ABSTRACT

NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," establishes 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 NUREG/BR-0122 is no longer in effect.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 assist NRC examiners and facility licensees to 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 prior to the next formal revision of these standards will be promulgated on the NRC's operator licensing web page (http://www.nrc.gov/NRC/REACTOR/OL/OLhome.html).

Revision 8, which was published in April 1999, implemented an amendment to 10 CFR Part 55 that allows facility licensees to prepare the entire operator licensing examination and to proctor and grade the written portion of the examination. The NRC will prepare the examinations at least four times per year to maintain the proficiency of its examiners, as necessary to ensure quality, and upon written request by facility licensees consistent with NRC staff availability.

Supplement 1 to Revision 8 is being issued to update and clarify the NRC's guidelines regarding: (1) the systematic and random selection of topics and questions for the written examination, including limits on question usage; (2) the training and qualification of operator license applicants; (3) the documentation of NRC staff concerns related to draft examination quality; and (4) a number of other minor issues.

Supplement 1 will become effective for corporate notification letters issued 60 days after publication of the Supplement 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 procedures. Facility licensees may make arrangements for earlier implementation by contacting their NRC Regional Office.

Supplement 1 to Revision 8 of NUREG-1021,
"Operator Licensing Examination Standards for Power Reactors"

Instructions

Remove existing Revision 8 pages and insert replacement pages as noted below:

Section / Standard	Remove Page(s)	Insert Page(s)
Abstract	iii	iii
Supplement Instructions	blank	iv
ES-102	3-6	3-6
ES-201	1-24 (all)	1-24
ES-202	1-11 (all)	1-12
ES-204	3-5	3-5
ES-205	3-4, 11-12	3-4, 11-12
ES-301	5-6, 17-18, 23-26	5-6, 17-18, 23-26
ES-302	1-6	1-6
ES-303	3-4	3-4
ES-401	1-45 (all)	1-46
ES-402	5-6	5-6
ES-403	3-5	3-5
ES-501	1-2, 7-12	1-2, 7-12
ES-502	3-4	3-4
ES-601	19-20	19-20
ES-605	1-2	1-2
Appendix C	1-2	1-2
Appendix D	1-2, 21-26, 39-40	1-2, 21-26, 39-40
Appendix E	1-4	1-4
Appendix F	1-6 (all)	1-6
Supplement 1 Inserted by: _____ Date: _____		

A vertical line in the right margin indicates that material has been added or changed; a vertical line in the left margin indicates that material has been deleted.

5. 10 CFR Part 55, Operators' Licenses

10 CFR Part 55 is the implementing regulation that establishes the requirements and the regulatory basis for licensing and requalifying ROs and SROs.

D. REGULATORY GUIDES

1. Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," Revision 3, May 2000

Section C of this RG currently endorses, with additions, exceptions, and clarifications, ANSI/ANS 3.1-*1993*, "American National Standard for Selection, Qualification, and Training of Personnel for Nuclear Power Plants." No backfitting is intended or required in connection with the issuance of the revised RG.

2. Regulatory Guide 1.33, "Quality Assurance Program Requirements -Operations"

Appendix A to this RG contains a list of typical procedures for pressurized water reactors and boiling water reactors.

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

This RG describes a method acceptable to the NRC staff for complying with the Commission's regulations in 10 CFR 50.54(k) - (m), which require the presence of an RO at the controls of a nuclear power unit and an SRO in the control room from which the nuclear power unit is being operated.

4. Regulatory Guide 1.134, "Medical Evaluation of Licensed Personnel for Nuclear Power Plants," Revision 3, March 1998

This RG currently endorses ANSI/ANS 3.4-1996, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," with exceptions. However, facility licensees may continue to use the 1983 version of ANSI/ANS 3.4, which was previously endorsed in its entirety by Revision 2 of RG 1.134, dated April 1987.

5. Regulatory Guide 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator License Examinations," Revision 2, April 1996

This RG currently endorses, with exception, ANSI/ANS 3.5-1993, "Nuclear Power Plant Simulators for Use in Operator Training and Examination." It is expected that Revision 3 will endorse ANSI/ANS 3.5-1998. However, facility licensees may continue to use the 1985 version of ANSI/ANS 3.5, which was previously endorsed, with exceptions, by Revision 1 of the RG dated April 1987.

E. NUREG REPORTS

1. NUREG-0660, Vol. 1, "NRC Action Plan Developed as a Result of the TMI-2 Accident," May 1980

   Item I.A.4.2 of this document describes the guidelines for long-term simulator upgrades.

2. NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980

   This document clarifies the following action plan items which are intended to upgrade the training, licensing, education, and experience of operators on the basis of experience gained from the accident at Three Mile Island, Unit 2:

   · Item I.A.2.1, "Immediate Upgrading of RO and SRO Training and Qualifications"

   · Item 1.A.2.3, "Administration of Training Programs"

   · Item 1.A.3.1, "Revised Scope and Criteria for Licensing Exams"

   · Item 11.B.4, "Training for Mitigating Core Damage"

3. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, LWR Edition," July 1981

   Section 13.2, "Reactor Operator Training," describes the training and licensing of operators and identifies information to be submitted by applicants for construction permits and operating licenses.

4. NUREG-1122, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Pressurized Water Reactors," Revision 2

   This document provides the basis for developing content-valid licensing examinations for operators at pressurized water reactors (PWRs). It contains knowledge and ability (K/A) statements that have been rated for their importance to ensuring that the plant is operated in a manner consistent with the health and safety of plant personnel and the public.

5. NUREG-1123, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Boiling Water Reactors," Revision 2

   This document provides the basis for developing content-valid licensing examinations for operators at boiling water reactors (BWRs). It contains K/A statements that have been rated for their importance to ensuring that the plant is operated in a manner consistent with the health and safety of plant personnel and the public.

6. NUREG-1291, "BWR and PWR Off-Normal Event Descriptions," November 1987

The reactor event descriptions in this document provide a reliable, performance-based source of information that examiners may use to design simulator scenarios that will be a valid test of an applicant's ability to safely and competently perform all licensed duties and responsibilities.

7. NUREG-1560, "Individual Plant Examination Program: Perspectives on Reactor Safety and Plant Performance"

This report provides perspectives gained by reviewing 75 individual plant examination (IPE) submittals pertaining to 108 nuclear power plant units. Chapter 13, "Operational Perspectives," is of particular interest because it identifies a number of important human actions that should be considered for evaluation on BWR and PWR licensing and requalification examinations.

8. NUREG-1600, “General Statement of Policy and Procedure for NRC Enforcement Actions”

This report addresses the NRC’s expectations regarding compliance with 10 CFR 55.49, “Integrity of Examinations and Tests,” and possible enforcement actions against parties subject to that regulation (i.e., Part 55 license holders and applicants and Part 50 licensees).

9. NUREG/BR-0122, "Examiners' Handbook for Developing Operator Licensing Written Examinations," Revision 5, March 1990

This document, which presented a procedure for systematically constructing content-valid licensing examinations for nuclear power plant operators, has been incorporated into the examination standards in NUREG-1021, Revision 8. It may be used for historical perspective, but is no longer used for developing examinations.

F. INDUSTRY STANDARDS

1. ANSI/ANS 3.1, "American National Standard for Selection, Qualification and Training of Personnel for Nuclear Power Plants"

This standard provides criteria for selecting and training nuclear power plant employees performing a variety of functions at various levels of responsibility (e.g., managers, supervisors, operators, and technicians). RG 1.8, Revision 3 (May 2000) endorses, with additions, exceptions, and clarifications, the 1993 version of the standard.

2. ANS 3.2 (ANSI N18.7-1976), "Administrative Controls and QA for the Operational Phase of Nuclear Power Plants"

   This standard provides guidance and recommendations for administrative rules of practice and related subjects and for preparing procedures and audit programs. See RG 1.33.

3. ANSI/ANS 3.4-1996, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants"

   This standard is the basic document covering the general health and disqualifying conditions applicable to license applicants and licensed personnel. Revision 3 of RG 1.134 currently endorses this standard with exceptions, but facility licensees may continue to use the 1983 version, which was previously endorsed in its entirety by Revision 2 of the RG.

4. ANSI/ANS 3.5-1993, "Nuclear Power Plant Simulators for Use in Operator Training"

   This standard establishes the minimum functional requirements and capabilities for nuclear power plant simulators for use in operator training. Revision 2 of RG 1.149 endorses this standard, with exceptions, and it is expected that Revision 3 of RG 1.149 will endorse the 1998 version of this standard. However, facility licensees may continue to use the 1985 version, which was previously endorsed, with exceptions, by Revision 1 of the RG.

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 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 fails *only* the written examination or *one* category of the operating test, the region may waive those examination areas (categories) that were passed. This is only applicable for the first retake examination and only if it takes place within one year of the date on which the denial of the original application became final.

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 six months from the date of the medical examination for a person applying for an RO or an SRO instant license. For reapplications following a license denial or withdrawal of an application, waivers extending the six-month period may be granted if 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 two years from the date of the medical examination.

d. Substitutions allowed by Regulatory Guide 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 one 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 ten startups on a research reactor typically required by NRC-approved cold license training programs.

f. For those applicants unable to meet the requirement for six weeks on shift at greater than 20 percent power (because of extended plant shutdowns or other

extraordinary circumstances), this requirement may be waived 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 and 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 training objectives required 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 license level, the region may, pursuant to 10 CFR 55.47, waive the requirement for the applicant to pass a written examination and an operating test if it finds that the applicant

(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 two years before the date of the license application

(3) successfully completed "Additional Training," pursuant to 10 CFR 55.59(b), and a facility-prepared written examination and operating test which ensure that the applicant is up-to-date in the licensed operator requalification training program

(4) will successfully complete at least 40 hours of shift functions under the direction of an operator or senior operator, as appropriate, and in the position to which the applicant will be assigned (see 10 CFR 55.53(f)) before being assigned to licensed duties

(5) complies with the requirements of 10 CFR 55.31

h. If an applicant at a facility that has completed preoperational testing is unable to perform the five significant control manipulations required by 10 CFR 55.31(a)(5) because of an extended shutdown, the region may process the application, administer the examination, and issue a conditional license that is only valid with the reactor in cold shutdown and refueling. The region will not remove the license condition until the facility licensee supplies the required evidence that the applicant has successfully completed the control manipulations (refer to ES-501). Situations other than those specified in the regulation may require an exemption and must be processed through the NRR operator licensing program office.

i. The region may authorize a facility licensee to defer completion of the following specific experience and training guidelines until after the licensing examination is

passed. The facility licensee must provide evidence that the deferred items have been completed before the region will issue the license (refer to ES-501).

(1) Up to six months of the three years (responsible nuclear) power plant experience for an RO (or an SRO), but not to exceed two months of the year on-site experience for an RO and one month of the six for an SRO.

(2) Up to two months of the year actively performing duties as a licensed RO at the facility for which an SRO upgrade license is sought.

(3) Up to one month of the three spent as an extra RO or SRO on-shift in training.

2. Examination Waivers for Previously Licensed Operators at Comparable Facilities

Depending on the justification provided by the applicant and the facility licensee, NRR will consider examination waivers for operators who were previously licensed at a comparable facility. Pursuant to 10 CFR 55.47, the Commission may waive any or all requirements for a written examination and operating test.

3. Multi-Unit Examination Waivers

a. Generally, personnel will *not* be examined on or allowed to hold licenses for "different units" simultaneously. "Different units" owned or managed by a single facility licensee are defined for purposes of this standard as follows:

- units having the same vendor but significantly different age and/or power level (e.g., Dresden Units 1 and 2)
- units having the same vendor and similar design but different locations (e.g., Sequoyah and Watts Bar, Byron and Braidwood)
- units having different vendors (PWR only) but located on the same site (e.g., Arkansas Units 1 and 2, Millstone Units 2 and 3)

NRR may authorize a limited senior reactor operator (LSRO) to be licensed at multiple sites, 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 designs, procedures, technical data, and administrative controls of the separate facilities for which the license is being sought.

b. With regard to the examination requirements for "identical" second or subsequent units at the same site, NRR may waive any or all requirements for a written examination and operating test if it finds that the applicant meets the criteria specified in 10 CFR 55.47, as noted in Item D.2 above. If the situation warrants, the Commission may impose other examination requirements, such as NRC-administered operating tests and written examinations concerning the plant differences.

recommended changes to the examination author as soon as possible. The final examinations should be ready at least 14 days before the GFE administration date.

d. The GFE contractor will assemble the approved examination packages as described below, and mail the packages to the names and addresses designated by the participating facility licensees. The examinations should normally be mailed one week before the examinations are scheduled to be administered.

The examination packet will contain the following information, enclosures, and attachments:

- cover letter (Attachment 2 is a sample letter)
- proctor instructions
- security agreement
- single copies of appropriate exam, forms A and B
- exam time zone map
- sample answer sheet
- facility docket number sheet
- applicant docket number sheet
- appropriate number of answer sheets
- applicant answer sheet instructions

e. On the day that the GFE is administered, the NRR GFE coordinator and GFE contractor shall be available to answer questions from facility proctors if the need arises.

f. When the examination answer sheets are received from the facility licensees, the GFE contractor shall score, grade, and tabulate the overall item statistics, and generate facility and regional grade reports for each GFE examination. The contractor shall forward the regional and facility grade reports, including individual scores and copies of individual answer sheets, and corrected answer keys to the applicable regional office for distribution.

The GFE contractor shall develop individual item statistics on all questions used on the GFE examinations. Questions with acceptable statistical characteristics shall be moved into the "validated" GFE question bank.

The contractor will provide copies of all grade reports to the NRR GFE coordinator, along with the following additional items:

- exam-wide item statistics (PWR and BWR)
- analysis reports of specific items deleted or answers changed
- corrected answer keys
- original answer sheets
- original signed exam cover sheets
- signed security statements

g. The NRR operator licensing program licensing assistant will ensure that copies of the final master BWR and PWR examinations are placed in the NRC's Public Document Room.

3. NRC Regional Office

a. Regional management should assign an individual to coordinate GFE administration in the region.

b. The regional operator licensing assistant (OLA) shall assign a docket number to each individual identified in the facility licensee's registration letter. The OLA shall forward the list of names and docket numbers for each facility to the GFE contractor, with a copy to the NRR GFE coordinator, no later than 20 days before the examination administration date.

c. The regional GFE coordinator should keep the NRR GFE coordinator informed of any changes in the number of applicants scheduled to take the GFE at any facility.

d. The regional office shall distribute the GFE examinations to their respective facility licensees. Sample cover letters for facility licensees that did and did not participate in the examination are provided in Attachment 3.

e. The regional OLA shall update the applicants' status (pass or fail) in the operator licensing tracking system (OLTS) and ensure that a hard copy of the GFE results is placed in each applicant's docket file.

D. EXAMINATION SCOPE AND STRUCTURE

Each GFE shall contain 100 questions covering the "Components" and "Theory" (including reactor theory and thermodynamics) sections of NUREG-1122, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Pressurized Water Reactors," or NUREG-1123, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Boiling Water Reactors." The passing grade for the GFE is 80 percent.

The knowledge and ability (K/A) topics applicable to the GFE for PWRs and BWRs have been categorized into various component, reactor theory, and thermodynamics groups as shown in Attachment 4. The attachment also identifies the number of test questions required to evaluate each topic.

NRC Letterhead (Date)

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

Dear (Name):

(*) On (date), the NRC administered the generic fundamentals examination (GFE) section of the written operator licensing examination to employees of your facility. Enclosed with this letter are copies of both forms of the examination, including answer keys, the grading results for your facility, and copies of the individual answer sheets for each of your employees. Please forward the results to the individuals along with the copies of their respective answer sheets. A "P" in the column labeled RESULTS indicates that the individual achieved a passing grade of 80 percent or better on the GFE. Those individuals having an "F" in the RESULTS column failed the examination.

(**) On (date), the NRC administered the generic fundamentals examination (GFE) section of the written operator licensing examination.

(**) Your facility did not participate in this examination. However, a copy of the PWR and BWR GFEs and their answer keys will be available for your review on the NRC's web site (URL: http://www.nrc.gov/NRC/reactors.html) approximately 60 days following the examination administration date.

If you have any questions concerning this examination, please contact (Name of the NRR GFE coordinator) at (phone number).

Sincerely,

(Appropriate regional representative)

Docket No. 50-(Number)

(*) Enclosures:
1. Examination Form "A" and "B" with answers
2. Examination Results Summary for (Facility Name)
3. Individual Answer Sheets

[Paragraphs marked (*) apply only to those facility licensees that participated in the examination, while paragraphs marked (**) apply only to those facility licensees that did not participate in the examination.]

K/A	Pressurized Water Reactors Topic	No. of Items
	Group I Components	
191001	Valves	4
191002	Sensors and Detectors	10
191003	Controllers and Positioners	5
191004	Pumps	7
191006	Heat Exchangers and Condensers	3
191008	Breakers, Relays, and Disconnects	7
	Group II Components	
191005	Motors and Generators	5
191007	Demineralizers and Ion Exchangers	3
	Group I Reactor Theory	
192004	Reactivity Coefficients	4
192005	Control Rods	4
192008	Reactor Operational Physics	8
	Group II Reactor Theory	
192003	Reactor Kinetics and Neutron Sources	2
192006	Fission Product Poisons	6
	Group III Reactor Theory	
192001	Neutrons	1
192002	Neutron Life Cycle	2
192007	Fuel Depletion and Burnable Poisons	1
	Group I Thermodynamics	
193009	Core Thermal Limits	2
193010	Brittle Fracture and Vessel Thermal Stress	5
	Group II Thermodynamics	
193003	Steam	2
193007	Heat Transfer	2
193008	Thermal Hydraulics	8
	Group III Thermodynamics	
193001	Thermodynamic Units and Properties	1
193004	Thermodynamic Processes	2
193005	Thermodynamic Cycles	1
193006	Fluid Statics and Dynamics	5
Total Items		100

f. Revise the operating test outlines and the final tests as applicable and as agreed upon by the NRC regional office (refer to ES-201). The NRC retains final authority to approve the operating tests.

2. NRC Regional Office

The NRC regional office is responsible for the following activities:

a. Ensure that the operating tests are developed in accordance with Section D.

b. Ensure that the operating tests are reviewed for quality in accordance with Section E.

c. Meet with the facility licensee, when and as appropriate, to prereview the operating tests in accordance with ES-201.

D. INSTRUCTIONS

Prepare each category of the operating test in accordance with the following general guidelines and specific instructions:

1. General Guidelines

a. In an effort to reduce examination preparation effort, the same operating test may be used to examine multiple applicants and simulator crews. Depending on the number and license level of the applicants being examined, it might be possible to use the same set of JPMs and scenarios to examine all of the applicants if the operating test is administered in multiple segments (e.g., single scenarios or two-four JPMs) each of which can be given to all of the applicants in a single day. The facility licensee and the NRC chief examiner shall discuss the options and reach agreement on the process before developing the operating tests.

To minimize predictability and maintain test integrity, varied subjects, systems, and operations shall be evaluated with applicants that are not being examined at the same time, unless measures are taken to preclude interaction among the applicants. The same JPMs and simulator scenarios shall not be repeated on successive days.

Operating tests written by the facility licensee may not duplicate test items (simulator scenarios or JPMs) from the applicants' audit test (or tests if the applicant is retaking the examination) given at or near the end of the license training class. Simulator events and JPMs that are similar to those that were tested on the audit examination are permitted provided the actions required to mitigate the transient or complete the task (e.g., using an alternate path as discussed in Appendix C) are significantly different from those required during the audit examination. The facility licensee shall identify for the NRC chief

examiner those simulator events and JPMs that are similar to those that were tested on the audit examination.

Sufficient operating test materials shall be developed to ensure that all applicants can be tested with the available personnel according to the schedule agreed upon by the NRC regional office and the facility licensee (refer to ES-201).

b. To the extent permitted for each category of the operating test, select and modify testing materials (i.e., JPMs, questions, and simulator scenarios) from the facility's examination banks. Every selected test item must satisfy the qualitative and quantitative criteria specified for the applicable section of the operating test or be modified accordingly.

c. Consider the K/As associated with normal, abnormal, and emergency tasks and evolutions as a source of topics for use in evaluating applicant competency in each category of the operating test.

The knowledge and abilities associated with the tasks and questions planned for the operating test should have importance factors of at least 2.5. Tasks with importance factors of less than 2.5 may be used if there is a substantive reason for including them (e.g., a recent licensee event or a significant system modification). Failure to train the applicants on a particular K/A is not an acceptable basis for rejecting that K/A.

The K/As should be appropriate to the plant-specific requirements for the applicant's license level. Refer to the facility's job and task analysis (if available), learning objectives, and other reference material to confirm that the operating test is correctly oriented to the facility and the applicant's license level.

The facility licensee's site-specific task list may be used to supplement or override, on a case-by-case basis, selected individual items in the NRC's K/A catalogs. In order to maintain examination consistency, the site-specific task list shall not be used in place of the entire K/A catalog.

d. When selecting and developing materials (JPMs, scenarios, and questions) for the operating test, ensure that the materials contribute to the test's overall capacity to differentiate between those applicants who are competent to safely operate the plant and those who are not. Additionally, all of the test items should include the three facets of test validity (i.e., content, operational, and discrimination) discussed in Appendix A. Any test items that, when missed, would raise questions regarding adequate justification for denying the applicant's license should not be included on the operating test.

e. SRO applicants, whether upgrade or instant, will be examined for the highest on-shift position for which the SRO's license is applicable (e.g., shift supervisor), regardless of the position to be assigned when licensed. SRO applicants should demonstrate their supervisory abilities and an attitude of responsibility for safe operation, and are expected to assume a management role during plant

Appendix D provides detailed instructions for completing Form ES-D-1, the "Scenario Outline," and Form ES-D-2, the expected "Operator Actions," that examiners will use to administer the simulator operating tests. In order to minimize the amount of rework that might be required as a result of changes in the planned scenario events, Form ES-D-2 should be completed after the NRC chief examiner has had the opportunity to review and comment on the proposed simulator operating test outlines (i.e., Form ES-D-1) in accordance with ES-201.

e. When the proposed simulator operating test outlines are complete, forward them to the NRC chief examiner so they are *received* by the date agreed upon with the NRC regional office at the time the examination arrangements were confirmed; the outlines are normally due approximately 75 days before the scheduled examination date. Refer to ES-201 for additional instructions regarding the review and submittal of the examination outlines.

The NRC chief examiner shall review the operating test outlines in accordance with ES-201, and forward any comments to the originator for resolution.

f. After the NRC chief examiner approves the operating test outlines, prepare the final simulator test materials by revising Form(s) ES-D-1 as requested by the NRC chief examiner and completing a detailed operator action form (ES-D-2) for each event. All substantive operator actions (e.g., opening, closing, and throttling valves; starting and stopping equipment; raising and lowering level, flow, and pressure; making decisions and giving directions; *not* acknowledging alarms or verifying automatic actions) shall be documented, and critical tasks shall be identified. Events that do not require an operator to take one or more substantive actions will not count toward the minimum number of events required for each operator per Form ES-301-5.

g. Review the completed simulator operating test for quality using Form ES-301-4, "Simulator Scenario Quality Checklist," and make any changes that might be necessary. This review shall be performed in conjunction with the associated walk-through test (refer to Sections D.2 and D.3) to minimize duplication.

Submit the entire operating test package to the designated facility reviewer or the NRC chief examiner, as appropriate, for review and approval in accordance with Section E. The test must be received by the NRC chief examiner approximately 45 days before the scheduled administration date, unless other arrangements have been made.

E. QUALITY REVIEWS

1. Facility Management Review

If the operating test was prepared by the facility licensee, the preliminary outline and the proposed test shall be independently reviewed by a supervisor or manager before they are submitted to the NRC regional office for review and approval in accordance with

ES-201. The reviewer should evaluate the outline and test using the criteria on Forms ES-201-2, ES-301-3, and ES-301-4 and include the signed forms (for each different operating test) in the examination package submitted to the NRC in accordance with ES-201.

2. NRC Examiner Review

a. The NRC chief examiner shall ensure that each operating test is independently reviewed for content, wording, operational validity, and level of difficulty. As a minimum, the examiner shall check the items listed on Forms ES-301-3 and ES-301-4, as applicable. The examiner should keep in mind that counting the number of scenario quantitative attributes is not always indicative of the scenario's level of difficulty. Although there are no definitive minimum or maximum attribute values that can be used to identify scenarios that will not discriminate because they are too easy or difficult, scenarios that fall outside the target ranges specified on Form ES-301-4 should be carefully evaluated to ensure they are appropriate. Refer to Section C.3 of ES-201 for additional guidance regarding examination reviews.

b. The NRC examiner should review the operating tests as soon as possible after receipt so that supervisory approval can be obtained before the final review with the facility licensee, which is normally scheduled about two weeks before the administration date. It is especially important that the examiner promptly review tests prepared by a facility licensee because of the extra time that may be required if extensive changes are necessary. The chief examiner shall consolidate the comments from other regional reviewers and submit one set of comments to the author.

c. If the facility licensee developed the operating test, then the facility licensee is primarily responsible for technical accuracy and compliance with the restrictions concerning the use of examination banks. However, the chief examiner is expected to use his or her best judgment and take reasonable measures, including selective review of reference materials and past tests, to verify these items.

d. The chief examiner will note/review any changes that need to be made and forward the tests to the responsible supervisor for review and comment in accordance with Section E.3 before reviewing the examinations with the author or facility contact. There are no minimum or maximum limits on the number or scope of changes the chief examiner may direct the author or facility contact to make to the proposed tests, provided that they are necessary to make the tests conform with established acceptance criteria. Refer to ES-201 for additional guidance regarding NRC response to facility-developed examinations that are significantly deficient.

Facility: Date of Examination: Operating Test Number:

	1. GENERAL CRITERIA	Initials a	b*	c#
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).			
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.			
c.	The operating test shall not duplicate items from the applicants' audit test(s)(see Section D.1.a).			
d.	Overlap with the written examination and between operating test categories is within acceptable limits.			
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.			
	2. WALK-THROUGH (CATEGORY A & B) CRITERIA	--	--	--
a.	Each JPM includes the following, as applicable: · initial conditions · initiating cues · references and tools, including associated procedures · reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time critical by the facility licensee · specific performance criteria that include: - detailed expected actions with exact criteria and nomenclature - system response and other examiner cues - statements describing important observations to be made by the applicant - criteria for successful completion of the task - identification of critical steps and their associated performance standards - restrictions on the sequence of steps, if applicable			
b.	The prescripted questions in Category A are predominantly open reference and meet the criteria in Attachment 1 of ES-301.			
c.	Repetition from operating tests used during the previous licensing examination is within acceptable limits (30% for the walk-through) and do not compromise test integrity.			
d.	At least 20 percent of the JPMs on each test are new or significantly modified.			
	3. SIMULATOR (CATEGORY C) CRITERIA	--	--	--
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.			

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

NOTE: * The facility signature is not applicable for NRC-developed tests.
Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.

Facility: Date of Exam: Scenario Numbers: / / Operating Test No.:

QUALITATIVE ATTRIBUTES		Initials		
		a	b*	c#
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			
2.	The scenarios consist mostly of related events.			
3.	Each event description consists of · the point in the scenario when it is to be initiated · the malfunction(s) that are entered to initiate the event · the symptoms/cues that will be visible to the crew · the expected operator actions (by shift position) · the event termination point (if applicable)			
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			
5.	The events are valid with regard to physics and thermodynamics.			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.			
8.	The simulator modeling is not altered.			
9.	The scenarios have been validated. Any open simulator performance deficiencies have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.4 of ES-301.			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			

TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4.D)		Actual Attributes	--	--	--
1.	Total malfunctions (5-8)	/ /			
2.	Malfunctions after EOP entry (1-2)	/ /			
3.	Abnormal events (2-4)	/ /			
4.	Major transients (1-2)	/ /			
5.	EOPs entered/requiring substantive actions (1-2)	/ /			
6.	EOP contingencies requiring substantive actions (0-2)	/ /			
7.	Critical tasks (2-3)	/ /			

OPERATING TEST NO.:

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument / Component	4				
	Major	1				
As RO	Reactivity	1				
	Normal	0				
	Instrument / Component	2				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument / Component	2				
	Major	1				

Instructions:
(1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.
(2) Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.4.d) but must be significant per Section C.2.a of Appendix D.
(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 requirement.

Author: _____

NRC Reviewer: _____

Competencies	Applicant #1 RO/SRO-I/SRO-U				Applicant #2 RO/SRO-I/SRO-U				Applicant #3 RO/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Understand and Interpret Annunciators and Alarms												
Diagnose Events and Conditions												
Understand Plant and System Response												
Comply With and Use Procedures (1)												
Operate Control Boards (2)												
Communicate and Interact With the Crew												
Demonstrate Supervisory Ability (3)												
Comply With and Use Tech. Specs. (3)												

Notes:

(1) Includes Technical Specification compliance for an RO.
(2) Optional for an SRO-U.
(3) Only applicable to SROs.

Instructions:

Circle the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author: _____

NRC Reviewer: _____

A. PURPOSE

This standard describes how to administer operating tests to initial license applicants in accordance with the requirements of 10 CFR 55.45. It includes policies and guidelines for administering both the walk-through and the integrated plant operations categories of the operating test. It is assumed that the operating test was prepared in accordance with ES-301.

B. BACKGROUND

As noted in ES-201, facility licensees will generally prepare proposed operating tests in accordance with ES-301 and submit them to the responsible NRC regional office for review and approval. Regardless of whether it was prepared by the facility licensee or the NRC, every operating test will be independently administered and graded by an NRC licensing examiner in accordance with the instructions contained herein and in ES-303.

C. RESPONSIBILITIES

1. Facility Licensee

The facility licensee is responsible for the following activities:

a. Make the plant and simulation facility available, as necessary, for validating and administering, Category A (administrative topics), Category B (control room and in-plant systems), and Category C (integrated plant operations) of the operating tests.

b. Safeguard the integrity and security of the operating tests in accordance with facility procedures established pursuant to 10 CFR 55.40(b)(2) and the guidelines discussed in Attachment 1 of ES-201.

c. Provide administrative and logistics support (e.g., personnel to operate the simulation facility, surrogate operators, copies of the approved operating test materials as arranged with the chief examiner, etc.) to facilitate the administration of the operating tests in accordance with Section D.

d. Inform the NRC regional office in writing if an applicant withdraws from the examination process before it is complete.

2. NRC Regional Office

The NRC regional office is responsible for the following activities:

a. Work with the facility contact to coordinate the operating test administration schedule in a manner that maximizes efficiency and maintains security. Normally, the operating tests should be administered within 30 days before or after the written examinations. The region shall obtain concurrence from the NRR operator licensing program office if the examination dates diverge by more than 30 days. (Refer to ES-201 for additional guidance regarding examinations that have to be rescheduled to achieve an acceptable product.)

b. Administer the operating tests in accordance with Section D.

D. TEST ADMINISTRATION INSTRUCTIONS AND POLICIES

1. General

a. Before beginning the operating test, an examiner shall brief the applicant(s) using Parts A, C, D, and E of Appendix E. To save time, it is recommended that the examiner(s) brief the applicants as a group.

b. If an applicant requests to withdraw during any part of the examination process, the examiner shall inform the applicant that this will result in automatic license denial and that he or she may reapply in accordance with 10 CFR 55.35. The chief examiner will request the facility licensee to document the applicant's withdrawal in a letter to the NRC regional administrator.

c. Each applicant listed on the examination assignment sheet (see ES-201, Attachment 4) shall be administered an operating test as indicated under "Examination Type."

d. For purposes of test integration and continuity, the chief examiner should generally schedule the same examiner to administer all three operating test categories to an applicant. However, under certain circumstances, such as when a licensee's simulation facility is not located near the plant or if a licensee requests examinations for an unusually large group of applicants, the responsible regional supervisor may authorize the chief examiner to divide the operating test categories and subcategories among different examiners (simulator operating tests consisting of multiple scenarios shall not be divided among examiners). The chief examiner will be responsible for ensuring that each applicant gets a complete operating test and that the tests are thoroughly and accurately documented.

Normally, an NRC examiner will be assigned to individually evaluate each applicant during the simulator operating test. However, if a three-person operating crew consists entirely of senior reactor operator (SRO) upgrade applicants (who do not have to be evaluated on the control boards), the chief examiner may assign only two examiners to observe the crew. Although the applicants in the reactor operator and balance of plant positions may not be individually evaluated, they will be held accountable for any errors that occur as a result of their action(s) or inaction(s) and graded on their ability to “Operate the Control Boards” (i.e., SRO Competency 5). SRO-instant applicants will always be individually evaluated by an NRC examiner regardless what operating position they are filling during a given scenario.

e. The examiner is expected to administer the planned operating test in accordance with the prepared and approved walk-through test outlines (Forms ES-301-1, "Administrative Topics Outline," and ES-301-2, "Control Room Systems and Facility Walk-Through Test Outline") and simulator scenarios (Forms ES-D-1, "Scenario Outline," and ES-D-2, "Operator Actions"). Examiners shall document every significant aspect of each applicant's performance for later evaluation, but they shall *not* use the applicant's unplanned actions and statements to displace any part of the planned operating test.

Normally, examiners should substitute or replace planned operating test

materials only if it is determined that an item is invalid or impossible to perform or simulate because of unanticipated access restrictions or equipment failures.

f. Examiners may administer the same operating test (walk-through and simulator) to consecutive applicants and crews on the same day, but they must ensure that the security of the operating test is maintained. The same simulator scenarios shall not be repeated during successive days.

If previously agreed upon by the facility licensee, examiners may also administer the same operating test (walk-through and simulator) by dividing the test into segments that can be administered to all of the applicants on the same day. This will minimize the amount of effort required to develop different operating tests but will complicate the scheduling process.

g. The examiner should normally administer Categories B and C of the operating test first and attempt to concurrently evaluate as many of the planned administrative subjects in Category A as possible. The remaining administrative subjects should then be evaluated in accordance with the approved outline.

h. The examiner must take sufficient notes to facilitate the thorough documentation of any and all applicant deficiencies in accordance with ES-303. The examiner must be able to cross-reference each comment to a specific JPM, simulator event, or question.

I. The making of videotapes during the administration of operating tests is not authorized.

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 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. 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.

  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 position. The surrogate operators do not need to be licensed at the facility, but they must have the knowledge and ability required to assume the full responsibilities of the roles they take in the operating test. Consultations with an STA shall be conducted in accordance with the facility licensee's normal control room practice; e.g., an STA shall not be stationed in the simulator if they are on-call at the site. The STA, if used, shall also be briefed regarding the content of the scenario(s) and their expected actions in response to every event. Surrogates and STAs should not take a proactive role in assisting or coaching the applicants because it would hinder the examiners' ability to evaluate the applicants' competence. Examiners shall run additional scenarios if necessary to make a licensing decision.

If the facility licensee normally operates with and is required by its technical specifications to have more than two reactor operators (ROs) in the control room, the chief examiner may authorize the use of additional surrogates to fill out the crews. In such cases, examiners must take care that the presence of additional operators does not dilute the examiners' ability to evaluate each applicant during the required number of events and on every applicable competency and rating factor. Examiners shall not hesitate to run additional scenarios, as necessary, to ensure that every applicant is given the opportunity to demonstrate his or her competence. Only one individual (applicant or surrogate) is allowed to fill a shift supervisor or manager position during the simulator operating test.

- Under *no* circumstances will another applicant be allowed to witness an operating test. Operating tests are not to be used as training vehicles for future applicants.

- Other examiners may observe an operating test as part of their training or to audit the performance of the examiner administering the operating test.

- The chief examiner may permit other NRC employees, such as resident inspectors, regional personnel, researchers, or NRC supervisors, to observe an operating test. Personnel who are not NRC employees (e.g., representatives from the Institute of Nuclear Power Operations (INPO)) may observe the operating tests with prior approval from the NRR operator licensing program office. The chief examiner will control the observer's activities in accordance with guidance provided by NRR. The examiner should also give the applicant the opportunity to object to the presence of observers.

k. The chief examiner should confirm with the facility licensee that the simulator instructor's station, programmers' tools, and external interconnections do not compromise operating test security while conducting examinations (refer to Section F of Appendix D). The primary objective is to ensure that the exam material cannot be read or recorded at other unsecured consoles and that examination material is either physically secured or electronically protected when not in use by individuals listed on the security agreement.

l. The chief examiner should arrange for any NRC examiners who are not familiar with the facility to obtain a tour before they administer any operating tests. The tours shall not be conducted or observed by any of the applicants. In addition, the tours should concentrate on areas of the plant that will be used during the examination process, such as the control room, the simulation facility, and planned walk-through locations.

m. The chief examiner will conduct an exit briefing with the facility licensee after the operating tests are complete. The briefing should address any generic weaknesses noted during the operating tests and any other significant issues (e.g., problems with the reference material, the simulation facility, or the plant) that might be addressed in the examination report. The individual operating test results are predecisional until approved by NRC management in accordance with ES-501 and shall *not* be shared with the facility licensee during the exit briefing.

2. Walk-Through (Categories A and B)

a. The examiner should validate any JPMs that were not previously validated by the facility licensee or by the NRC during a preparatory site visit. This is particularly important for complex JPMs and those that require the applicant to implement an alternative method directed by plant procedures.

b. To the extent possible, the examiner should have the applicant perform the control room JPMs on the simulator, rather than asking the applicant to describe how he or she would accomplish the task.

If the examiner observes a discrepancy between the simulator setup and the conditions specified in a JPM, then the examiner shall stop the JPM and correct the situation, as necessary. If the task can be completed with different values (e.g., wind direction when determining a protective action recommendation during an emergency), then the examiner shall document the differences and coordinate with the facility contact and the NRC chief examiner to validate the applicant's response under the actual conditions.

The chief examiner is expected to coordinate the administration of the JPMs to maximize the use of the simulator. To increase efficiency, different JPMs may be administered simultaneously to multiple applicants, but the examiners must ensure that mutual interference is minimized and test integrity is not compromised.

Under certain circumstances, it may be more efficient to administer some or all of the JPMs in "station-keeping" mode, in which the examiners remain in position at designated operating stations and the applicants, under escort, rotate through the various stations. Such arrangements would have to be agreed to by and coordinated with the facility licensee; moreover, the guidelines in Sections D.1.d and D.1.f would apply.

When JPMs or discussions are conducted in the control room, the examiners shall make every effort to accommodate and not interfere with normal shift operations. The chief examiner should request that the facility training manager notify the shift supervisor when the NRC will be conducting examination activities in the control room. If the number of persons or the noise level in the control room is excessive, the examiner should, if possible, move to a quieter location,

modify the sequence of the JPMs and return when the level of activity in the control room has abated, or ask the facility training manager to address the issue.

c. The examiner should encourage the applicant to sketch diagrams, flow paths, or other illustrations to aid in answering the examiner's questions. In all cases, the examiner shall collect the supporting material because it provides additional documentation to support a pass or fail decision (refer to ES-303). To facilitate copying, the applicant's drawings should be restricted to one side of separate sheets of 8.5-inch by 11-inch paper; the back of Form ES-303-1 or its attachments shall *not* be used for this purpose.

d. The examiner should encourage the applicant to use such material as facility forms, schedules, and procedures if they are relevant to the questions asked.

e. The examiner should keep in mind that the applicant's proficiency in every administrative topic and each control room and in-plant system should be deliberately evaluated in accordance with the operating test that was prepared in accordance with ES-301.

f. As stated in 10 CFR 55.45(a), the operating test requires the applicant to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a representative sample from among 13 items listed in the rule. If the applicant correctly performs a JPM (including both critical and noncritical steps) and demonstrates familiarity with the equipment and procedures, the examiner should infer that the applicant's understanding of the system/task is adequate and refrain from asking follow-up questions. However, if the applicant fails to accomplish the task standard for the JPM, exhibits behavior that demonstrates a lack of familiarity with the equipment and procedures, or is unable to locate information, control board indications, or controls, the examiner should ask performance-based follow-up questions as necessary to clarify or confirm the applicant's understanding of the system as it relates to the task that was performed.

Similarly, if the applicant gives an ambiguous answer to a prescripted administrative question in Category A, the examiner is expected to ask probing questions to ensure that the applicant understood the original question and the applicable knowledge or ability. The examiner shall document all performance-based questions and answers for later evaluation.

If the applicant exceeds twice the validated time estimate for any JPM (including time-critical) because he or she has selected an incorrect procedure or operated the wrong equipment (despite being presented with sufficient plant feedback to correct the error), the examiner should stop the JPM, document the circumstances, and proceed with the next JPM. However, if the applicant is on the correct path but has simply stopped making progress toward completing a non-time-critical JPM, the examiner should ask the applicant to describe the work to be done and how long it should take to complete the JPM. If the applicant does not then make timely progress toward completing the described actions, the examiner should inform the applicant that the allowed time for the JPM has elapsed and the applicant will be evaluated on the work completed. The examiner should then proceed with the next JPM.

D. GRADING AND DOCUMENTATION INSTRUCTIONS

1. Review and Categorize Rough Notes and Documentation

a. Review the job performance measures (JPMs) and simulator scenarios that were performed and the prescripted Category A and performance-based followup questions that were asked. Evaluate all rough notes and documentation generated while administering the operating test to determine the areas in which the applicant was deficient. If the applicant generated or used any material (such as figures, drawings, flowcharts, or forms) during the operating test, the material may be used to aid in documenting the applicant's performance. If it contributes to an unsatisfactory performance evaluation, the material shall be appropriately marked and cross-referenced to the applicable deficiency and attached to the examination package for retention.

b. Verify the validity and technical accuracy of any performance-based questions that were asked during the operating test but had not been prescripted, as well as any unexpected events or actions that occurred during the simulator operating test. If necessary, work through the chief examiner to obtain any additional reference material that might be required to resolve any technical questions.

c. On the rough notes and documentation, label or highlight *every* action, response, note, or comment that may constitute a performance deficiency.

d. Label each deficiency related to the applicant's administrative and plant system knowledge and abilities with the alphanumeric code of the administrative topic (e.g., A.1) or the control room or plant system (e.g., B.1.c or B.2.a) to which it applies.

e. Review each simulator operating test performance deficiency. Using as a guide the competency and rating factor descriptions in Appendix D and on Form ES-303-3 (RO) or Form ES-303-4 (SRO), code each deficiency with the number and letter of the rating factor(s) it most accurately reflects (e.g., C.4.a). Whenever possible, attempt to identify the root cause of the applicant's deficiencies and code each deficiency with no more than two different rating factors. However, one significant deficiency may be coded with additional rating factors if the error can be shown, consistent with the criteria in Section D.3.b, to be relevant to each of the cited rating factors.

As stated in ES-302, it is essential that the simulator operating test documentation is consistent and mutually supportive for all applicants in an operating crew. Operating errors that involved more than one applicant should be noted by each applicant's evaluating examiner. If the examination team members do not have the opportunity to discuss and compare their observations before leaving the site, the chief examiner shall schedule a conference call after the examiners return to their respective offices.

2. Evaluate the Applicant's Performance

After categorizing and coding the rough notes, review, evaluate, and grade the applicant's performance in operating test Category A, "Administrative Topics," Category B, "Control Room Systems/Facility Walk-Through," and Category C, "Integrated Plant Operations," as follows:

a. Form ES-303-1, Category A

Review the identified deficiencies and decide whether the applicant's knowledge and understanding of each administrative topic was satisfactory or unsatisfactory (refer to the discussion in Section B). Grade any JPMs that were used to evaluate the administrative topics as described in Section D.2.b below. Document the grade for each administrative topic by placing an "S" or "U" in the appropriate block on page 2 of Form ES-303-1. Document and justify every deficiency in accordance with Section D.3.

After grading all four of the topics in Category A, assess the applicant's topic grades and deficiencies and assign a single "S" or "U" grade for the category. If the applicant has a "U" in only one administrative topic, the examiner may fail the applicant in Category A depending on the safety significance of the identified deficiency. However, if the applicant has a "U" in two or more of the administrative topics, the examiner must assign a grade of "U" for Category A. Place the assigned grade in the "Administrative Topics" block of the "Operating Test Summary" on page 1 of Form ES-303-1. Enter "N/E" (not examined) if this category was waived in accordance with ES-204.

b. Form ES-303-1, Category B

On page 2 of the applicant's Form ES-303-1, enter the names of the systems and JPMs examined during operating test Subcategories B.1, "Control Room Systems," and B.2, "Facility Walk-Through."

To determine a grade for the systems/JPMs listed on Form ES-303-1, evaluate each deficiency coded in the rough notes for Category B. If the following criteria are met, assign a satisfactory grade by placing an "S" in the "Evaluation" column for that system/JPM; otherwise enter a "U":

- Time-critical JPMs must be completed within the allotted time. All other JPMs should normally be completed within twice the validated time estimate (refer to Section D.2.f of ES-302). The reason for terminating any JPM shall be documented in accordance with Section D.3

- The task standard for the JPM must be accomplished by correctly completing all of the critical steps.

  If the applicant initially missed a critical step, but later performed it correctly and accomplished the task standard without degrading the condition of the system or the plant, the applicant's performance on that JPM should be graded as satisfactory. However, the applicant's error shall be documented in accordance with Section D.3.

4. Complete the Examination

   a. As the applicants complete the examination, ensure that they sign the examination cover sheet and staple it on top of their answer sheets. Collect the examination packages, including the questions and answer sheets, and any reference material provided with the examination. Verify that all applicants have entered their names on both the answer and cover sheets, and record the official start time and the time at which each applicant completed the examination in the space provided on the examination cover sheet.

   b. Retain the cover and answer sheets for grading in accordance with ES-403. The question books may be distributed to the applicants after the last examination has been collected.

   c. Remind the applicants to leave the examination area, as previously defined.

   d. When six hours have elapsed, instruct the remaining applicants to stop work, sign their examination cover sheets, and turn in their examinations. The time allowed to complete the examination shall not be extended without prior approval by the NRC regional office. Under extenuating circumstances, the regional office may authorize additional time in 30-minute increments.

   e. Deliver the completed examination packages, the marked-up master examinations, the list of applicant questions and answers, and the seating chart to the NRC chief examiner or the appropriate facility representative, as applicable, for review and grading in accordance with ES-403.

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 chief examiner will request that the facility prereviewers 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 five 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 is also encouraged to collect and consider comments from the license applicants and include them in its submittal to the NRC.

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 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 chief examiner.

correct or there is no correct answer, the question shall be deleted. Annotate the recommended changes on the master examination and answer key and document the reason for every change or deletion.

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

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

2. Grade the Examinations

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

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

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

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

d. After grading all the questions, enter the "Examination Value" (i.e., the original test point total minus the point value of any deleted questions), the "Applicant's Score," and the "Applicant's Grade" (i.e., the Applicant's Score divided by the Examination Value) in the "Results" section of the applicant's written examination cover sheet.

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

3. Evaluate and Review the Grading

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

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

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

b. After evaluating the examinations, review the grading *in detail* and complete Form ES-403-1, "Examination Grading Quality Checklist."

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

E. ATTACHMENTS/FORMS

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

Facility:	Date of Exam:	Exam Level: RO/SRO		
		Initials		
	Item Description	a	b	c
1.	Clean answer sheets copied before grading			
2.	Answer key changes and question deletions justified and documented			
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)			
4.	Grading for all borderline cases (80% +/- 2%) reviewed in detail			
5.	All other failing examinations checked to ensure that grades are justified			
6.	Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants			

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

(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.

A. PURPOSE

This standard describes and coordinates the activities that must be completed after the written examinations and operating tests have been administered and graded in accordance with the ES-300 and ES-400 series. Specifically, the standard includes instructions for assembling and reviewing the examination package, notifying the facility licensee and applicants of the examination results, preparing the examination report, and retaining examination records.

B. BACKGROUND

The goal of the NRR operator licensing program office is to complete licensing or denial actions within 30 days after the facility licensee submits the graded examinations or its formal written examination comments to the NRC. The NRC and facility licensee staffs should establish their priorities and schedules to achieve this goal.

Applicants must achieve a grade of 80 percent or greater on the written examination and a grade of "satisfactory" on all three categories of the operating test to qualify for a license.

C. RESPONSIBILITIES

1. Facility Licensee

a. If the facility licensee participated in developing, administering, and grading the examination, the licensee shall forward the following examination documentation to the NRC chief examiner ("addressee only") as soon as possible (when practical, within five working days) after the examinations were administered:

- the graded written examinations (i.e., each applicant's original answer and examination cover sheets) plus a clean copy of each applicant's answer sheet (ES-403)
- the master examination(s) and answer key(s), annotated to indicate any changes made while administering (ES-402) and grading the examination(s) (ES-403)
- any questions asked by and answers given to the applicants during the written examination (ES-402)
- any substantive comments made by the applicants after the written examination with an explanation why the comment was accepted or rejected (this item is encouraged but not required) (ES-402)
- the written examination seating chart (ES-402)
- a completed Form ES-403-1, "Written Examination Grading Quality Checklist" (ES-403 and Section D.1)
- the results of any written examination performance analysis that was performed, with recommended substantive changes (ES-403)
- original Form(s) ES-201-3, "Examination Security Agreement," with a pre- and post-examination signature by every individual who had detailed knowledge of any part of the written examination or operating tests before they were administered.

Refer to the referenced Examination Standards for a more detailed discussion of each documentation requirement.

b. If the facility licensee did not participate in developing, administering, and grading the examination, the licensee should submit comments and recommendations regarding the NRC-developed written examination to the NRC regional office as soon as possible (within five working days, when practical) after the exit meeting. The facility licensee should also include and consider comments made by the license applicants that took the examination. (Refer to ES-402 for more detailed instructions.)

2. NRC Regional Office

a. The NRC regional office shall ensure that the operating tests and written examinations are graded in accordance with ES-303 and ES-403, respectively.

b. The NRC regional office shall ensure that the examination results and licensing recommendations receive the required reviews and approvals in accordance with Section D, that the associated administrative requirements are completed in accordance with Section E, and that the required records are retained in accordance with Section F.

The regional office may use Form ES-501-1, "Post-Examination Check Sheet," to track completion of the administrative items after the examinations are administered.

c. NRC regional management should also review the overall examination results and any generic findings, deficiencies, or issues to determine if any follow-up action is required.

If the facility licensee recommends deleting or changing the answers to five percent or more of the questions on a written examination that it developed, the regional office should request that the facility licensee explain why so many post-examination changes were necessary and what actions will be taken to improve future license examinations.

If ten percent or more of the examination questions are deleted during the grading process, the region shall evaluate the remaining examination to ensure that the test outline sampling requirements in ES-401 are still satisfied. The training and assessment specialist on the program office staff should be consulted if the validity of the examination is in question.

If the content validity of the examination is affected (e.g., several knowledge and ability (K/A) topics are not covered, or the majority of the remaining K/As are associated with a small number of systems) as a result of deleting questions, NRR operator licensing program office will make a decision whether the examination should be voided.

E. EXAMINATION FOLLOW-UP

1. Notify Facility Licensee of Results

The NRC 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 that failed or had significant deficiencies that warrant further evaluation and retraining by the facility licensee, the regional office will also send to 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 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 Forms ES-D-2 if the applicant failed Category C of the 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), 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. 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.

2. Return the Facility Reference Material

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

3. Prepare the Examination Report

The NRC chief examiner shall prepare the final examination report when all portions of the examination have been graded and documented. If the regional office delays some licensing actions in accordance with Section D.3, it should issue and later amend the examination report. The examiner should follow the principles in NRC Manual Chapter 0610*, "Power Reactor Inspection Reports," when preparing the report.

a. The final examination report shall document the following:

- whether or not the quality of the submitted examination material was within the range of acceptability expected by the NRC. This will be determined as follows:

  The NRC will evaluate the submitted written examination questions (RO and SRO combined) using the guidance in Sections E.2-3 of ES-401 to determine the percentage of submitted questions that required replacement or significant modification or that clearly did not conform with the intent of the approved K/A statement.

  The NRC will evaluate the submitted operating test material by combining the scenario events, JPMs, and prescripted questions (e.g., an operating test composed of 4 administrative JPMs, 2 prescripted questions, 10 walk-through JPMs, and 2 scenarios with 6 events or malfunctions each would total 28 proposed test items for evaluation). For the combined total, the NRC will determine the percentage of submitted test items that required replacement or significant modification to conform with the acceptance criteria in Section D of ES-301.

  Note: If the review indicated that a specific event in a scenario did not require significant, discriminatory operator actions, it should not be included in the total unless that event was one of the required minimum events for any of the applicants according to Form ES-301-5 or the whole scenario was inadequate. Specific malfunctions that were added to the scenarios to provide complications or distractions for other events should not be judged solely on their individual merits.

  If 20 percent or fewer of the test items for the submitted written examination and operating test (judged separately) required replacement

or significant modification, the report will simply state that the facility licensee's submittal was within the range of acceptability expected for a proposed examination. If applicable, an observation shall be included, indicating that the examination changes agreed upon between the NRC and the facility were made according to NUREG-1021.

Note: NRC-validated questions, JPMs, prescripted questions, and scenario events that required replacement or substantial modification will not be counted unless the reason for the current unacceptable flaw was caused by the facility licensee since the time the test item was previously approved by the NRC. (For example, the question's reference changed but the question was not revised accordingly.)

If more than 20 percent of the submitted test items (written exam and operating test judged separately) required replacement or significant modification, the report shall include a factual description of the test item changes (observations), including the type and number of test items replaced and significantly modified as a result of the joint NRC and facility licensee examination review process. The report shall also note that the overall submittal was outside the acceptable quality range expected by the NRC and that future examination submittals should incorporate any lessons learned from this effort.

Negative observations regarding the adequacy of the facility licensee's proposed examination (e.g., stating that the proposed examination was not adequate for administration) shall only be made if the examination was not the facility's first submittal to exceed the 20 percent threshold for unacceptable test items and the NRC operator licensing program office has concurred in the evaluation.

- any delay in administering the examination and the reason for the delay, and any extensions of the written examination time beyond six hours
- the results of the examination, including any significant grading deficiencies if the examinations were graded by the facility licensee
- an overview of the examination security measures and activities evaluated while preparing and administering the examinations and any examination security issues and incidents or other matters requiring facility attention (consistent with NRC enforcement policy)
- any other issues or findings discussed at the exit meeting

b. The report shall include (or cite the accession number for) the following items, as applicable:

- a copy of the final written examination(s) and answer key(s) with all changes (during and post-examination) incorporated
- a copy of the facility licensee's (and applicants') specific comments and

recommended changes regarding the written examination and operating tests that were administered

- the specific NRC explanation for accepting or rejecting each facility recommendation and a specific justification for every additional item deletion or change (Refer to Attachment 1 for examples of facility comments and NRC resolutions.)
- a simulation facility report (as described below, when applicable)

Generic comments submitted by the facility licensee about the examinations or the administration process should also be included in the report, with regional office responses, as appropriate.

c. The simulation facility report shall document the NRC examiners' evaluation of the performance or fidelity of the simulation facility during the preparation or conduct of the operating tests. A sample report is provided in Attachment 2.

All previously undocumented simulator deficiencies encountered while preparing or conducting the operating tests should be described in sufficient detail to allow screening and classification during a simulation facility follow-up. The NRC examiners may include in the simulation facility report any concerns about physical fidelity (hardware or equipment discrepancies) or functional fidelity (performance of the simulation facility during normal, surveillance, abnormal, or emergency events). Each deficiency should include a description of the operation, event, or transient that was in progress, and how the simulation facility failed to accurately model the expected performance of the reference plant.

d. The applicants' names and specific grades (i.e., Form ES-501-2) shall *not* be published in the examination report.

e. The NRC regional office shall send the final examination report to the facility licensee and ensure that a copy is made available to the public.

4. Perform Other Activities

a. If an applicant did not complete the SRO upgrade training program or failed the upgrade examination, regional management should ensure that the RO licensee complies with the requirements of 10 CFR 55.53(e), (f), and (h) and 10 CFR 55.59(a) before resuming active duties as an RO.

b. The NRC regional office should also conduct a case-specific review of the SRO upgrade examination to determine if the applicant failed as a result of significant deficiencies in RO knowledge or abilities. Pursuant to 10 CFR 55.7, the NRC may, by rule, regulation, or order, impose upon any licensee additional requirements deemed appropriate or necessary to protect public health and to minimize danger to life and property. If the SRO upgrade applicant's deficiencies pose such a threat, the NRC may require the facility licensee to provide remedial training and reevaluation and to submit evidence of its completion to the NRC.

c. Once the licensing decisions are complete, the NRC examiners should discard any marked-up documentation or rough notes for those applicants receiving

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 that 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.

d. Agency policy requires that all documents that are not classified or otherwise protected (e.g., under the Privacy Act or Freedom of Information Act) be made available to the public. Therefore, the NRC 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 Electronic Reading Room. NRC Manual Chapter 0620, "Inspection Documents and Records," provides additional policies and guidance in this area.

F. NRC RECORD RETENTION

1. The NRC regional office shall ensure, for the last initial examination at each facility, that the original (whenever possible) or a copy of the following items are either retained in the facility's master examination file or are electronically available via the NRC's agencywide document access and management system (ADAMS). The italicized items should be retained or available for the last two examinations at each facility so examiners can verify compliance with the guidelines on test item repetition.

a. ES-201, Attachment 3, "Corporate Notification Letter"

b. ES-201, Attachment 4, "Examination Assignment Sheet," with pen-and-ink changes to identify the applicants that 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-401-10, "Record of Rejected K/As"

e. the proposed NRC- or facility-developed written examination and operating tests (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), Form ES-401-7, "Written Examination Quality Checklist," and Form ES-401-9, "Written Examination Review Worksheet"

g. *the as-given scenarios including Forms ES-D-1, "Scenario Outline,"* and ES-D-2, "Operator Actions," *for each scenario set administered, as well as the as-given walk-through tests including Forms ES-301-1, "Administrative Topics Outline,"*

and ES-301-2, "Control Room Systems and Facility Walk-Through Test Outline," and the JPMs *for each walk-through test* (all record copies should have the required signatures and reflect the "as run" test conditions; pen-and-ink markups of the original, approved forms are acceptable)

h. for each operating test administered: Form ES-301-3, "Operating Test Quality Checklist," Form ES-301-4, "Simulator Scenario Quality Checklist," Form ES-301-5, "Transient and Event Checklist," and Form ES-301-6, "Competencies Checklist"

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

j. Form ES-501-2, "Power Plant Examination Results Summary Sheet"

k. *ES-501, Attachment 1, "Examination Report," with all enclosures*

l. Form ES-201-3, "Examination Security Agreements"

2. The NRC regional office shall place the following items in each applicant's docket file. (Note that these paper documents are official Agency records and need not be placed in ADAMS. If they are placed in ADAMS, the regional office shall exercise caution to ensure that they are not accessible to the public because they contain information that is protected under the Privacy Act.)

a. Forms ES-303-1, "Individual Examination Report," ES-303-2, "Operating Test Comments" (original copies, all pages, including strip charts and other attachments that support the licensing decision), and ES-D-1, "Scenario Outline," as well as Form(s) ES-D-2, "Operator Actions," if the applicant failed Category C of the operating test (all record copies should have the required signatures and reflect the "as run" test conditions; pen-and-ink markups of the original, approved forms are acceptable)

b. all correspondence with the applicant

c. the applicant's original written examination cover and answer sheets

G. ATTACHMENTS/FORMS

Attachment 1, "Sample Facility Comments and NRC Resolutions"
Attachment 2, "Sample Simulation Fidelity Report"
Attachment 3, "Sample License Letters"
Attachment 4, "Sample Proposed Denial Letter"
Attachment 5, "Sample Notification Letter"
Form ES-501-1, "Post-Examination Check Sheet"
Form ES-501-2, "Power Plant Examination Results Summary"

Administration, Office of the General Counsel, at the same address. If the applicant requests a hearing, the NRC will not consider a reapplication pursuant to 10 CFR 55.35 until the denial is final.

2. Facility Licensee

a. The facility licensee is expected to provide reference materials and technical support as necessary for the NRC to evaluate and resolve any concerns raised by a license applicant who has requested the NRC to reconsider a proposed denial of an application or a 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 Subpart L, "Administrative Hearing Procedures for Adjudications in Materials and Operator Licensing Proceedings," of 10 CFR Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders."

D. ADMINISTRATIVE REVIEW PROCEDURES

1. Application Denial

If an applicant requests an administrative review in accordance with Section C.1.a, the NRR operator licensing program office will generally complete its review of the applicant's eligibility within 60 days of receiving the request. When the review is completed, the applicant will be notified in writing if he or she will be allowed to take the license examination. If the review results in the original denial being sustained, the applicant may request a hearing pursuant to 10 CFR 2.103(b)(2).

2. Examination Results

If an applicant requests an administrative review in accordance with Section C.1.b, the review will generally be completed, as follows, within 75 days after the NRR operator licensing program office receives the request.

a. The NRR operator licensing program office will determine whether to: (1) review the appeal internally; (2) have the regional office review the appeal; or (3) convene a three-person board to review the applicant's documented contentions. The appeal board normally will be composed of a branch chief and two examiners or subject matter experts; it may include a representative from the affected region but no one who was involved with the applicant's licensing examination.

   For written examinations, the review shall focus only on those questions that are being contested. The review shall evaluate the original grading of the applicant's examination, the reference material supplied by the facility licensee, and the contentions and supporting documentation provided by the applicant.

   For operating tests, the review shall evaluate the examiner's comments, the examination report, the test that was administered, and the contentions and supporting documentation provided for review by the applicant or facility licensee (e.g., plant system descriptions, operating procedures, logs, chart recorder traces, and process computer printouts).

b. Based on the findings and recommendations from the review, a decision will be made whether to sustain or overturn the applicant's license examination failure. The NRR operator licensing program office will notify the applicant in writing of the results of the review.

c. When the NRR operator licensing program office has concurred in the results of the review, the NRC regional office will: (1) issue a license if the proposed denial was overturned; (2) review the examination results of the other applicants to determine if any of the licensing decisions are affected; (3) update the master examination file to reflect any test item deletions or answer key changes; and (4) consider the need to correspond with the facility licensee regarding the quality of the examination as discussed in Section C.2.c of ES-501.

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 8. 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 8 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 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 with 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 on-site examination preparation week. In some cases, you may 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 from 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 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 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 operators to be examined and the licensee managers during the examination preparation week, normally two 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 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, approval number 3150-0018, which expires on April 30, 2003.

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 data needed, 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, D.C. 20555-0001, or by Internet electronic mail at bjs1@nrc.gov; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0018), Office of Management and Budget, Washington, D.C. 20503.

A. PURPOSE

This standard describes the requirements for maintaining an NRC operator's license and the procedures for processing license renewal applications, requests for administrative reviews and hearings by licensed operators 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 as a result of failures on an NRC-conducted requalification examination.

C. LICENSE MAINTENANCE

1. Requalification Training

A licensed operator must, in accordance with 10 CFR 55.53(h), complete a requalification training program as described by 10 CFR 55.59. The facility licensee may request in writing that an operator temporarily suspend participation in the facility licensee's requalification training program. The NRC regional office may authorize the operator to temporarily suspend participation in the requalification training program if it finds that:

a. the operator will be reassigned to full-time, career-enhancing duties at another location, making it impractical to participate in the training program (e.g., assignment to the Institute of Nuclear Power Operations or a foreign interchange program; college attendance)

b. the duration of the assignment will not exceed 24 months (If the assignment 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).)

c. the facility licensee's plan for ensuring the operator's qualifications and status is acceptable (i.e., the operator must be retrained, tested, reactivated, and medically fit for duty)

If the region approves the temporary suspension, the region will amend the operator's license to prohibit the performance of licensed duties during the reassignment. The region 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. The 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

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 required by the plant's technical specifications) at sites having a mixed shift schedule, and watches shall not be truncated when the minimum quarterly requirement (56 hours) is satisfied. Overtime may be credited if the overtime work is in a position 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.

3. Medical Standards

a. If 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 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. The facility licensee need not notify the NRC nor request a conditional license for the temporary disability provided the operator is administratively prevented from performing licensed duties or otherwise compensated or restricted as appropriate during 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). 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 it 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, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," the facility licensee shall notify the NRC within 30 days of learning of the diagnosis (see 10 CFR 50.74 and 55.25). A permanent disqualifying condition is always reportable, even if it is being controlled and regardless whether or not the compensatory measures are recognized in the applicable version of ANSI/ANS-3.4.

D. LICENSE RENEWAL

1. An operator wishing 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 the operator spent on operating shifts, and the date and results of the applicant's most recent

APPENDIX C
JOB PERFORMANCE MEASURE GUIDELINES

A. PURPOSE

This Appendix provides a framework for preparing and evaluating job performance measures (JPMs) to ensure they are of appropriate substance and format for initial operator licensing and requalification examinations. The following elements are discussed in detail or attached for information:

- a basic procedure for developing new JPMs (Section B), including forms to document the JPM and to assess the quality of the product (Form ES-C-1 and ES-C-2)
- guidelines for the development and use of alternate-path JPMs (Section C)
- a discussion of walk-through evaluation techniques (Section D)

Adhering to the concepts and guidelines discussed herein, in association with the specific operating test criteria cited in ES-301 or ES-603, as applicable, will enhance the consistency and validity of the walk-through tests.

B. DEVELOPING AND REVIEWING JPMs

The major JPM components and instructions for their development are summarized below. The instructions apply to both the initial and the requalification examination programs, except as noted. Although they are written from the perspective of new JPM development, the instructions should also be referenced, as necessary, when modifying existing JPMs for reuse and reviewing proposed JPMs for quality.

Select the systems and tasks to be evaluated during the walk-through portion of the operating test in accordance with the specific initial and requalification examination criteria in ES-301 and ES-603, respectively. If a JPM already exists for the selected task, it should be reviewed against the guidelines and criteria discussed below to ensure that it is acceptable for use. If a new JPM is required to evaluate the selected system or task, prepare the JPM in accordance with the following basic steps and document the JPM using Form ES-C-1, "Job Performance Measure Worksheet," or equivalent. Form ES-C-2, "Job Performance Measure Quality Checklist," can be used to verify that the relevant criteria are satisfied.

1. Specify Initial Conditions

Determine those system and plant conditions that would permit the task to be performed realistically. They should provide sufficient information regarding the status of the plant and system to facilitate task performance, without coaching the examinee. If the task is intended to be performed on the simulator, it is worthwhile to differentiate those specific initial conditions and system realignments that are necessary for the task to be performed as planned from those other general conditions that add realism and set the stage for performing the task but have no real bearing on the successful execution of the task. 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 start point of the JPM should be completed unless the 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 the task performance. 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 and 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 giving the test if the location in which these items may be found is stated in the JPM. 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 JPMs to a point where they become meaningless.

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 should be made by the examinee while performing the task.

- *Graphical User Interfaces* - Instructor station graphical user interfaces often display simulated plant conditions and performance in real-time. At remote locations, such as a programmer's desk, the GUI could display the full scenario.

3. External Interconnections

- *ESF Feeds* - Many simulators have data links to the ESF and the operations management offices for emergency planning drills. These links can display simulated plant condition to observers outside the simulated control room during scenario validation or examinations.

- *Remote Plant Process Computer and Instructor Station Screens* - Repeater screens in the training area can display scenarios in real time to observers outside the simulated control room.

- *Modems and Remote Simulator Support Systems* - Many simulators are equipped with modems from the instructor station or simulation computers for outside monitoring and control of simulator status and activities by parties off site.

E. ATTACHMENTS/FORMS

Attachment 1, "Example Initial Dynamic Simulator Scenarios"
Attachment 2, "Example Requalification Dynamic Simulator Scenarios"
Form ES-D-1, "Scenario Outline"
Form ES-D-2, "Operator Actions"

Facility: _____PWR_____ Scenario No.: ____1___ Op-Test No.: ___1___

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: IC-38; 100% power, middle of life; CCP "B" is running; Unit 2 is in Mode 5.

Turnover: The following equipment is out of service: DG "A" (6 hrs); CCW pump "A" (2 days); VCT level transmitter LT-185; the block valve for PORV 456 is inoperable with power removed; MFP "A;" and AFW pump "A" (30 hrs). All required surveillances have been done. A severe thunderstorm warning is in effect.

Event No.	Malf. No.	Event Type*	Event Description
1	XXX, XXX	C(RO) N(BOP) R(RO)	70 gpm tube leak on "A" SG (ramped over 5 min) with running CCP trip and failure of standby pump to start; requires power reduction
2	XXX	I(RO)	pressurizer level instrument L-459 fails low
3	XXX	C(ALL)	instrument bus 112 inverter failure
4	XXX, XXX	M(ALL) I(BOP)	450 gpm tube rupture on "A" SG (ramped over 3 min) with an "A" SG pressure transmitter failure causing the PORV to open
5	XXX, XXX, XXX	M(ALL) C(BOP)	concurrent failures of the station auxiliary transformer and the "B" DG result in a loss of all AC power; power remains available through Unit 2 TDAFW pump trips on overspeed (can be reset)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Note: The scenarios in this attachment are individual examples; they are not intended to represent complete scenario sets/operating tests.

For each of the planned events, enter on a Form ES-D-2 (or equivalent) a description of the event and detailed actions required by the applicable plant procedures (e.g., normal, abnormal, emergency, and administrative, including the TS and emergency plan) for each operating position (i.e., SRO, RO, BOP) in a manner similar to the first event on the next page.

Op-Test No.: __1__ Scenario No.: __1__ Event No.: __1__ Page _1_ of _5_

Event Description: A 70 gpm tube leak on the "A" SG (ramped over 5 minutes), combined with a trip of the running CCP and a failure of the backup CCP to start, forces a reduction in power because RCS leakage exceeds TS limits.

Time	Position	Applicant's Actions or Behavior
	RO/SRO/BOP	Recognize indications of the tube leak on the "A" SG - - air ejector off gas radiation monitor - steam line radiation monitor - charging/letdown mismatch - SG blowdown radiation monitor
	SRO	Direct RO/BOP actions per AOP-1.2 - - monitor and control pzr level & pressure - monitor and control VCT level - verify leakage greater than TS limit - announce possible high radiation in turbine bldg - verify tube leak with SG samples - have health physics verify release calculation - commence unit shutdown - notify NRC - minimize secondary contamination - classify the event per the EPIPs (unusual event)
	RO/BOP	Execute AOP actions per SRO directions
	SRO/RO	Recognize running CCP tripped - - no charging flow - pump tripped light - various charging/letdown annunciators
	SRO	May direct RO/BOP per AOP-1.3 - - isolate letdown - monitor pressurizer level and pressure - start the standby CCP - reestablish letdown - refer to TS 3.8.1 - initiate repairs
	SRO	Supervise/coordinate power reduction - - review precautions in GOP-3 - ensure delta-I maintained within limits - verify load reduction rate
	RO	Coordinate with BOP to initiate power reduction - - review GOP-3 precautions - calculate/estimate boration required for shutdown - contact load dispatcher - borates and/or inserts rods to maintain T-ave within 5F of T-ref and maintains delta-I within limits
	BOP	Coordinate with RO to initiate power reduction - - review GOP-3 precautions - operate turbine controls to maintain unloading rate

Facility: _____PWR_____ Scenario No.: ____2___ Op-Test No.: ___2___

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: IC-20; approximately 100% power, 218 ppm boron (EOL), equilibrium xenon; bank "D" rods are at step 216

Turnover: The operations department is making preparations to shut down the plant due to equipment problems. Train "B" CSS logic failed an actuation test last shift; the LCO for TS 3.3.2 was entered 2 hrs ago; I&C is working on the problem. MDAFW pump "B" is out of service to repair an oil leak and should be back in about 45 min. The block valve for PORV 445A is closed and deenergized for leakage control.

Event No.	Malf. No.	Event Type*	Event Description
1	XXX, XXX	I(BOP)	spurious containment spray actuation, phase "B" isolation, and CSS pump "A" failure to auto start (reset malf. to allow equipment restoration and before required stop of RCPs)
2	N/A	N(BOP) R(RO)	begin normal shutdown due to CS problems
3	XXX	C(RO)	boric acid filter plugged (100% in 1 min) at start of boration; when asked, filter d/p is 80# (remove when backflushed)
4	XXX	I(RO)	narrow range RCS temperature detector fails high
5	XXX, XXX	C(BOP)	emergency bus 1A-SA normal feeder breaker trips and DG "A" breaker trips 2 min later
6	XXX, XXX, XXX, XXX	M(ALL) C(BOP) C(RO)	"A" SG line break in containment with auto SI on high containment pressure but failure of reactor and turbine trip; the local manual breaker is operable and the turbine will follow; TDAFW pump overspeed on SI; PORV "B" failure to open in auto or manual

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

For each of the planned events, enter on a Form ES-D-2 (or equivalent) a description of the event and detailed actions required by the applicable plant procedures (e.g., normal, abnormal, emergency, and administrative, including the TS and emergency plan) for each operating position (i.e., SRO, RO, BOP) in a manner similar to the first event for the first PWR scenario (page 2 of this Attachment).

Facility: _____BWR_____ Scenario No.: ____1___ Op-Test No.: ___1___

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: IC-11; approximately 90% reactor power at dispatcher request; at power for 28 days, beginning of cycle; core spray pump 2A is out of service to replace a breaker closing coil; APRM F failed downscale last shift and is bypassed

Turnover: Raise power to 100% when contacted by dispatcher; test core spray pump 2A when the clearance is lifted (imminent)

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(RO)	raise reactor power to 100% upon load dispatcher's request
2	XXX	N(BOP) C(BOP)	test core spray pump 2A starting at step 7.9.2 of PT-07.2.4a and respond to the motor overload
3	XXX	C(SRO)	individual bus breaker failure (MCC DGD), requiring DG #4 to be declared inoperable and a plant shutdown per TS 3.0.5
4	XXX	I(RO) C(BOP)	UPS inverter 2A malfunction and loss of UPS (no APRMs, rod positions, or rod control)
5	XXX	C(BOP)	turbine bearing #3 vibration alarm
6	XXX, XXX, XXX, XXX	M(ALL) C(ALL)	turbine trip and reactor scram with very few rods inserted (SLC pump 2A will trip after initiation and the scram discharge volume vents and drains fail to reopen when RPS is reset) bypass valves fail closed after turbine coasts down (no UPS)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

For each of the planned events, enter on a Form ES-D-2 (or equivalent) a description of the event and detailed actions required by the applicable plant procedures (e.g., normal, abnormal, emergency, and administrative, including the TS and emergency plan) for each operating position (i.e., SRO, RO, BOP) in a manner similar to the first event for the first PWR scenario (page 2 of this Attachment).

Facility: _____BWR_____ Scenario No.: ____2___ Op-Test No.: ___2___

Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: IC-17; 100% reactor power; B CRD pump is in service

Turnover: The load dispatcher has asked that power be lowered to 70%, and chemistry requests an SSW surveillance to be run at the beginning of the shift.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(RO)	decrease power to 70%
2	XXX	N(BOP) C(BOP)	perform SSW surveillance per chemistry request; SSW pump B will trip shortly after start
3	XXX	I(RO)	feedwater master controller fails as is
4	XXX	C(BOP)	loss of power to Division 2 ESF bus
5	XXX, XXX, XXX	M(ALL) C(BOP) M(ALL) C(BOP)	1.5 minutes after event 4, the service transformers lock out, the Division 1 EDG fails to start, and a 5% recirculation loop break develops in the drywell 30 seconds after initiating, the high pressure core spray pump trips

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

For each of the planned events, enter on a Form ES-D-2 (or equivalent) a description of the event and detailed actions required by the applicable plant procedures (e.g., normal, abnormal, emergency, and administrative, including the TS and emergency plan) for each operating position (i.e., SRO, RO, BOP) in a manner similar to the first event for the first PWR scenario (page 2 of this Attachment).

Facility: _____ Scenario No.: _____ Op-Test No.: _____
Examiners: _____ Operators: _____
_____ _____
_____ _____

Initial Conditions: _____
_____
_____

Turnover: _____
_____
_____

Event No.	Malf. No.	Event Type*	Event Description

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Op-Test No.: _____ Scenario No.: _____ Event No.: _____ Page ___ of ___

Event Description: _____
_____
_____

Time	Position	Applicant's Actions or Behavior

APPENDIX E
POLICIES AND GUIDELINES FOR TAKING NRC EXAMINATIONS

Each examinee shall be briefed on the policies and guidelines applicable to the examination category (written and/or operating test) being administered. The applicants may be briefed individually or as a group. Facility licensees are encouraged to distribute a copy of this appendix to every examinee before the examinations begin. All items apply to both initial and requalification examinations, except as noted.

PART A - GENERAL GUIDELINES

1. ***[Read Verbatim]*** Cheating on any part of the examination will result in a denial of your application and/or action against your license.

2. If you have any questions concerning the administration of any part of the examination, do not hesitate asking them before starting that part of the test.

3. SRO applicants will be tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor, or whatever the title of the position may be).

4. You must pass every part of the examination to receive a license or to continue performing license duties. Applicants for an SRO-upgrade license may require remedial training in order to continue their RO duties if the examination reveals deficiencies in the required knowledge and abilities.

5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all the examinations are complete.

PART B - WRITTEN EXAMINATION GUIDELINES

1. ***[Read Verbatim]*** After you complete the examination, sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination.

2. To pass the examination, you must achieve a grade of 80.00 percent or greater; grades will not be rounded up to achieve a passing score. Every question is worth one point.

3. For an initial examination, the nominal time limit for completing the examination is six hours; extensions will be considered under extenuating circumstances.

   For a requalification examination, the time limit for completing both sections of the examination is three hours. If both sections are administered in the simulator during a single three-hour period, you may return to a section of the examination that was already completed or retain both sections of the examination until the allotted time has expired.

4. You may bring pens, pencils, and calculators into the examination room. Use black ink to ensure legible copies; dark pencil should be used only if necessary to facilitate machine grading.

5. Print your name in the blank provided on the examination cover sheet and the answer sheet. You may be asked to provide the examiner with some form of positive identification.

6. Mark your answers on the answer sheet provided and do not leave any question blank. Use only the paper provided and do not write on the back side of the pages. If you are using ink and decide to change your original answer, draw a single line through the error, enter the desired answer, and initial the change.

7. If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate asking them before answering the question. Ask questions of the NRC examiner or the designated facility instructor *only.* When answering a question, do *not* make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question. For example, you should not assume that any alarm has activated unless the question so states or the alarm is expected to activate as a result of the conditions that are stated in the question. Finally, answer all questions based on actual plant operation, procedures, and references. If you believe that the answer would be different based on simulator operation or training references, you should answer the question based on the *actual plant*.

8. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.

9. When you complete the examination, assemble a package including the examination questions, examination aids, answer sheets, and scrap paper and give it to the NRC examiner or proctor. Remember to sign the statement on the examination cover sheet indicating that the work is your own and that you have neither given nor received assistance in completing the examination. The scrap paper will be disposed of immediately after the examination.

10. After you have turned in your examination, leave the examination area as defined by the proctor or NRC examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.

11. Do you have any questions?

PART C - GENERIC OPERATING TEST GUIDELINES (CATEGORIES A, B, AND C)

1. If you are asked a question or directed to perform a task that is unclear, you should not hesitate to ask for clarification.

2. The examiner will take notes throughout the test to document your performance, and sometimes the examiner may take a short break for this reason. The amount of note-

taking does not reflect your level of performance. The examiner is required to document satisfactory as well as less than satisfactory performance.

3. The operating test is considered "open reference." The reference material that is normally available to operators in the facility and control room (including calibration curves, previous log entries, piping and instrumentation diagrams, calculation sheets, and procedures) is also available to you during the operating test. However, you should know from memory certain automatic actions, set points, interlocks, operating characteristics, and the immediate actions of emergency and other procedures, as appropriate to the facility. If you desire to use a reference, you should ask the examiner if it is acceptable to do so for the task or question under consideration.

   You may *not solicit technical information* from other operators, engineers, or technical advisors.

4. You must not discuss any aspect of your operating test with any other examinee until after all the examinations are complete.

PART D - WALK-THROUGH TEST GUIDELINES (CATEGORIES A AND B)

1. The walk-through test covers control room systems, local system operations, and administrative requirements. The examiner will evaluate these areas using a combination of job performance measures (JPMs) and specific questions.

   The initial walk-through consists of ten JPMs for RO and SRO(I) applicants and five for SRO(U) applicants. Seven of the JPMs (two or three for upgrade applicants) will be conducted in the control room or simulator and the remainder will be conducted in the plant.

   The requalification walk-through consists of five JPMs total, with at least two in the control room/simulator and at least two in the plant.

2. The examiner is a visitor at this facility. When you enter the plant, you may be expected to escort the examiner and ensure that he or she complies with safety, security, and radiation protection procedures.

3. You should not operate plant equipment without appropriate permission from the operating crew. Nothing the examiner says or asks will be intended to violate this principle.

4. Before beginning each JPM, the examiner will describe the initial conditions, explain the task that is to be completed, indicate whether the task is time-critical, and explain which steps are to be simulated or discussed. You should perform or simulate the required actions as if directed by plant procedures or shift supervision. Do not assume that the examiner will accept an oral description of the required action unless the examiner indicates otherwise.

5. Time-critical JPMs have been validated by your facility and must be completed within the predetermined time interval in order to obtain a satisfactory grade for that JPM. You will be permitted to take whatever time is necessary to complete those JPMs that are not time-critical, provided you are making reasonable progress toward achieving the task standard. If the examiner believes that you are not making reasonable progress, he will ask you to explain what remains to be done and how long it should take before stopping the task. You will be permitted at least twice the validated time to complete the JPM, whether you are making progress or not.

6. When performing JPMs, you are expected to make decisions and take actions based on the facility's procedural guidance and the indications available. Some of the tasks that the examiner asks you to perform will require the implementation of an alternative method directed by plant procedures.

7. As part of the examination, the examiner may ask questions to investigate your knowledge of an administrative topic, system, or task. Many of the questions will require you to use plant reference material, while others should be answered without the use of references. If you need to consult a reference to answer a question, ask the examiner if it is acceptable to do so. There is no specific time limit for any question, however, you may be evaluated as unsatisfactory on a question if you are unfamiliar with the subject or reference material and are unable to answer the question in a reasonable period of time. You will not be permitted to conduct unlimited searches of the plant reference material during the examination.

8. To facilitate the examination and better enable the examiner to assess your level of understanding, please verbalize your actions and observations while performing the JPMs. Also, please inform the examiner when you consider your performance of each JPM and your answer to each question to be complete.

9. If you need a break during the test, you should ask the examiner.

10. Do you have any questions before we begin the walk-through test?

PART E - SIMULATOR TEST GUIDELINES (CATEGORY C)

1. Your primary responsibility is to operate the simulator as if it were the actual plant. If you believe that the simulator is not responding properly, you should make decisions and recommendations on the basis of the indications available, unless directed otherwise by the examiner.

2. If the examiner asks you a question, you should answer it *only if* doing so will not interfere with simulation facility operations.

3. Teamwork and communications are evaluated. You can enhance the evaluation process by vocalizing your observations, analyses, and the bases for your actions.

   Requalification examinations evaluate the crew's ability to safely operate the plant and the performance of both the individuals and the crew.