and facility licensees should consider reporting this to the NRC as well.

When reporting a permanent disqualifying medical condition, if a conditional license is requested, the facility licensee shall provide medical certification and evidence on NRC Form 396 and recommend the exact wording of any license restriction that might be necessary. A permanent disqualifying condition is always reportable, even if it is being controlled and regardless whether the compensatory measures are recognized in the applicable version of ANSI/ANS-3.4.

c. In accordance with 10 CFR 55.33(b), if an operator's medical condition does not meet the minimum standards under 10 CFR 55.33(a)(1), the NRC may condition the license to accommodate the medical defect. The NRC will consider the recommendations and supporting evidence provided on or with NRC Form 396 in determining the appropriate license condition. The following medical restrictions/conditions are illustrative but not all-inclusive:

- An operator may be required to wear **corrective lenses** while performing licensed duties if his or her vision does not meet medical standards.

- An operator may be required to wear a **hearing aid** while performing licensed duties if his or her hearing does not meet medical standards.

- An RO who is at risk of sudden incapacitation may have a ***no-solo*** restriction that requires another licensed operator to be in view when the restricted operator is performing control manipulations, and someone capable of summoning assistance to be present at all other times while the restricted operator is performing licensed duties. The analogous SRO restriction would require another licensed operator to be in view when the restricted operator is performing control manipulations, and another senior operator to be present on site at all other times while the restricted operator is performing SRO licensed duties or someone capable of summoning assistance to be present at all other times while the restricted operator is performing RO licensed duties. For LSROs, the no-solo restriction would require someone capable of summoning assistance to be in view when the restricted LSRO is performing licensed LSRO duties.

- An operator may be required to take ***medication as prescribed***, if an operator's medical qualification is contingent on taking a prescription medication.

- An operator whose medical condition is acceptable but unstable may be required to submit followup ***medical status reports*** (i.e., prognosis, treatment, and ability to perform licensed duties) at 3-, 6-, or 12-month intervals.

- An operator with ***respiratory problems*** may be restricted from performing licensed activities that require the use of a respirator.

d. With regard to prescription medications, it is important that the examining physician understand what medical conditions are contained in the applicable version of ANSI/ANS-3.4. For example, the fact that a licensed operator is diagnosed with gastroesophageal (acid) reflux disease and placed on the appropriate prescription medication would, in all likelihood, not be reportable to the NRC, since this condition is not addressed in ANSI/ANS-3.4. However, when assessing *any* prescription medication, the examining physician needs to consider: (1) the possible side effects of the medication, to ensure that they will

not cause operational errors or affect the operator's capacity to safely perform licensed duties; and (2) any delay in taking a medication that might be expected to result in the incapacity of the operator.

In addition, the actual wording of the license condition regarding medication will **not** specify a particular medical condition or medication, but it will simply state that the operator must "take medication as prescribed." Therefore, physician-prescribed changes in medication or dosing for an existing medical condition are not required to be reported to the NRC, unless the examining physician believes the operator's medical condition has become unstable (therefore requiring followup medical status reports to the NRC) or that the operator requires a no-solo license restriction. However, any new permanently disqualifying medical condition(s), requiring new medication(s), must be reported to the NRC.

Facility licensee's do not need to submit a revised NRC Form 398 for operators with existing medical conditions simply because NRC Form 398 has recently been changed to include medications. If an operator is currently prescribed medication for an existing medical condition, the revised NRC Form 398 should be submitted the next time that operator's license is due for renewal, and marked to indicate that the license will be conditioned to require taking medication as prescribed. A new NRC Form 398 would also be required if the operator develops a new permanent physical or mental condition reportable under 10 CFR 55.25.

4. Downgrading an SRO License

If a facility licensee desires to permanently downgrade the license of a senior operator at the facility, it may do so by submitting a written request to the NRC regional office. In such instances, the NRC regional office will (1) amend the license to restrict the operator's activities to those authorized for a reactor operator under 10 CFR Part 55; (2) condition the license to prohibit the operator from directing the licensed activities of licensed operators; and (3) inform the operator and facility in writing that the license will not be subject to renewal under 10 CFR 55.57 and that a new application (NRC Form 398) will be required pursuant to 10 CFR 55.31 if the operator desires to maintain an RO license upon expiration of the amended SRO license. The expiration date of the original license will not change, and the operator may transition to the RO requalification program upon receipt of the amended license.

D. License Renewal

1. An operator who wishes to renew a license must comply with the requirements of 10 CFR 55.57(a), as follows:

   a. The operator will complete NRC Form 398, including the operator's experience under the current license, the approximate number of hours that the operator spent on operating shifts, and the date and results of the applicant's most recent requalification written examination and annual operating test. The senior management representative on site shall provide evidence that the operator has safely and competently discharged his or her license responsibilities and satisfactorily completed the facility's approved requalification program by checking Item 19.c and signing in the designated space on Form 398.

   b. The facility licensee must certify on NRC Form 396 that a physician has performed a medical examination within the previous 2 years, as required by 10 CFR 55.21 and submit that form along with NRC Form 398.

   c. The operator must submit NRC Forms 396 and 398 not less than 30 days before the expiration date of the license. In accordance with 10 CFR 55.55(b), if the operator files a proper application for renewal at least 30 days before the date of expiration, the license shall not expire until the NRC has denied the application for renewal or issued a new license. If the application is received more than 60 days in advance, the regional office should contact the facility licensee to determine whether it would prefer to have the license renewed immediately with a new effective date (the license will not be predated, nor will it exceed a 6-year license term) or to resubmit the application within the 60- to 30-day window preceding the expiration date.

      If an operator is waiting to be given a reexamination after failing a requalification examination, the operator *should still make timely application* for license renewal under the provisions of 10 CFR 55.55(b).

      The NRC's regional office may allow for transit time and accept a license renewal application that is received 25 days before the license expiration date, provided that 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) from 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 regional office, the license shall expire on the expiration date. The regional office may then issue a new license when it has finished processing the application.

   d. If the license for a RO expires while he or she is participating in the facility licensee's SRO upgrade training program, NRC Forms 396 and 398 should still be submitted for timely renewal of the RO license. However, if the RO is not current in the facility's requalification training and testing program, because he or she is attending SRO upgrade training, NRC Form 398 must note the exception

in block 17, "Comments," and the operator must be administratively restricted from performing licensed duties until the individual is up-to-date in the requalification program.

e. Pursuant to 10 CFR 55.5, "Communications," facility licensees may submit these forms to the NRC by mail, in person, or, where practicable, via electronic information exchange (EIE) or on CD-ROM. Electronic submissions must be made in a manner that enables the NRC to receive, read, authenticate, distribute, and archive the submission, and process and retrieve it one page at a time. Detailed guidance on making electronic submissions can be obtained by visiting the NRC's public Web site at http://www.nrc.gov/site-help/e-submittals.html, calling (301) 415-6030, sending an email message to EIE@nrc.gov, or writing to the Office of the Chief Information Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Forms that have only a single signature, such as NRC Form 396, may be submitted electronically using an electronic digital signature. However, forms with multiple signatures, such as NRC Form 398, must rely on handwritten optically scanned signatures, because of the limited digital signature capability of the EIE system. For any textual documents submitted in an optically scanned format, please note that Searchable Image (Exact) PDF is required to preclude optical character recognition errors. When sending forms via EIE, facility licensees are encouraged to follow up with a phone call or e-mail message to the operator licensing assistant in the regional office to ensure the forms are received.

f. After reviewing the renewal application, the NRC's regional office may ask the operator or facility to provide supplemental information. The operator or facility must forward the requested supplemental information to the regional office within 20 days.

If an applicant for renewal declines to provide the supplemental information requested by the NRC's regional office, or if the regional office concludes, after reviewing any additional information supplied by the operator, that the application is still inadequate for license renewal, the regional office will notify the operator in writing that the renewal application is denied. The operator may then exercise one of the following options within 20 days after the date of the proposed denial letter from the regional office:

(1) Do nothing. The denial will become final 20 days after the date of issuance, and the regional office will inform the facility licensee and the operator in writing that the license has been terminated.

(2) Request reconsideration of the application denial. Applicants must submit such requests in writing to the Director, Division of Inspection and Regional Support, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address. Requests for informal reviews by the NRC shall list the items for which the applicant is requesting additional review and include documentation supporting the contentions made by the operator. The package containing the review request and supporting

documentation must be mailed or delivered within 20 days of the date of denial.

(3) Request a hearing pursuant to 10 CFR 2.103(b)(2). Applicants must submit such requests to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, with a copy to the Associate General Counsel for Hearings, Enforcement, and Administration, Office of the General Counsel, at the same address. (Refer to 10 CFR 2.302 for additional filing options and instructions.) If submitting via private courier (e.g., FedEx, UPS), send your request to 11555 Rockville Pike, Rockville, Maryland, 20852, instead of using the Washington, DC, address.

2. Upon receipt of a renewal application, the NRC regional office may take the following actions, as appropriate:

a. Review the application and issue the license renewal if the staff finds that the applicant satisfies the conditions in 10 CFR 55.57(b). There is no minimum number of hours that the operator has to operate the facility in order to qualify for license renewal (i.e., inactive licenses are also renewable). However, the regional office should take the applicant's operating history into consideration as an additional piece of information if any of the requirements of 10 CFR 55.57(b) are not met.

A RO license renewal application received from a RO who has not completed the facility licensee's requalification program, as required by 10 CFR 55.57(b)(2)(ii) and (iii), because he or she is participating in the facility's SRO upgrade training program, will be renewed if all other requirements are met. No waiver is required. Although attending SRO upgrade training will largely fulfill the requalification training requirements, the facility licensee would, nevertheless, be expected to administratively restrict the operator's duties until his or her qualifications and status are certified to be current. The NRC regional office will follow up on the facility licensee's administrative controls during periodic requalification program inspections.

b. If the renewal applicant does not meet the requirements of 10 CFR 55.57, the regional office shall inform the facility licensee of the deficiencies and request any supplemental information that the staff might require to make a relicensing decision. If, after evaluating the supplemental information, the regional office still concludes that the applicant does not meet the requirements for license renewal, the staff will issue a proposed denial letter to the operator (with a copy to the facility licensee).

c. If the operator requests informal reconsideration of the application denial or a hearing, the regional office will review the operator's request as directed by the NRR operator licensing program office. The NRR operator licensing program office will inform the operator, in writing, of the outcome of the review.

E. NRC-Conducted Requalification Examination Results

1. Passing an NRC-Conducted Requalification Examination

a plant-referenced simulator, in administering the operating test under 10 CFR 55.45(b)(1) or (3).

2. **NRC Regional Office**

The NRC's regional office is responsible for the same activities specified in the unrestricted ESs, with the following exceptions and modifications:

a. The regional office should generally conduct the LSRO examinations during a time when the fuel handling equipment will be available for the operating tests.

b. With the concurrence of the NRR operator licensing program office, the regional office may issue LSRO licenses that are valid for units at more than one site, provided that the units are manufactured by the same vendor and are of similar design. The applicant must pass an examination that addresses the differences in the design, procedures, technical data, and administrative controls of the separate facilities for which the license is being sought.

c. The scope, content, administration, and grading of the written examination and operating test shall be as described in Sections D and E, below.

d. The regional office shall coordinate with the NRR operator licensing program office regarding approval to use the plant or a simulation facility, other than a plant-referenced simulator, in administering the operating test under 10 CFR 55.45(b)(1) or (3).

D. Written Examination Instructions

1. **Preparation**

The NRC's written LSRO examination should meet all of the guidelines and requirements for question construction, quality, and facility reviews specified in ES-401, "Preparing Initial Site-Specific Written Examinations," and Appendix B, "Written Examination Guidelines," except as noted below:

a. Develop the examination outline as described in Section D.1 of ES-401, with the following exceptions and clarifications:

- Instead of using the RO and SRO models in ES-401, use Form ES-701-1 or Form ES-701-2, as applicable to the facility, and Form ES-701-3 to develop the examination outline. As with the unrestricted examinations, topics that are not applicable to LSROs at the subject facility should be eliminated in accordance with ~~Attachment 2~~ Section D.1 of ES-401. Given the large number of knowledge and ability (K/A) statements that will not apply to LSROs, it may be advantageous to pre-screen the K/As as discussed in Item 4 of that Attachment. When reviewing K/As for elimination,

do not focus only on the fuel handling equipment; rather, focus more broadly on the knowledge and abilities that an LSRO would need to support safe operation during fuel handling. If the facility licensee's JTA identified other LSRO-relevant components, systems, and evolutions that are not included on Form ES-701-1 or ES-701-2, those items must be added to the appropriate tier of the outline before beginning the random selection process. Additional instructions are noted on the forms.

- Section D.1.c of ES-401 is not applicable to the LSRO examination.
- Use Form ES-701-5, "LSRO Examination Outline Quality Checklist," instead of Form ES-201-2 when reviewing the examination outline.

b. Select and develop questions as described in Section D.2 of ES-401, with the following exceptions:

- Construct the LSRO written examination so that a competent applicant can complete the examination in 2.5 hours. (The applicants will be allowed 4 hours to complete and review the examination.)
- Between 50 and 60 percent (20 to 24) of the LSRO examination questions shall be written at the comprehension/analysis level.
- Reactor theory, component, and thermodynamic questions that directly relate to the LSRO JTA may be selected from prior GFE examinations.
- Section D.2.d of ES-401 is not applicable to the LSRO examination.
- Limit the use of bank questions to no more than 30 and include at least 4 new questions on every examination; the remaining 6 examination questions may be new or significantly modified from the facility licensee's or ***any*** other bank. All questions developed must be relevant to the LSRO function. To be considered a significantly modified question, at least one pertinent condition in the stem and at least one distractor must be changed from the original bank question. Changing the conditions in the stem such that one of the three distractors in the original question becomes the correct answer would also be considered a significant modification.
- If the examination will be used to license the applicants at more than one facility, ensure that it adequately covers all of the applicable units. An examination developed for the purpose of cross-qualifying a licensed LSRO at another similar facility may focus exclusively on the differences between the facilities.

c. Review and assemble the examination as described in Sections D.3, D.4, and E of ES-401, using Forms ES-701-6 and ES-701-8 instead of the equivalent forms in ES-401.

Facility: Date of Exam:

Tier	K/A Category Points											
	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G *	Total
1. Emergency & Abnormal Plant Evolutions												10
2. Plant Systems												20
3. Generic Knowledge and Abilities Categories	1			2		3		4		GFE		10

Note:
1. Ensure that at least one topic from every K/A category is sampled within each tier .
2. The point total for each tier in the proposed outline must match that specified in the table. The final point total for each tier may deviate by ±1 from that specified in the table based on NRC revisions. The final exam must total 40 points.
3. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system (except fuel handling equipment) or evolution (except refueling accident).
4. The shaded areas are not applicable to the category/tier.
5.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
6. If the applicants have not previously taken the GFE, Tier 3 shall include basic reactor theory, component, and thermodynamic topics that apply to fuel handling operations.
7. Systems/evolutions within each tier are identified on the associated outline. Enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) for the SRO license level, and the point totals (#) for each system and category. Enter the tier totals for each category in the table above.
8. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, importance ratings, and point totals (#) on Form ES-701-3.
9. Refer to ES-401, ~~Attachment 2~~ Section D.1, for guidance regarding the elimination of inappropriate K/A statements. The facility licensee's JTA for fuel handlers should be used as the basis for eliminating or adding testable topics.

Facility: Date of Exam:

Tier	K/A Category Points											
	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G *	Total
1. Emergency & Abnormal Plant Evolutions												10
2. Plant Systems												20
3. Generic Knowledge and Abilities Categories	1			2		3		4		GFE		10

Note:
1. Ensure that at least one topic from every K/A category is sampled within each tier .
2. The point total for each tier in the proposed outline must match that specified in the table. The final point total for each tier may deviate by ±1 from that specified in the table based on NRC revisions. The final exam must total 40 points.
3. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system (except fuel handling equipment) or evolution (except refueling accident).
4. The shaded areas are not applicable to the category/tier.
5.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
6. If the applicants have not previously taken the GFE, Tier 3 shall include basic reactor theory, component, and thermodynamic topics that apply to fuel handling operations.
7. Systems/evolutions within each tier are identified on the associated outline. Enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) for the SRO license level, and the point totals (#) for each system and category. Enter the tier totals for each category in the table above.
8. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, importance ratings, and point totals (#) on Form ES-701-3.
9. Refer to ES-401, ~~Attachment 2~~ Section D.1, for guidance regarding the elimination of inappropriate K/A statements. The facility licensee's JTA for fuel handlers should be used as the basis for eliminating or adding testable topics.

Applicant Docket Number: 55- Page 2 of
Facility: Date of Examination:

Title / Description of Tasks (JPMs)	Type Codes*	Evaluation (S or U)	Comment Page Number
Administrative			
1.			
2.			
3.			
Systems			
1.			
2.			
3.			
4.			
Emergency/Abnormal Plant Evolutions			
1.			
2.			
3.			

Type Codes & Criteria:
(A)lternative path (2 systems; 1 E/APE))
(C)ontrol room
(D)irect from bank (≤ 7)
(I)n-plant
(N)ew or (M)odified from bank including 1(A) (≥ 1 / section)
(L)ast NRC exam (≤ 1 / section)
(R)efueling accident (1)
(T)echnical specification (≥ 2)

Facility: Date of Examination:

Item	Task Description	Initials a	Initials b*	Initials c#
1. WRITTEN	a. Verify that the outline fits the model in accordance with ES-701.			
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are sampled at least once.			
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
2. OPERATING	a. Verify that the overall operating test: (1) includes at least two tasks that require the use of technical specifications (2) does not duplicate any tasks from the applicants' audit test(s)			
	b. Verify that the administrative tasks: (1) are distributed among the four administrative topics described in ES-301 (2) include no more than one repeat from the last ~~two~~ NRC licensing examinations (3) include at least one task that is new or significantly modified			
	c. Verify that the systems walk-through includes: (1) two tasks requiring the manipulation of fuel handling equipment (2) two additional tasks related to Tier 2 systems other than fuel handling equipment (3) two tasks requiring implementation of alternative path procedures (4) no more than one repeat from the last ~~two~~ NRC licensing examinations (5) at least one task that is new or significantly modified			
	d. Verify that the E/APE walk-through includes: (1) three JPMs based on the Tier 1evolutions, including a refueling accident (2) one task requiring implementation of an alternative path procedure (3) no more than one repeat from the last ~~two~~ NRC licensing examinations (4) at least one task that is new or significantly modified			
	e. Determine whether there are enough different outlines to test the projected number of applicants and ensure that no items are duplicated on subsequent days.			
3. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c. Assess whether the sampling process adequately considered plant-specific refueling components, systems, and procedures that are not included in the generic models.			
	d. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	e. Check for duplication and overlap among exam sections.			
	f. Check the entire exam for balance of coverage.			
	g. Assess whether the proposed sample is consistent with the LSRO's job responsibilities.			

	Printed Name / Signature	Date
a. Author		
b. Facility Reviewer (*)		
c. NRC Chief Examiner (#)		
d. NRC Supervisor		

Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

execution. Breaking down the initial conditions in such a manner will simplify the simultaneous administration of different tasks by two or more examinees.

All of the required operator actions preceding the starting point of the JPM should be completed unless a given action is purposely omitted as part of an alternate path JPM. If the JPM is intended to evaluate the examinee's ability to implement an alternate path (refer to Section C) within the facility licensee's procedural guidance, the initiating equipment or instrument failure should be reflected in the simulator initial condition specifications.

The JPM shall also include an *initiating cue* that provides the stimulus for the examinee to begin performing the task. When appropriate, the cue should clearly specify the desired endpoint for the task. For example, if it is desired for the examinee to start and load the emergency diesel generator, the cue should state the load at which the task will be considered complete. Alternate path tasks, as described in Section C, may have an actual endpoint different from that stated in the initiating cue.

The initial conditions and initiating cue may be duplicated on a separate sheet of paper so that they can be handed to the examinee. This is particularly helpful for tasks with detailed initial conditions or those that will be performed in high-noise areas. Take care to ensure that the initial conditions and initiating cue do not reveal the nature of any alternate path JPMs that are planned.

2. Identify References and Tools

The JPM shall identify those plant procedures that require task performance, as well as the procedures that provide guidance, directions, or standards for performing the task. When reviewing JPMs selected from the facility licensee's bank, it is important to ensure that the procedures identified in the JPM are still current.

The JPM shall also identify any special tools or equipment (e.g., a stop watch, wrench, fuse puller, or spool piece) that the examinee will need to perform the task. It is helpful to the examiner who will be administering the test if the JPM states the location(s) in which these items may be found. It is expected that any required tools will be readily available to the plant operators; they should not be staged specifically for the examination.

3. Develop Performance Criteria

The JPM should have meaningful performance requirements that will provide a legitimate basis for evaluating the examinee's ability to safely operate the system or the plant. Artificially subdividing existing tasks to generate new ones may dilute the value of the JPM to a point where it becomes meaningless.

In accordance with 10 CFR 55.45(a) and 10 CFR 55.59(a)(2)(ii), operating tests require operators and senior operators to demonstrate an understanding of and ability to perform necessary actions. Therefore, JPMs selected for the walk-through examination shall not test solely for simple recall or memorization. Although it was written in a style to address written examinations, refer to ES-602, Attachment 1, "Guidelines for Developing and Reviewing Open-Reference Examinations," when preparing JPMs as well. Although an operating test does not require every JPM to be alternate path or demonstrate detailed system understanding, simple one-step JPMs or JPMs that only require directly looking up the correct answer are not appropriate. JPMs that incorporate the testing of immediate action steps from memory are acceptable. However, JPMs

should not solely test immediate action steps, and should include testing additional steps or items that are not from memory.

The JPM shall identify specific *performance standards*, or check points, that will permit the examiner to evaluate successful progress toward completing the task in accordance with the procedural references. Detailed control and indication nomenclature and criteria (e.g., switch positions and meter readings) should be identified whenever possible, even if these criteria are not specified in the procedural step. The JPM should also note any *important observations* that the examinee should make while performing the task.

The JPM must clearly identify the *task standard* (i.e., the predetermined qualitative and/or quantitative outcome) against which task performance will be measured. Every procedural step that the examinee must perform correctly (i.e., accurately, in the proper sequence, and at the proper time) in order to accomplish the task standard shall be identified as a *critical step* and shall have an associated performance standard.

If there are any specific procedural restrictions on the sequence in which the steps are performed, they shall be clearly noted in the JPM.

4. Develop Examiner Cues

The JPM shall identify appropriate *system response cues* so that the examiner can provide the examinee with specific feedback regarding the component and system reactions to the examinee's manipulations, especially those procedural steps that are identified as critical to task completion. The response cues are particularly important in the following situations:

- in-plant tasks that will be simulated because the examinee will not have available the normal indications (e.g., alarms, flow rates, temperatures, and pressures) that would be observed during actual task performance

- alternate path JPMs that require the examinee to perform auxiliary procedures when equipment or instrumentation fails during use

System response cues may not be necessary for those tasks that will be performed on the simulator.

To the extent that it is possible to anticipate incorrect actions that the examinees might take, it is beneficial to note the expected system response cues in the JPM as an aid to the examiner who will be administering and evaluating the task.

The JPM shall also identify any *additional cues or instructions* that the examiner might need to provide to the examinee in response to procedural steps for which the examinee will not be held accountable (i.e., those steps that have either already been performed or will be performed by other personnel in remote locations).

Every JPM should:

1. _____ be supported by the facility licensee's job task analysis.

2. _____ be operationally important (meet the NRC's K/A Catalog threshold criterion of 2.5 (3 for requalification exams) or as determined by the facility and agreed to by the NRC). JPMs shall not test only for simple recall or memorization (refer to ES-602 Attachment 1).

3. _____ be designed as either SRO only, RO/SRO or AO/RO/SRO.

4. include the following, as applicable:

   a. _____ initial conditions

   b. _____ initiating cues

   c. _____ references and tools, including associated procedures

   d. _____ validated time limits (average time allowed for completion) and specific designation of those JPMs that are deemed to be time-critical by the facility operations department

   e. _____ operationally important specific performance criteria that include:

      (1) _____ expected actions with exact control and indication nomenclature and criteria (switch position, meter reading), even if these criteria are not specified in the procedural step

      (2) _____ system response and other cues that are complete and correct so that the examiner can properly cue the examinee, if asked

      (3) _____ statements describing important observations that the examinee should make

      (4) _____ criteria for successful completion of the task

      (5) _____ identification of those steps that are considered critical

      (6) _____ restrictions on the sequence of steps

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(See instructions on the reverse)

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10. SUPPLEMENTARY NOTES

11. ABSTRACT *(200 words or less)*

NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," provides policy and guidance for the development, administration, and grading of examinations used for licensing operators at nuclear power plants pursuant to the Commission's regulations in 10 CFR 55, "Operators' Licenses." NUREG-1021 also provides guidance for maintaining operators' licenses, and for the NRC to conduct requalification examinations when necessary.

Draft Supplement 1 to Revision 9 of NUREG-1021 includes a number of minor changes that are intended to: (1) clarify licensed operator medical requirements, including the use of prescription medications; (2) clarify the use of surrogate operators during dynamic simulator scenarios; (3) clarify the selection process for generic knowledge and ability (K/A) statements; (4) qualify the NRC review of post-examination comments; (5) provide additional guidance for maintaining an active license (watchstander proficiency) and license reactivation; and (6) conform with proposed updates to NUREGs-1122 and -1123.

The NRC seeks comments on Draft Supplement 1 to Revision 9 of NUREG-1021. Comments must be provided within 60 days from the date of publication. Comments received after 60 days will be considered if practicable to do so, but only those comments received on or before the due date can be assured consideration.

12. KEY WORDS/DESCRIPTORS *(List words or phrases that will assist researchers in locating the report.)*

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