



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

November 18, 1999

MEMORANDUM TO: Peter C. Wen, Project Manager  
Generic Issues and Environmental Projects Branch  
Division of Reactor Program Management, NRR

FROM: David C. Trimble, Chief  
Operator Licensing and Human Performance Section  
Operator Licensing, Human Performance  
and Plant Support Branch  
Division of Inspection Program Management, NRR *D Trimble*

SUBJECT: SUMMARY OF PUBLIC MEETING WITH NEI REGARDING  
THE IMPLEMENTATION OF REVISION 8 OF NUREG-1021

On Thursday, November 4, 1999, the NRC staff attended a public meeting with the Nuclear Energy Institute (NEI) in their offices at 1776 Eye Street, Washington, DC, to discuss issues related to the implementation of Revision 8 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." The meeting was attended by the NRR Associate Director for Inspection and Programs, the Director of the Division of Inspection Program Management, the Chief of the Operator Licensing, Human Performance, and Plant Support Branch, the Chief of the Operator Licensing and Human Performance Section, the Operator Licensing Branch Chiefs from all four Regional Offices, and key members of the headquarters and regional operator licensing staffs. Industry attendees included the Director of Operations, NEI, and a key member of his staff, the Manager of the Training Evaluation Department at the Institute of Nuclear Power Operations (INPO), and a facility operations training representative from each regional training organization. A complete list of attendees is attached. No members of the general public were in attendance.

This "focus group" meeting was convened to review issues that were identified during a series of operator licensing workshops conducted by each of the NRC Regional Offices since the last time the group met on June 3, 1999. The meeting focused primarily on the NUREG-1021 limits regarding the number of written examination questions that can be repeated from prior examinations and quizzes, the documentation of examination quality issues in the NRC examination reports, and the eligibility guidelines for senior reactor operator (SRO) license applicants. A complete list of topics discussed during the meeting is provided in the second attachment.

With regard to the first significant issue, the NRC staff acknowledged that the requirement to track question use throughout the initial license training program had created an unnecessary resource burden on facility licensees and concluded that the limits on the repetition of questions on the written examination could be relaxed without compromising the validity of the examination. However, the staff indicated that it would expect facility licensees to select the topics using a documented, random/systematic process that ensures every knowledge and ability applicable to the facility will have an equal chance of being selected and tested. The

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staff committed to shortly develop the revised criteria, implement the changes on a voluntary trial basis early in 2000 while it solicits feedback and public comments, and formalize the revised criteria with a supplementary change to NUREG-1021.

Regarding the second significant issue, the staff acknowledged that the comments in the examination reports sometimes have unintended consequences in terms of exaggerated utility response. To remedy the situation, the staff outlined a proposal to establish a threshold of examination changes below which the examination report would simply state that the draft examination was within the NRC's expected quality band and acceptable for administration. Examination quality concerns would only be documented in detail if the staff concludes that the threshold was exceeded. An examination would be characterized as unacceptable only if there is an apparent programmatic root cause or a repetitive problem. The staff indicated that it would shortly issue clarified guidance regarding this matter to the NRC Regional Offices.

In the area of license eligibility for senior reactor operators, the representative from INPO reported that the National Academy for Nuclear Training is reinstating and revising those guidelines to create a pathway for directly licensing SROs comparable to that in the NRC's Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants." The INPO and NEI representatives indicated that they will expect facility licensees to clean up their licensing bases and to comply with the revised guidelines even if their licensing basis commits them to less restrictive guidance. The INPO representative provided the NRC attendees with copies of the draft criteria and invited the NRC to comment. A copy of the draft criteria is attached.

As noted in the second attachment, the NRC staff also reviewed the proposed answers to some of the questions that had been collected during the recently-completed operator licensing workshops. A copy of the handout is attached. The NEI representatives indicated that they would solicit and consolidate comments from the other focus group members and provide feedback to the NRC staff. The final questions and answers will eventually be posted on the NRC's operator licensing web site.

The staff believes that significant progress was made on resolving a number of issues in a manner that will maintain examination validity, enhance clarity and consistency, minimize unnecessary burden on facility licensees, and possibly increase the level of participation in the examination development process.

If you have any questions, please call me at 301-415-2942.

Attachments: As stated

PUBLIC MEETING REGARDING THE IMPLEMENTATION  
OF REVISION 8 OF NUREG-1021  
November 4, 1999

List of Attendees		
Name	Company	Phone
James Davis	NEI	(202) 739-8105
Gregg Ludlam	CP&L / Brunswick	(910) 457-3618
Bob Post	NEI	(202) 739-8115
Bill Fitzpatrick	INPO	(770) 644-8503
Paul DiGiovanna	ComEd	(815) 458-3411 ext. 2218
Chris Christensen	NRC / RII	(404) 562-4638
Art Fitch	Susquehanna	(570) 542-3510
John L. Pellet	NRC / RIV	(817) 860-8159
Steve Dennis	NRC / RI	(610) 337-5240
Rick Baldwin	NRC/ RII	(404) 562-4642
Fred Guenther	NRC / HQ	(301) 415-1056
Dave Trimble	NRC / HQ	(301) 415-2942
David Hills	NRC / RIII	(630) 829-9733
Jay Hopkins	NRC / RIII	(630) 829-9739
Richard J. Conte	NRC / RI	(610) 337-5183
Fred Riedel	APS / Palo Verde	(602) 393-6580
George M. Usova	NRC / HQ	(301) 415-1064
Bruce Boger	NRC / HQ	(301) 415-1400
Jon Johnson	NRC / RII/HQ	(404) 562-5000
Robert Gallo	NRC / HQ	(301) 415-1031

PUBLIC MEETING REGARDING THE IMPLEMENTATION  
OF REVISION 8 OF NUREG-1021  
November 4, 1999

Discussion Topics

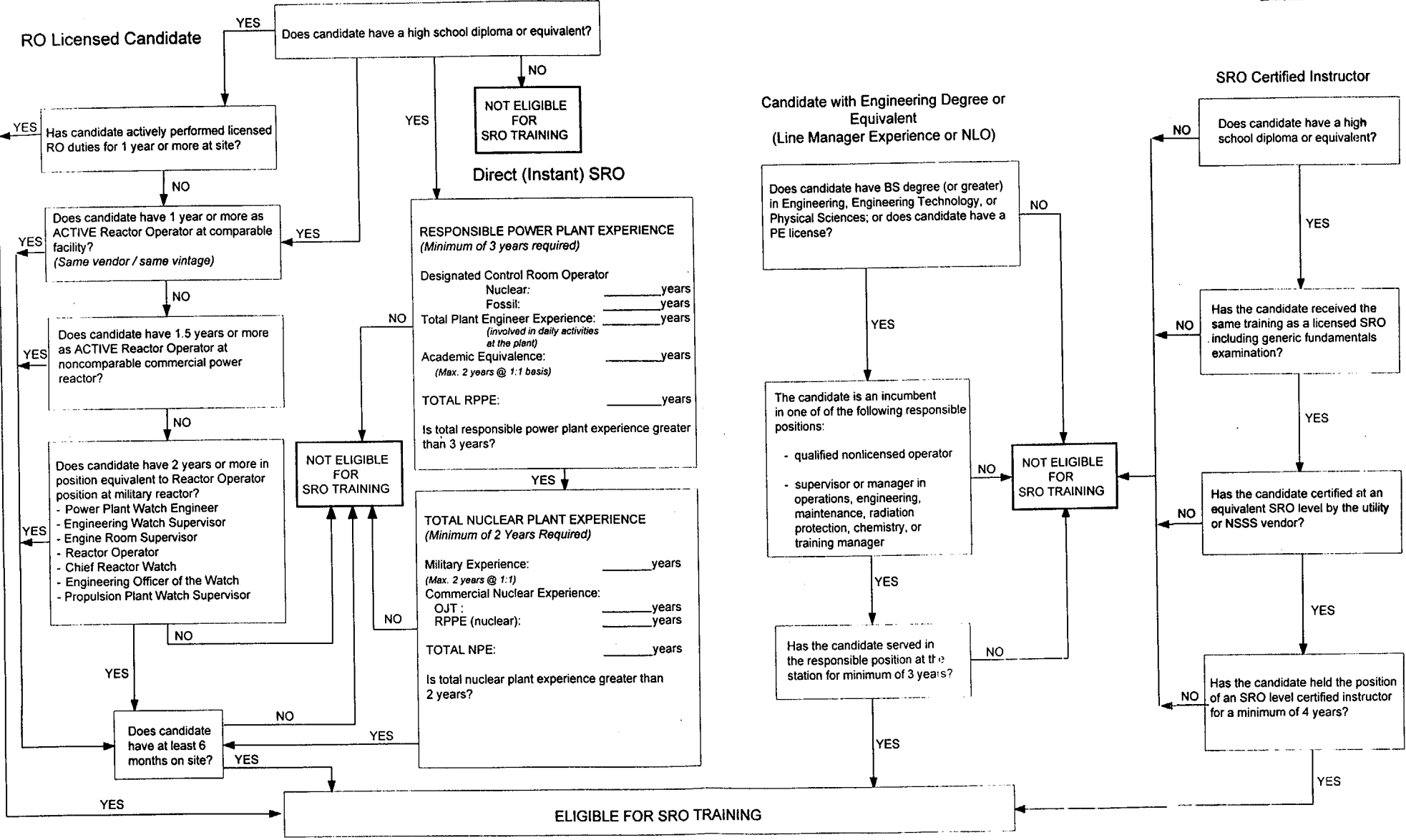
1. Documentation of examination quality issues in the final report
2. Clarification of NRC expectations regarding random sampling
  - Status of the INPO examination bank
  - Possible changes to NUREG-1021
3. Questions stemming from the four Regional workshops
4. The National Operator Licensing Workshop agenda and logistics
5. RO and SRO eligibility and experience expectations and guidelines
6. Participation in the requalification training program during rotational assignments
7. Scheduling examinations and burden-hour estimates to prepare them

**DOCUMENT COVER PAGE**

DOCUMENT NAME: G:GUENTHER\11-4MIN.WPD  
SUBJECT: SUMMARY OF PUBLIC MEETING WITH NEI REGARDING THE  
IMPLEMENTATION OF REVISION 8 OF NUREG-1021  
ORIGINATOR: F. GUENTHER  
SECRETARY : R. CARMON  
DATE: November 1999

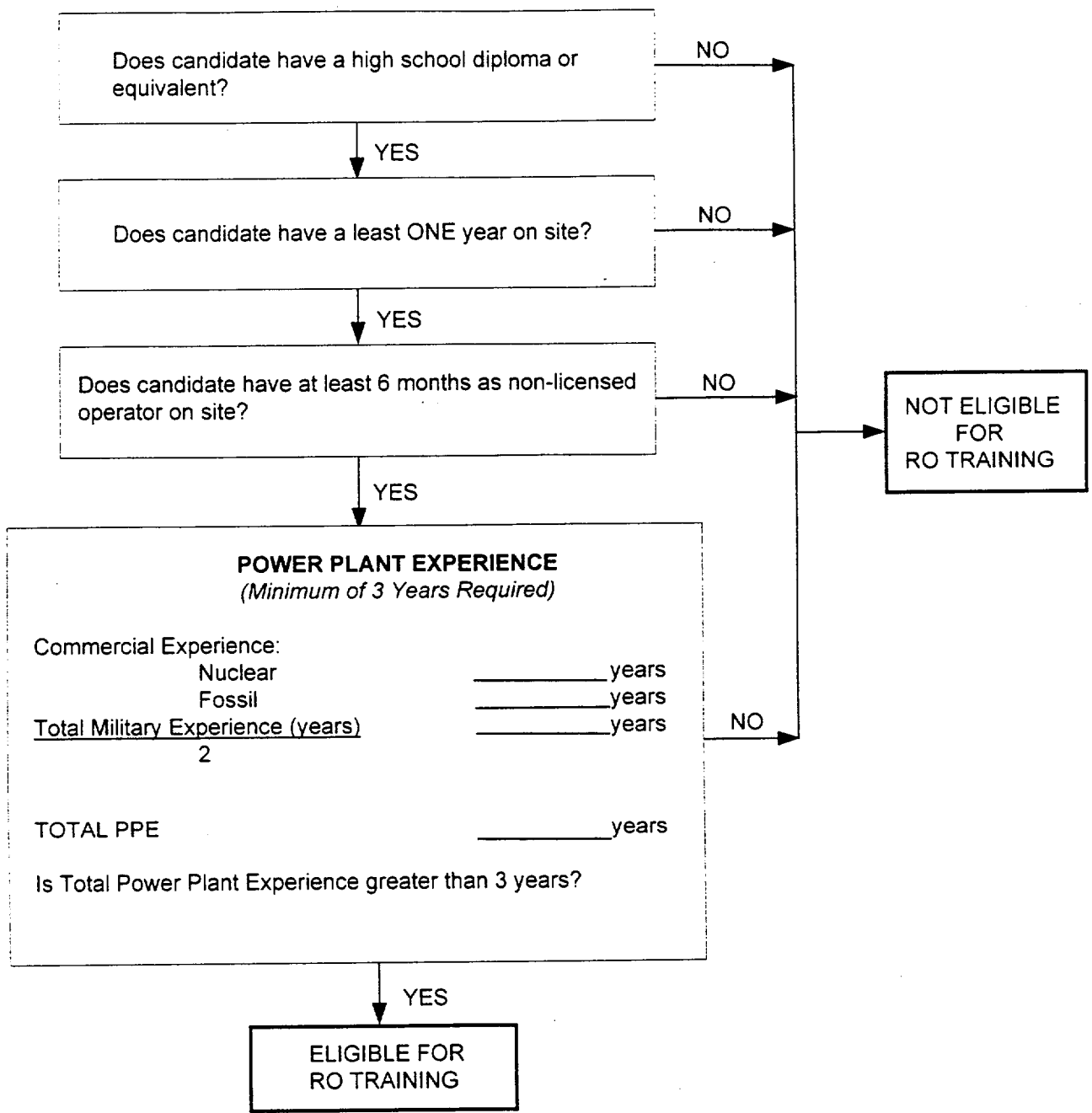
**ROUTING LIST**

NAME	DATE
F. GUENTHER	
D. TRIMBLE	
R. GALLO	



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# Reactor Operator



# Operator Licensing Program Frequently Asked Questions (FAQs)

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This page provides answers to questions that have been asked of the NRC staff concerning the operator licensing program. Those questions that apply to a specific Examination Standard (ES) in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," can be found by clicking on the appropriate ES number in the Table of Contents below. The questions that do not apply to a specific ES have been sorted into one of the remaining categories. Links are provided when referenced documents are electronically available. All the questions that are currently listed were submitted during a series of operator licensing workshops conducted by the NRC Regional Offices to discuss the implementation of the April 23, 1999, amendment to 10 CFR Part 55 and Revision 8 of NUREG-1021. New questions will be added as they are received; for their first showing, they will also be posted in the "What's New" section of the General Information Page.

*[This page is generally updated quarterly and was last updated on DATE.]*

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## ATTENTION

In answering questions, the staff uses the best information available at the time. The staff believes that making these questions and answers available to industry will promote a better understanding of the operator licensing program. Licensees that use these questions and answers as guidance should understand that because some of the questions are very specific in nature, the answers to them may be very limited in their applicability to other licensees. Licensees are cautioned to use the questions and answers as an aid in understanding the elements of the operator licensing program and, if appropriate, to discuss their specific circumstances with the operator licensing staff at the Office of Nuclear Reactor Regulation or the appropriate NRC Regional Office. The answers below represent NRC staff positions and are not intended as legal interpretations of the regulations.

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<b>Table of Contents</b>	
<u>ES-201</u>	Initial licensing examination process; examination security
<u>ES-202</u>	How to apply for a new license; eligibility; training; experience; reactivity manipulations; medicals
<u>ES-204</u>	Examination and eligibility waivers (no current questions)
<u>ES-205</u>	Generic fundamentals examination (GFE)
<u>ES-301</u>	Preparing operating tests (JPMs and scenarios) for initial licensing examinations
<u>ES-302</u>	Administering operating tests for initial licensing examinations
<u>ES-303</u>	Grading operating tests for initial licensing examinations
<u>ES-401</u>	Preparing initial written examinations
<u>ES-402</u>	Administering initial written examinations
<u>ES-403</u>	Grading initial written examinations
<u>ES-501</u>	Initial post-examination activities (documentation and reporting)
<u>ES-502</u>	Initial examination appeals and hearings
<u>ES-601</u>	NRC requalification examination process
<u>ES-602</u>	NRC requalification written examinations
<u>ES-603</u>	NRC requalification walk-through tests
<u>ES-604</u>	NRC requalification dynamic simulator tests
<u>ES-605</u>	License maintenance (conditions, etc.); renewals; requalification appeals and hearings
<u>IP-71001</u>	Requalification inspections
<u>10 CFR 55</u>	Questions related to the operator licensing regulations
<u>General / Other</u>	Questions that do not fit another category

### ES-201

What is the time expectation for turnaround of an examination submitted for review?

Per Section C.3.e of ES-201 of NUREG-1021, chief examiners are expected to complete their review of the examination outlines within 5 working days. Section C.3.f goes on to say that the sampling review of the written exam (which is discussed in Section E of ES-401) should be completed within one week after receiving the exam and the entire review should be done within two weeks. Facility licensees are encouraged to discuss their specific schedule requirements and expectations with their chief examiner.

Is the request for NRC to write the examination required in writing?

Yes. Section 55.40(c) of the amended rule states that the Commission shall prepare the examination upon written request from the power reactor facility licensee pursuant to Section 55.31(a)(3). It has to be

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	<p>a corporate decision with a formal request in writing signed by an authorized facility representative. A response to NRC <u>Administrative Letter 99-03</u> soliciting examination schedule information will satisfy this requirement.</p>
<p>Can the utility write part of the examination and the NRC write the other part of the examination?</p>	<p>Yes. This approach should be reflected in the facility licensee's response to NRC <u>Administrative Letter 99-03</u> and coordinated with the appropriate NRC Regional Office.</p>
<p>The utilities should <u>NOT</u> be the ones to develop the sample plan. This should be developed by the NRC for all examinations administered in the region.</p>	<p>Comment noted. Some facility licensees may prefer to develop their own sample plan. Facility licensees can make arrangements to split responsibility for developing various parts of the examination with the NRC Regional Office. This approach should be reflected in the facility licensee's response to the NRC <u>Administrative Letter</u> and coordinated with the appropriate NRC Regional Office.</p>
<p>Would you comment on the following proposal? Have a "team" from the utility come to the region and work directly with the chief examiner to develop the written exam. I would propose that a team of experienced utility instructors could bring the exam bank and associated reference material and they, with the chief, could produce the written exam in <u>less than 40 hours</u>.</p> <p>Benefits - lower man hours cost, reduced security concerns (less time on site), fewer negative exam report comments.</p>	<p>The NRC <b>currently</b> does not believe that this is a viable option because it raises concerns regarding independence, accountability for the quality of the final product, and possible adverse public perception. Even if a team of five instructors could produce an exam in a week, that adds up to 200 hours.</p>
<p>A question has come up on the issue of using the same utility examiners to write the initial exam and the audit exam. What are the requirements for this?</p> <p>If you use independent groups to develop an audit examination and an NRC examination, do you have to worry about overlap? Why?</p>	<p>As stated in Section D.2.b of ES-201, individuals who are on the security agreement may prepare the audit examination (and vice versa), but the examination would be subject to review by the NRC for test item duplication (none is allowed unless the examinations are independently developed).</p> <p>If the examinations are independently developed, Section D.2.f of ES-401 allows no more than five questions on the written examination to be exact duplicates. The NRC believes that five is a reasonable number of duplicates if the exams are independently developed using a systematic selection process.</p>
<p>Should the utility NRC exam writer be "certified" by the NRC?</p>	<p>No. Although the NRC has considered that and other ways to improve the training and qualifications of utility examination authors, there are no current plans to implement such a program.</p>
<p>If the NRC writes the outline, does the facility</p>	<p>Yes; otherwise there would be no way to identify</p>

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licensee have to track the question history if the facility licensee writes the examination?	what questions were used during the training program.
Does "independent review" by a supervisor include question by question approval/comment?	<b>Yes.</b> The independent managerial or supervisory reviewer is confirming and signing that the written examinations and operating tests meet the requirements of NUREG-1021. <b>The extent of the review will typically be a function of the experience of the examination author and the quality of facility's examination bank.</b> He or she would be held accountable if the exam is deficient.
If a reactor operator is testing for an upgrade and his/her physical is current, does he/she have to have another physical?	<b>No.</b> In accordance with <u>Section D.1.c of ES-204 of NUREG-1021</u> , the medical examination documented on NRC Form 396 is good for two years from the date of the medical examination. Per <u>10 CFR 55.25</u> , facility licensees are required to notify the NRC within 30 days of learning that a licensed operator has developed a permanent physical or mental condition that causes the operator to fail to meet the eligibility requirements.
Why does the NRC not have to sign a security agreement?	The primary purpose of the security agreement is to prevent inadvertent compromises by ensuring that the people having knowledge of the examination content are aware of their responsibilities. NRC examiners are aware of their responsibilities with regard to examination security and rarely find themselves in a position where they could inadvertently compromise the examination. They are only on-site to validate and administer the examinations and they do not routinely interact with the license applicants.
<p>ES-201, Section D.2.b, Bullet #2, prohibits someone on the exam security agreement from doing on-the-job training (OJT), practice, coaching, and sign-offs. Does this prohibit an operator (on exam security) who is standing a regularly scheduled shift from signing off a trainee scheduled to stand that shift under instruction in the position? This is not referring to signing of individual OJT tasks, just the shift itself. (We currently do not permit this, I just want to be clear on the requirements of the examination standard).</p> <p>When the operator comes out to validate the written, can they have OJT contact with an applicant after the operator is on the security agreement?</p>	Section D.2.b of ES-201 prohibits <u>all</u> OJT activities. A license applicant should <u>not</u> be standing watches under instruction with a licensed operator who has knowledge of the examination content.
Why does ES-201, Section D.2.b, Bullet #1, permit a person signed onto the <u>initial</u> exam security agreement to operate the simulator from the booth	ES-201 was revised in an effort to minimize the unnecessary burden on facility licensees by allowing individuals with knowledge of the examination

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<p>when this is not permitted in ES-601 for requal? Why the inconsistency?</p>	<p>content to <del>continue</del> operating the simulator booth <u>provided they are not selecting the training content or providing performance feedback</u> to the license applicants. Although this is not stated in ES-601, the same policy would apply for NRC-conducted requalification examinations. The NRC will address this inconsistency in the next revision of NUREG-1021.</p>
<p>Why do the standards not allow the utility to give the same JPMs and scenarios the following day if the applicants sign a confidentiality agreement?</p>	<p>The NRC believes that it would be inappropriate to put the license applicants in a position where they should not talk to one another after their exam.</p>
<p>If an individual examinee is on security agreement, can you then reuse a JPM set?</p>	<p>No.</p>
<p>Although some relaxation was included in final Revision 8 of NUREG-1021, it is still much too restrictive (in my opinion). Why is it that an instructor cannot teach once he has knowledge of the exam? This requirement causes me to need additional staffing because once he has knowledge of sample plan, he is not available. Why can't we use the instructor, and rely on his integrity (via signature, under penalty of law, etc.)?</p>	<p>While developing the pilot examination process, the NRC identified a number of vulnerabilities (including independence and public perception, examination security and integrity) associated with allowing facility licensees to prepare the initial licensing examinations, which had, theretofore, been prepared exclusively by NRC examiners or contractors. To the extent possible, the NRC established guidelines and criteria in NUREG-1021, including the personnel and security restrictions, to mitigate the vulnerabilities. Please refer to SECY-96-206 (the rulemaking plan) and SECY-98-266 (the final rule) for a discussion of the NRC's rationale. <b>It should be noted that the current restrictions are consistent with the change recommended by the Nuclear Energy Institute (NEI) during the rulemaking process.</b></p>
<p><b>Providing individual applicant feedback is a prohibited activity for individuals on the security agreement. How does this apply to Manager/Supervisor situations such as sitting on a performance review committee or coaching/counseling associated with a non-technical situation (e.g. classroom behavior)?</b></p>	<p><b>Managers/supervisors on the security agreement may continue to counsel the applicants concerning non-technical issues. They are not allowed to provide any technical guidance, training, or any other feedback that may compromise examination integrity as defined in 10 CFR 55.49.</b></p>
<p>ES-201, page 12 of 24 top - Is a facility required to check with a contractor to determine if they are concurrently developing a similar exam for another utility? If so, do these exams need to be given on the same day? Also, what other security requirements need to be met?</p> <p><b>If you have a common group develop examinations for two different plants, do you have to worry about overlap between these</b></p>	<p>Pursuant to 10 CFR 55.40(b)(2), facility licensees that prepare their own examinations are expected to take reasonable measures to control examination security and integrity. As noted in Section C.1.d of ES-201, facility licensees may use contractors or other outside assistance to develop the examinations, but the licensees bear full responsibility for the product, including conformance with the examination criteria and maintenance of examination security and integrity. Additionally, Section C.1.h of</p>

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exams? What is the criteria?

ES-201 discusses the requirements for controlling and documenting the source of test items and the predictability of the examination content. Licensees should obtain this information from their examination contractor if one is used. If there is a basis for the applicants to predict the content of the examination and the overlap with the other utility's examination is significant, **then the utility must evaluate the issue, determine if compensatory measures are appropriate, and discuss the issue with the NRC as early as possible. Factors to consider would include the timing between the exams and the physical and corporate distance between the facilities. For example, this evaluation could reasonably differ if, in one case, the sites are owned by the same utility, located 20 miles apart, and the exams are separated by a month, versus another case in which the exams are 8 months and 2000 miles apart.**

As part of normal instructor duty, 10 questions were submitted to an examination team. Does the instructor have any examination information?

As long as the instructor is not aware if any of the questions meet the sample plan and the questions are **placed in the exam bank**, then the instructor would not be considered to have exam information. However, if the questions are given to the examination team **with the expectation that they will be used as new questions**, then the instructor should be on the security agreement. **Specific questions regarding this issue should be discussed with the NRC.**

If involved in an initial examination, is there a restriction from teaching requal?

An initial licensed operator upgrade candidate attends licensed operator requalification training with his crew. The instructor is on the initial NRC exam team and has signed the exam security documents. Is the initial NRC exam candidate allowed to remain in the class/simulator or must he/she leave?

Use of instructors is still an issue. The use of an instructor, who is on the exam security agreement, can't teach candidates attending the requalification program. This is an unnecessary burden on resource restrictions.

SRO upgrade applicants who are removed from the watch rotation do not have to attend RO requalification training while they are training for the SRO license. If there are no upgrade applicants in the requalification class, there would be no restriction on the instructors. However, as stated in Section D.2.b of ES-201 of NUREG-1021, if SRO upgrade applicants are present in the class, instructors would not be permitted to teach in areas in which they have examination knowledge, and their activities would have to be documented on Form ES-201-3. They can teach subjects about which they have no examination knowledge, which is a good reason to limit everyone's access to only those portions of the exam for which they have responsibility. **Instructors with examination knowledge should not be used in training environments that require one-on-one contact with trainees. There is no problem with them teaching a requalification lecture or simulator session, but the trainer with examination knowledge must avoid direct**

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<p>Is it acceptable to password protect exam files and leave them on a local area network (LAN) or password protect them on a hard drive? (The concern is that floppy disks are more susceptible to damage).</p>	<p><b>individual interaction with the applicants.</b>                  Yes. The use of passwords should provide adequate security if <b>normal computer security practices (e.g., selecting and changing passwords) are observed. Special cases may need additional consideration. For example, if a trainee has extended access to the LAN in his normal position, additional security measures might be appropriate.</b></p>
<p>Will you allow transfer of electronic files of exam materials over the Internet via e-mail if the file is "password protected?"</p>	<p>As stated in Attachment 1 of ES-201 of NUREG-1021, examinations shall not be transmitted via non-secure electronic means. Licensees may transmit the exams via the NRC's "AUTOS" local area network by making arrangements with the NRC resident inspector at the facility. Although it is not stated in ES-201, licensees may also transmit password-protected electronic files over the Internet if the licensee's word processing software <b>provides adequate security and</b> is compatible with the NRC's and the password is separately provided to the NRC chief examiner by mail or phone. <b>The files do not need to be encrypted.</b></p>
<p>If the examination is password protected, how much hacking do we have to protect against?</p>	<p>Pursuant to <u>10 CFR 55.49</u>, the NRC expects facility licensees to take reasonable measures to prevent inadvertent examination compromises. <u>Attachment 1 of ES-201 of NUREG-1021</u> describes a number of examination security guidelines that facility licensees may consider. The NRC does <b>expect reasonable computer security measures to be in place, but it does not expect facility licensees to defend their examinations against willful acts, such as computer hacking.</b></p>
<p>The person who issues the password and knows what it is for a computer system - is he in possession of examination material?</p>	<p>Although the people who issue computer passwords may not have possession of examination material, they probably have access to that material and any other sensitive or classified information stored on that computer system. These individuals should be aware of their authority and responsibility with regard to accessing and safeguarding sensitive information. There would certainly be no harm in having them sign the examination security form.</p>
<p>What are the time frames when security restrictions begin?</p>	<p>The security restrictions begin whenever someone makes the first decision regarding the topics to be tested on any part of the licensing examination.</p>
<p>When does someone have to go on examination security?</p>	<p>Per <u>Section D.2.b of ES-201 of NUREG-1021</u>, they must acknowledge their security responsibilities by reading and signing the security agreement (<u>Form ES-201-3</u>) <b>before</b> they obtain detailed knowledge of any part of the examination.</p>

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## ES-202

Examination Standard-202 D.2.b(2) refers to D.1.b(4) and D.1.b(5). D.1.b(5) no longer exists as a number and Section D.1.b no longer refers to reactivity manipulations. What is the requirement?

Significant reactivity manipulations were defined in the Q&A portion of NUREG-1262. The information notice issued a couple/three years ago seems to conflict with NUREG-1262. An answer to what is a significant manipulation should support NUREG-1262.

Reactivity manipulations for [initial licensed operator] ILO training: What is the status of allowing simulator manipulations (when unable to perform in-plant)? Also, define what constitutes a control manipulation. Why is a rod operability surveillance ok at one plant but not another? What constitutes a large change?

**What is acceptable for reactivity manipulations? (any real-life examples of problems or rejected applications)**

Does maintaining power constant at 1-2% and diluting 1000 pcm due to xenon over a shift count as a reactivity manipulation?

The 10 CFR 55.31(a)(5) requirement for every applicant to complete five significant control manipulations on the reactor for which a license is sought has not changed. The requirement is discussed in Section C.2.b of ES-202 of NUREG-1021 (Revision 8). Section D.1.b(5) was inadvertently deleted when preparing Revision 8 and will be corrected in the next revision of the NUREG.

Information Notice 97-67, "Failure to Satisfy Requirements for Significant Manipulations of the Controls for Power Reactor Operator Licensing," restated and clarified the NRC's position on this issue. The staff does not believe that the IN contradicts the guidance in NUREG-1262.

The Commission has approved the NRC staff's plan to amend 10 CFR 55 to allow license applicants to complete the five required control manipulations on the simulator; refer to SECY-99-225 for a discussion of conditions that apply.

The same test (e.g. started at a comparable power level, including a comparable number of rods, and a comparable reactivity change) should be acceptable on either plant. Without specifics, it is not possible to speculate why one was acceptable and the other was not.

Per Item F of 10 CFR 55.59(c)(3)(i) and as noted in IN 97-67, a power change of at least 10% is an **example of a significant (or large) control manipulation. It would also be acceptable, when defining allowed reactivity manipulations, to evaluate the knowledge and abilities exercised in a controlled large evolution and then accept all smaller tasks that comparably exercise the same knowledge and abilities. The NRC expects such evaluations to be formally documented as part of the licensee's SAT-based (systematic approach to training) program.**

Yes. Although this example does not precisely fit any of the items in 10 CFR 55.59(c)(3)(i), it would be acceptable to count as one of the five required

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reactivity manipulations. As noted in Regulatory Guide 1.8, Revision 2, every effort should be made to have a diversity of reactivity changes for each applicant.

**See the previous question for more information.**

Can a reactor startup below the point of adding heat constitute a manipulation?

Yes.

What constitutes "significant?"

As indicated in Information Notice 97-67, "Failure to Satisfy Requirements for Significant Manipulations of the Controls for Power Reactor Operator Licensing," and defined in 10 CFR 55.59(c)(3)(i)(E), a 10 percent or greater power change is **an example of a significant control manipulation**.

What is the current position on diversity; e.g., can 5 power changes using boration be used?

As stated in the IN, diversity of control manipulations is expected but not required. Some diversity is better than none; i.e., the 5 boration power changes should be as diverse as possible.

**See the previous two questions for more information.**

There were several changes or differences between the interim revision and final revision of ES-202. ES-202 D.2.b(1) refers to D.2.a(4), which no longer exists. What is the requirement?

Section D.2.b(1) of ES-202 of NUREG-1021 should reference D.2.a(3) rather than D.2.a(4). The cross-reference was not adjusted when Section D.2.a(3) in Interim Revision 8 was combined with Section D.2.a(1). The error will be corrected in the next revision of the NUREG.

Does the 1-year waiver clock start at the time the denial is received from the NRC following the exam or does it start after all appeals have been resolved?

As stated in Section D.1.a of ES-204 of NUREG-1021, the 1-year waiver clock starts on the date when the denial of the original application becomes final (i.e., when any informal appeal or hearing is finally resolved).

**We believe an applicant meets the eligibility requirements, but ask the NRC to evaluate this to make sure - is this a waiver request?**

**No. It would not constitute a waiver request until you submit a license application (NRC Form-398) that specifically requests a waiver of the eligibility guideline or requirement.**

If a utility is preparing an examination per NUREG-1021, Revision 8, is it required to comply with ES-202, Section D (license eligibility requirements), which is based on Regulatory Guide 1.8, Revision 2?

No. Participation in the examination development does not affect the facility licensee's prior commitments regarding license eligibility (i.e., experience, education, and training).

**When verifying entry level prerequisites for a candidate, do I have to validate them to the requirements stated in ES-202? If not, to which standard must the candidate be validated against? If I have a SAT [systematic approach to**

**The NRC expects facility licensees to comply with all the requirements and commitments embodied in the facility's licensing basis (e.g., the technical specifications, quality assurance plan, and final safety analysis report) and procedures. Some licensees neglected to delete references to**



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[Systematic approach] based program, why is the NRC concerned about entry level verification? This renewed interest appears to contradict the information in NUREG-1262.

Can self-study hours be counted on the application as part of the required 500 training hours?

What are experience requirements for SRO/RO?

For a [systematic approach to training] SAT-based program, what and where are the requirements for "responsible power plant" experience?

#### Question - Experience Requirements

- 3 years
- 1 year
- 6 months on site

What are the real requirements if you have SAT-

outdated documents and guidelines when they shifted to an SAT-based program. This has resulted in contradictory commitments and confusion.

As a general rule, self-study time should NOT be used as a substitute for classroom instruction time that is specified in a facility licensee's approved (i.e., accredited) training program and licensing basis. However, if the licensee's program includes provisions for waivers and equivalence determinations, it may be appropriate to customize an individual's training based on prior instruction and experience. Such a program might include independent study with specific learning objectives and follow-up testing to ensure that the learning objectives have been mastered.

In accordance with 10 CFR 55.31(a)(4), an applicant must provide evidence that he or she has successfully completed the facility licensee's requirements to be licensed as an operator or senior operator. The facility licensee's requirements, as embodied its licensing basis (e.g., its technical specifications, quality assurance plan, and final safety analysis report) and approved training program, should be clearly defined and consistent. Pursuant to SAT-based (systematic approach to training) principles, the NRC expects the facility licensee to formally evaluate and document the applicants' training and experience vis-a-vis its requirements and commitments.

The NRC's RO and SRO experience guidelines are discussed in Section D of ES-202. Also refer to Information Notice 98-37, which addresses the issue of license eligibility.

The experience guidelines in Regulatory Guide 1.8, Revision 2, only apply to a facility licensee that has an accredited, SAT-based operator training program if the licensee neglected to update its other regulatory commitments (e.g., its technical specifications and final safety analysis report) after responding to Generic Letter 87-07. Accredited operator training programs are expected to comply with the experience criteria contained in the training program accreditation guidelines in effect at the time 10 CFR 55 was amended in 1987. Refer to Information 98-37.

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based program?

Regarding the 6-months on-site experience requirement:

- ANSI allows 13 weeks on-shift training to count toward the 6 months
- ANSI allows simulator training to count (simulator training is usually 3 or more months)

Can training program provide the 6-months of on-site experience?

What is "responsible power plant experience?" Need a definition that is broader than staff engineer and operator? For example, operations instructor, ex-NRC examiner, and maintenance supervisor.

"Responsible" power plant experience -

- This issue needs to be resolved
- INPO, NRC, NEI need to determine the specifics and let us know.
- We need to know without reservation that SRO-instant candidates meet this ambiguous "experience" requirements prior to them entering a license class.

**Responsible Power Plant experience acceptance needs to be explicit. For example, why does an NRC Resident or Water Treatment power plant engineer receive one for one credit while a licensed simulator instructor or plant equipment operator receives no credit?**

**Can a 1 hour reactivity change be counted towards the needed on-shift time? Can a four hour evolution be counted if the applicant attends all prerequisites and post-activities?**

As noted in Section D of ES-202 of NUREG-1021, the NRC considers training and experience to be separate aspects of license eligibility. Per NUREG-1262 (Question No. 113), a person should meet the experience guidelines before entering the license training program. Time spent in training before entering the license training program may qualify as experience, but time spent in a training program leading up to license **application** (including the 13 weeks on-shift and simulator training) should normally not be double-counted as experience.

The 13 weeks of on-shift training is specified in Regulatory Guide 1.8, Revision 2, which endorses ANSI/ANS -3.1-1981. That version of the ANSI standard does not include that training guideline.

The NRC acknowledges the need to clarify and broaden the definition of "responsible power plant experience." As noted in Appendix F of NUREG-1021, the NRC may approve, on a case-by-case basis, experience in positions other than those listed. To maintain consistency, the NRC Regional Offices refer all questions regarding license eligibility to the NRR operator licensing program office.

As stated in the Executive Summary of NUREG-1021, facility licensees are encouraged to resolve any applicant eligibility questions with their NRC Regional Office before commencing a license training. **Pursuant to SAT-based (systematic approach to training) principles, the NRC expects facility licensees to formally evaluate and document their applicants' training and experience vis-a-vis the facility's requirements and commitments.**

**Per 10 CFR 55.31(a)(4), license applicants must provide evidence that they have successfully completed the facility licensee's requirements to be licensed as an operator or senior operator. The NRC's regulations and guidance documents do not specify how to count the 3 months of on-shift time. However, if the facility licensee's accredited training program or other commitments (e.g., its final safety analysis report or technical specifications) provide such guidance, then the NRC would expect the facility**

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Can the 6-months on-site power plant experience occur prior to a break in service (e.g., the individual works on-site for over 6 months in a responsible position; he/she then leaves the site and returns some time later. Is the 6 months satisfied already?)

Can a facility be committed to ANSI N18.1-1971 for candidate eligibility, yet incorporate guidance of ES-202/RG-1.8 or other document(s) without changing the committed document?

When does the NRC expect to endorse ANSI 3.1-1993, and revise RG 1.8?

and applicant to comply. Since the intent of this training is for the applicant to experience the full range of routine, day-to-day shift activities, the NRC would expect, in the absence of a contradictory facility requirement, that the training would be accomplished in full-shift increments.

Per 10 CFR 55.31(a)(4), license applicants must provide evidence that they have successfully completed the facility licensee's requirements to be licensed as an operator or senior operator. The NRC's regulations and guidance documents do not specify when the 6 months of on-site experience needs to take place. However, if the facility licensee's accredited training program or other commitments (e.g., its final safety analysis report or technical specifications) prohibit a break in service, then the NRC would expect the facility and applicant to comply.

In 1987, Generic Letter 87-07 (which was issued in connection with a revision to 10 CFR 55) gave facility licensees the option of substituting an accredited training program for their initial and requalification training programs previously approved by the NRC. Although all facility licensees elected this option in writing, many of them neglected to revise the training program descriptions in their technical specifications, final safety analysis reports, and other documents. As a result, many facility licensees have conflicting and contradictory training program commitments and requirements. The NRC encourages licensees to review their program descriptions and eliminate any reference to obsolete documents.

As stated in Section D.1 of ES-102, the NRC is currently reviewing the 1993 version of ANSI/ANS 3.1. On March 30, 1999, the NRC published a notice in the Federal Register (64 FR 15190) soliciting public comments on the Second Proposed Revision 3 of RG 1.8 (temporarily identified by its task number DG-1084). The NRC is currently evaluating the public comments and making final revisions to the RG. We will post updated information in the "What's New" section of the web site when it becomes available.

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Can a "program" be split as follows:

Complete phase 1 which concludes with a GFE; then suspend the program so that the trainees can get 6-months onsite experience; then restart and complete the program and get a license.

Can we eliminate [the] hours of operation on [NRC Form] 398 [for license renewal applications]?

...sibly. The NRC does not require the site-specific training to begin immediately after taking the generic fundamentals examination. However, the NRC does expect facility licensees to comply with their licensing basis requirements and commitments regarding licensed operator experience and training.

The requirement to supply that information is contained in 10 CFR 55.57(a)(3). The only way it could be eliminated from the form is by amending the regulation or requesting an exemption.

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<b>ES-204</b>
No current questions.

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<b>ES-205</b>	
At what point will the GFE be a computer-based exam including immediate grading? Proctor would be onsite.	The NRC is exploring the possibility of administering the exams electronically, but it will probably be at least two or three years before it will be available in that format.
2000 GFES dates: Licensee have developed schedules and allocated resources to participate in a April GFES. Changing to a February, June, October schedule would be disruptive, perhaps an April, June schedule for 2000 would allow for a smooth transition.	The NRC has decided that in fiscal year 2000 (October 1, 1999 - September 30, 2000), the GFES will be administered on the first Wednesday after the first Sunday in October, April, and July. Starting in fiscal year 2001, the examinations will shift to October, February, and June.
In order to facilitate transition to administering 3 GFE/year, is it possible to consider administering exams in April, June, and October during year 2000? This would minimize the impact on utilities that already have an exam scheduled. If implementation occurs in FY 2000 and exams are given in February, June, and October (as proposed), unnecessary burden on these utilities could result.	

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**DRAFT****ES-301**

One of the recognized factors for test item validity is discrimination of job position, however, the walk-through examination has a significant portion done in the plant, outside the control room. These tasks are nonlicensed operator level, thus, fail to discriminate for the job positions of reactor operator or senior operator.

10 CFR 55.45(b)(1) requires the operating test to be administered in a plant walk-through and a simulation facility. Therefore, it would not be possible to eliminate the in-plant portion without first amending the regulation. Reactor operators and senior operators need to be familiar with in-plant operations that they oversee and could conceivably be called upon to perform during emergency situations. Per ES-301 of NUREG-1021, tasks selected for the walk-through should have meaningful performance requirements and their K/A (knowledge and ability) importance factors, which were derived by a panel of subject matter experts from the industry and NRC, should be at least 2.5.

Our experience has been that we are told ALL items of 10 CFR 55.45 and 55.43(b) must be sampled.

Section B of ES-301 of NUREG-1021 (Revision 8) states that all 13 items in 10 CFR 55.45 do not need to be sampled on every operating test. Although NUREG-1021 does not include a similar statement with regard to the written examination, the same policy still applies. In accordance with Section D.1.b of ES-401, the topics for the written examination are to be systematically selected from the appropriate Knowledge and Abilities Catalog (NUREG-1122 or -1123).

If 100% of sampling for topics in 55.45(a) is not required, is there a definition of representative sample?

Although the NRC has not developed a definition of a "representative sample," logic dictates that it should include a reasonably complete, thorough, balanced, and varied cross-section of the items in the population to be sampled. All of the items should be sampled from time to time, and, absent a basis for favoring certain items, it is expected that every item would be sampled at about the same frequency. **An examination constructed in accordance with NUREG-1021 will normally contain a "representative sample" of the required items.**

**What is meant by a "representative sample" of the 13 items identified in 10CFR55.45(a)?**

Do the audit exam and the NRC exam have to be 100% different (D.1.a)?

No. As noted in Section D.1.a of ES-301, simulator events and JPMs that are similar to those that were used on the audit test (or audit tests in the case of retake applicants) 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.

ES-301, D.1.a - No reuse of audit material for subsequent exams?

**To what extent do "similar events" between the audit and NRC exam need to be identified? For example, if the audit examination contained a faulted SG [steam generator] in one scenario (safety valve stuck open) and the NRC**

<p>examination context... faulted SG (pipe rupture in containment), would these situations be considered "similar?"</p>	<p>The two events cited in the example are "similar" (in that they both involve a faulted SG) and should be discussed with the NRC chief examiner. In this case, the mitigation strategy for the two events - one being inside and the other outside containment - are sufficiently different that their use would probably be acceptable (unless there were other predictable patterns between the two scenarios).</p>
<p>Can there be scenario repetition with similar transients?</p>	<p>Although the same scenarios and job performance measures may not be repeated on successive days during the examination week(s), events and tasks that are similar to those that were tested on previous days during that examination are permitted provided the actions required to mitigate the transient or complete the task are significantly different from those required on the previous examination. This is consistent with the policy for repeating events and tasks from the applicants' audit examination as stated in Section D.1.a of ES-301 of NUREG-1021.</p>
<p>How is the JPM system selection supposed to occur? Shouldn't there be a systematic (e.g., random) selection of systems within each of the safety functions. Otherwise, won't the operating exam be somewhat subject to predictability? Some concern with event selection for simulator exams (scenarios).</p>	<p>Section D.1 of ES-301 discusses a number of general guidelines applicable to the entire operating test, and Section D.3 provides specific guidance applicable to Category B of the walk-through, including the requirements to distribute the JPMs among the applicable safety functions, to limit the repetition of tasks from the previous licensing exam, and to include new and modified tasks on each test. Although ES-301 does not specify the use of systematic or random sampling for the operating test as ES-401 does for the written exam, that would certainly be the preferred method of determining the test content.</p>
<p>The continuous ratcheting of expectations is bypassing the [systematic approach to training] SAT process. Example - Cannot use a high importance JPM because it is perceived to be too easy, and operators are trained and tested on it.</p> <p>Current subjectivity on what is a discriminatory JPM with the removal of the questions.</p> <p>Why can't the selection of JPM's for the license exam be driven by the SAT process and K/A value? "Low discriminatory value" is a euphemism for "too easy" and as a result, the difficulty of the exam is ratcheting up to an unreasonable level. This is contrary to the NRC stated goals.</p>	<p>The NRC does not agree that the difficulty of the walk-through portion of the operating test is being ratcheted up to an unreasonable level. <b>On a nationwide basis</b>, the RO and SRO operating test passing rates for fiscal year 1998 (the last complete year for which data is available) were <b>consistent with the passing rates during prior years.</b></p> <p>The NRC licensing examination is not a part of the facility licensee's SAT-based training process. As stated in 10 CFR 55.45(a), the content of the operating test will be identified, <u>in part</u> (emphasis added), from the learning objectives derived from a systematic analysis of operator duties performed by the facility licensee.</p> <p>As stated in Section D.3.b of ES-301, the JPMs</p>

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should, individually and as a group, have meaningful performance requirements that will provide a legitimate basis for evaluating the applicant's understanding of and ability to safely operate the associated systems and the plant (as required by 10 CFR 55.45). Previously, when each system evaluation consisted of a JPM plus at least two prescribed follow-up questions, the questions would sometimes compensate for the **minimal** discriminatory potential of the JPM. Now that the prescribed questions have been eliminated, examiners have been instructed to place increased emphasis on the discriminatory value of the JPMs. However, that does not mean that high importance JPMs will be excluded from the sample, particularly if they are used in moderation and are systematically selected. **High-importance JPMs will always be acceptable if they discriminate and provide a legitimate basis for evaluating the applicants' understanding of and ability to safely operate the associated system.** A walk-through test that is heavily weighted with simplistic, one- or two-step tasks during which everything works as designed will not provide the NRC with an adequate basis to make a licensing decision.

My 1998 exam was comprised of 20 JPMs. The 1999 exam is comprised of 30 JPMs (3 sets of 10). If I repeat 30% of the 1998 JPMs, I can use a total of 6 JPMs on the 1999 exam or 30% of each of the 3 sets of 10 JPMs is 9 JPMs. Is it 30% of the JPMs of the previous exam or is it 30% of the current exam can be repeated?

The 30% repetition limit specified in Section D.3.b of ES-301 of NUREG-1021 applies to the current operating test. Therefore, each of the three 10-JPM sets for 1999 can include no more than three JPMs from among the 20 that were used on your 1998 operating tests. You can not use all nine of the repeated JPMs on one test set and none on the other two, and the same JPMs can not be repeated on successive days. Ideally, the test sample should be developed systematically from the total population of operator tasks and then checked to confirm that the repetition from the previous exam is within limits. Licensees are discouraged from going back to the last test, picking three JPMs to repeat, and then making up the difference.

When determining allowable JPM overlap for a retake applicant, do you use the exact 10 JPMs the applicant saw on the original exam or the entire JPM set used for the exam? (These numbers could be different.)

In accordance with Section D.3.b of ES-301, the current operating test may repeat up to 3 JPMs from the last licensing examination (including all the operating test sets) at the facility. However, the 30% is an upper limit and may not be appropriate in the case of retake applicants. Section D.1.a also prohibits the repetition of any exact-same items from the applicant's audit test or tests, in the case of retake applicants. Similar items (with different success paths) may be acceptable and shall be identified to the NRC chief examiner for approval.

Please define "alternate path" JPMs and give one or more examples. Does a fault have to occur to qualify as an "alternate path" JPM?

**What is the difference between a faulted JPM and an Alternate Path JPM?**

The concept of alternate path JPMs is discussed in some detail in Section C of Appendix C of NUREG-1021. Although most alternate path JPMs do involve some sort of system fault, the goal is to assess the applicant's response to a situation that is not as it should be or is somehow different from what the applicant might have expected based on the initiating cue for the task.

**Alternate path and faulted JPMs are essentially synonymous.**

Use of 4 of 10 faulted JPMs I believe is "negative" training and evaluation. I expect our plant to operate every time. Maybe for 2 of 10 faulted is fine. 4 of 10 will train the operators to expect the plant controls not to function. Should maybe be PRA based?

We acknowledge your concern. The NRC is sensitive to the issue of negative training and will take this comment into consideration during the next revision of NUREG-1021. In the interim, it would certainly be appropriate to use risk insights when selecting operator actions to be tested using alternate path JPMs.

**As discussed in the previous question, system faults provide only one source of alternate path JPMs. The number of alternate path JPMs was increased to compensate for the elimination of prescribed questions with every JPM. Experience showed that some JPMs may not provide an adequate basis for evaluating the applicants' understanding of the system unless they require the applicant to exercise an alternate success path.**

For examinations spread over two weeks, are different administrative job performance measures required?

Yes. As stated in Section D.1.a of ES-301 of NUREG-1021, the same job performance measures and simulator scenarios shall not be repeated on successive days (i.e., they shall not be used for more than one day during an examination).

**Is there a limit on how many administrative JPMs [job performance measures] can be replaced by two open reference questions?**

Examiner Standard 301, Form ES-301-3, Item 2.b: administrative area prescribed "questions are . . . predominantly" open reference.

As noted in Section D.2.b of ES-301, the NRC prefers to test the five administrative topics using JPMs rather than questions because JPMs are generally a better, more performance-based measurement tool. **Although the test author should use the tool that will best test the knowledge or ability selected for evaluation, it would be acceptable to test all five topics using prescribed questions. Facility licensees should discuss their preferences with the chief examiner before preparing the operating test outlines.**

If questions are used, Section D.1.1 of ES-301 indicates that they may include a combination of open- and closed-reference items. Open-reference items that require applicants to apply their knowledge of the plant to postulated normal, abnormal, and



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	<p>emergency situations are preferred, but closed-reference items may also be used to evaluate routine administrative activities, as appropriate to the facility. The intent of the standard would be met if more than half of the <u>prescribed</u> questions are open-reference.</p>
<p>Form 301-4 no longer requires objectives for scenarios. However, Appendix D, Form D-1, still requires them. Why remove it from one form and not the other? Or is Appendix D only applicable to requalification scenarios for this piece.</p>	<p>Form <u>ES-301-4</u> in final Revision 8 of NUREG-1021 was edited in an effort to minimize redundant or unnecessary information. The fact that the objectives do not have to be stated on the scenario outlines, does not lessen their importance in the scenario development process. The forms in Appendix D were not revised because they are generic examples that apply to the initial and requalification exams. The inconsistency will be reviewed in the next revision of NUREG-1021.</p>
<p>What is counted in the simulator?</p>	<p>As stated in <u>ES-301</u> of NUREG-1021, an applicant should only be given credit for those events that require the applicant to perform verifiable actions that provide insight to the applicant's competence. The required instrument and component failures should normally be completed before starting the major transient; those that are initiated after the major transient should be carefully reviewed because they may require little applicant action and provide little insight regarding performance. Each event should only be counted once per applicant; for example, a power change can be counted as a normal evolution OR as a reactivity manipulation, and, similarly, a component failure that immediately results in a major transient counts as one or the other, but not both.</p>
<p>Would it be appropriate to do an administrative question or job performance measure during the systems or dynamic portion of the operating test?</p>	<p>Yes. Section D.2 of <u>ES-301</u> encourages examiners to integrate the evaluation of the administrative topics into the Category B and C evaluations because it improves the flow of the operating test. For example, as noted in Section D.2.d of ES-301, Administrative Topic A.4, "Emergency Plan," can be evaluated by integrating it into a discussion of a simulator transient that requires implementation of the emergency plan. Similarly, an alternate path job performance measure in which a component fails could set the stage for an equipment clearance job performance measure for Administrative Topic A.2, "Equipment Control."</p> <p><b>As noted in Section D.2, the applicants' proficiency in the administrative topics should be deliberately evaluated and not inferred from observations made during the simulator operating test. Moreover, in accordance with Section D.3.1 of ES-302, examiners will limit their discussions with</b></p>

the applicants while the scenarios are running so as not to create a distraction.

Operating Exam - Category "A" Admin.: This "category" of the new exam process needs to be integrated into the written and JPM (walk-through) segments, and eliminated as a separate entity - only a couple of areas are examined, with no margin for error! An individual can score high on the written exam, do excellent on the simulator, and pass all of the systems JPMs yet fail to get licensed due to not passing a couple of admin "questions" - the knowledge and/or abilities could easily be included with other exam segments.

The NRC has also concluded that the scope and format of Category A need to be reviewed and will take your recommendation into consideration during future revisions of NUREG-1021.

With regard to the margin for error, Section D.2.a of ES-303, which discusses the grading process for Category A, affords discretion in determining whether the applicant's performance on specific topics and overall was satisfactory based on the safety significance of the deficiency. An unsatisfactory grade on any one of the four administrative topics does not necessarily mean that the applicant will fail Category A.

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**ES-302**

If the shift technical advisor is licensed, is he at risk if he is a surrogate? Can anyone do it?

**Can a formerly licensed or certified person be used as a surrogate on an initial examination?**

If a licensed operator is filling the role of a surrogate operator, and he/she performs errors, is his/her license in jeopardy (by the NRC).

**Although licensed operators are generally preferred, NUREG-1021 does not require the surrogate operators during the dynamic simulator operating test (i.e., Category C) to be licensed. Anyone who does play a surrogate role must be knowledgeable and competent because, per ES-302 of NUREG-1021, they will be expected to assume the full responsibilities of the roles they take during the test. Using unqualified surrogates may place the license applicants at greater risk of failure if the surrogate makes an error.**

Surrogates who are licensed operators are at risk because the NRC expects facility licensees to take remedial action (including removal from licensed duty, retraining, and testing, as appropriate) if a **licensed operator** makes significant performance errors during the operating test **or while on shift in the control room.**

The NRC could take licensing action against the individual pursuant to Subpart G of 10 CFR 55, but it has never done so in the case of an operator filling a surrogate role during a simulator operating test. **The NRC would only take such an action as required to protect the public.**

Can an applicant fill the STA role during a

No. Section D.1.j (second bullet) of ES-302 clearly

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scenario? If yes, can he/she actively fill the role or will "normal" surrogate activity be expected?

states that another applicant will, under no circumstances, be allowed to witness an operating test.

What role can the STA play when they are the extra person?

As stated in Section D.1.j (first bullet) of ES-302, 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 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 are **required** to run additional scenarios if necessary to make a licensing decision.

ES-302 - General (D.1.j) - What determines if a STA is "necessary"?

Although the rules now allow the use of surrogates as STAs, we severely limit the surrogates role as part of the team. This results in training the candidates under conditions, roles and responsibilities that are different than real operating practice and standards. Why do we limit the STAs role resulting in a "train for the exams" culture?

If the facility's TS (not administrative procedures) require more than 2 ROs in the control room, the NRC will allow additional surrogates during the simulator operating test to fill the normal crew complement. There will never be more than two RO applicants on any simulator operating crew.

Can we use more than 2 ROs if Technical Specifications (TS) require it? Does this apply to administrative requirements (e.g., however ops may use more than 2 ROs (D.4.d)?

At the time the no-taping policy was set, **experience indicated** that video taping would not provide sufficient detail to support individual licensing decisions for every member of the operating crew. **Moreover, several facility licensees had expressed concern over how the video tapes would be used.**

For purposes of appeal-why is video taping of scenarios NOT allowed? I'm not looking for rule change; more what forms of documentation should be used and kept for appeal purposes.

**Why discriminate against taping initial operating tests when there is no similar requirement in ES-600 series?**

In accordance with Section D.3.f of ES-302, the licensee should, in coordination with the NRC chief examiner, record as many key parameters as possible and provide a copy of the recordings to the chief examiner for use in the grading process. This is particularly important if the applicants failed to accomplish the expected actions and there is a possibility of a test failure. The examiners will collect and retain other forms of documentation (e.g., logs, notes, and checklists) generated by the applicants.

**Why is video taping the operating test prohibited?**

No. As noted in Section D.1.d of ES-302, 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

Do SRO-upgrade applicants acting as RO panel operators to complete a crew have to a specific evaluator observe them (B.3)?

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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.

**Why can't we add a Shift Manager to the NRC examined crew to handle communications, etc?**

**As explained in Attachment I (Section II) of SECY-98-266, the staff does not permit more than one person to fill a senior operator position during the simulator test because the principal duties of the shift manager position (i.e., assuming the role of the emergency director, performing emergency classifications, and making protective action recommendations) are normally a part of the operating test for senior operator applicants.**

When evaluating SRO success in "Classifying the [radiological emergency plan] REP" during the operating exam, what criteria do the examiners use for when to start the 15 minute clock (expectation)? (15 minute from event to classification)

Since the simulator operating tests for the initial licensing examination are conducted with only one applicant in the SRO position, the NRC does not require the SRO to complete the emergency classification within the normal period of time. In most cases, the applicant is asked to classify the event after the scenario is complete and the simulator is in freeze. Another option is to do a separate emergency plan classification as a JPM, which is only considered time-critical if the facility licensee has a validated time standard.

Do you tell a person that it is a time-critical task?

Yes. Part D. Item 4 of Appendix E of NUREG-1021 requires examiners to describe the initial conditions, explain the task to be completed, explain which steps to simulate and which ones to discuss, and indicate whether the task is time critical.

If during a JPM, the applicant misses or skips a procedure step or steps and later on recognizes that he/she has missed the steps - can he/she request to start the JPM over?

**No. The applicant can not start the JPM over, but can perform the missed step(s) after complying with the facility's policy for reporting procedural errors and receiving permission.** This is consistent with the grading policy in Section D.2.b of ES-303, which states that if an applicant initially misses a critical step, but later performs it correctly and accomplishes the task standard without degrading the condition of the system or the plant, the applicant's performance on that JPM may still be graded as satisfactory. The examiner would be expected to ask follow-up questions based on the applicant's error, document those questions and answers, and determine a system grade based on the applicant's overall performance.

Once the applicant has completed the JPM, he or she

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can not go back and start over, but the examiner will consider any corrected information provided when grading the operating test (refer to Section D.2.f of ES-302).

**If an applicant shows system knowledge weaknesses during administration of a JPM, how far can the examiner go with the non-prescribed questions? Can the examiner ask questions about another system or another function of the same system covered in the JPM?**

Is there a "standard" method for applicants to answer open reference walk-through questions (i.e., if fairly certain of answer give it or always look it up)?

As stated in Section D.2.f of ES-302, the examiner should ask question as necessary to confirm the applicant's understanding of the system as it relates to the task that was performed. The examiner should not ask questions about another system or another function of the same system unless it relates to the task that was performed.

As discussed in Attachment 1 of ES-301, the operational orientation required of questions on the walk-through test and the applicant's access to reference documents, argue against the use of questions that test for recall and memorization. The test should not contain direct look-up questions that only require the applicant to recall where to find the answer to the question. Any questions that do not require any analysis, synthesis, or application of information by the applicant should be answerable without the aid of reference materials.

Furthermore, as stated in Part D, Item 7 of Appendix E, if the applicant needs to consult a reference to answer a question, the applicant should ask the examiner if it is acceptable to do so. Although there is no specific time limit for any question, an applicant may be evaluated as unsatisfactory on a question if he or she is unfamiliar with the subject or reference material and is unable to answer the question in a reasonable period of time. Applicants will not be permitted to conduct unlimited searches of the plant reference material during the examination.

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### ES-303

There are no longer going to be prescribed follow-up questions for job performance measures, but job performance measure questions will be evaluated - please explain.

The previous revision of NUREG-1021 required every system selected for evaluation in Category B of the operating test to be examined with a job performance measure, at least two prescribed questions, and additional follow-up questions as deemed necessary by the examiner to investigate the applicant's performance deficiencies. Although of Revision 8 of NUREG-1021 has eliminated the prescribed

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questions, examiners are still expected to ask specific follow-up questions, if necessary, based on the applicant's performance and to consider the applicant's answers to those questions in the grade for the applicable system. (Refer to Section D.2.b of ES-303.)

ES-303 needs more specific documentation for final results (i.e., some way for very specific feedback to candidate).

Comment noted. Section D.3.b of ES-303 now required examiners to document every deficiency noted during the operating test. However, only those deficiencies that contribute to a test failure need to be justified in detail. The test report is not intended to be a retraining vehicle; the facility licensee should be able to take the information provided and develop more specific feedback and training for the applicants.

Will operating test follow-up questions be documented?

Yes. Section D.2.f of ES-302 requires examiners to document all performance-based questions and answers for later evaluation.

Can they fail an applicant even though he accomplished the critical step (task)?

Yes. Per Section D.2.b of ES-303, an applicant could fail even though all the critical steps were accomplished. **The examiner must justify the basis for the unsatisfactory grade in accordance with Section D.3 of ES-303.**

What is meant by "critical task errors are not essential?"

With regard to Category C of the operating test (i.e., the dynamic simulator), it means that an applicant does not have to miss a critical task to justify a low grade on a rating factor or an overall failure of that test category (as explained in Section D.2.c of ES-303).

With regard to Category B of the operating test (the systems walk-through), it means that an examiner can ask performance-based follow-up questions even if the applicant was able to perform every critical step and accomplish the task standard (as explained in Section D.2.f of ES-302). Moreover, per Section D.2.b of ES-303, an examiner can recommend an unsatisfactory grade for a system based on the follow-up questions even if the applicant completed all the critical steps.

Is there written guidance on pass/fail for non-prescribed questions?

Yes. Section D.2.b of ES-303 of NUREG-1021 describes how examiners will grade the job performance measure follow-up questions. NRC examiners bear the burden of justifying an unsatisfactory grade for the system if the applicant was able to accomplish the task standard. Both the chief examiner and the regional operator licensing branch chief must also concur in the failure recommendation.

If a candidate is performing a job performance

It may, depending on the safety significance of the

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mer . . . during the performance of the task performs an unsafe action with respect to personnel safety, does this constitute a failure of the job performance measure?

applicant's action. Section C.2 of ES-303 of NUREG-1021 allows the NRC examiner to recommend a failure if an applicant made an error with serious safety consequences even if the grading instructions in Section D would normally result in a passing grade. Under such circumstances, the examiner shall thoroughly justify and document the basis for the failure in accordance with Section D.3.b. Moreover, the NRC regional office shall obtain written concurrence from the NRR operator licensing program office before completing the licensing action.

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### ES-401

Do not feel that the written exam is a discriminatory tool. How many people do poorly on the written exam that are not weak on the operating test? Let us use our process to take care of the written with our audit exam.

Recommendation noted. As is evident from the recently completed transition program, the NRC is generally in favor of increasing power reactor facility licensees involvement in the examination process. Additional changes are possible if the NRC concludes that they will reduce unnecessary regulatory burden, increase public confidence, improve efficiency and effectiveness, and maintain reactor safety.

The NRC has not analyzed applicants' grades on the written exam and operating test to see how well they correlate. However, it is true that some applicants who fail the written examination do quite well on the operating test, while others who fail the operating test perform admirably on the written exam. The NRC believes that both parts of the licensing examination are important. As discussed in Section B.1 of Appendix B of NUREG-1021, the importance of knowledge testing (i.e., the written exam) should not be underestimated since knowledge is the underpinning of professional performance. The objectives of knowledge testing are varied; they may include assessment of fundamental understandings as well as testing more advanced levels of expertise. The most effective tests of knowledge include questions and test items that measure applications of knowledge directly related to the job. In the case of the NRC operator licensing examination, the written examination yields a key measure that allows a confident decision to be made on the safety significant

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There are still occasions in NUREG-1021 for examination requirements that are subjective and, therefore, can (and will) vary from Region to Region and examiner to examiner.

How do we determine "level of difficulty" for written exam questions?

What is the process for determining the level of difficulty for a question?

Evaluate changing initial exam grading to a curve for pass/fail.

If the utility is producing the written exam, when (how many days/weeks) is your expectation for the chief [examiner] to get the sample plan to the utility? The point is - getting the sample plan in accordance with NUREG-1021 will not work.

Clarify what you mean by "random selection." Does the random selection have to go all the way down to the specific K/A number?

performance of the individual seeking a license.

The NRC acknowledges that some of the guidance in NUREG-1021 still requires examination authors, NRC examiners, and their supervisors to judge the level of knowledge, level of difficulty, quality of distractors, and other psychometric aspects of the examination. Nevertheless, the NRC believes that writers of examinations and NRC examiners who are trained in the subject matter, measurement principles, and psychometrics, and who have general knowledge of operator and trainee performance on similar test items, can make informed judgments in these areas based on the guidance in NUREG-1021. Section II of Attachment 1 of SECY-98-266, the paper that forwarded the final operator licensing examination rule change to the Commission for approval, responded to a similar comment.

**A level of difficulty should be established that discriminates between applicants who have and have not mastered the required knowledge, skills, and abilities. Section C.3 of Appendix A and Section C.1.e of Appendix B discuss the concepts of discrimination validity and level of difficulty.**

As noted in Section C.3.a of Appendix A of NUREG-1021, the NRC's initial and requalification examinations, like most licensing examinations, are criterion- rather than norm-referenced tests. This means that there is a pass-fail or minimal cut score or grade that the examinee must achieve to demonstrate sufficient knowledge and ability to safely operate the power plant. If the examination does not intend to discriminate at an agreed-upon minimal measure of knowledge or performance, then there is little reason to give the examination.

As stated in Section D.1.e of ES-401, the examination outline should normally be completed about 75 days before the scheduled examination date. The actual due dates must be negotiated and confirmed with the NRC Regional Office (chief examiner and/or branch chief) at the time the examination arrangements are confirmed (refer to Section C.2.c of ES-201). If the facility licensee needs more than 75 days to prepare an examination based on an NRC-developed outline, it needs to work out the schedule with the Regional Office.

**Yes. Section D.1.b of ES-401 requires the K/As to be systematically selected from the applicable NRC K/A catalog. Attachment 1 of ES-401 describes a sample method for selecting K/As,**



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with Step 4 specifically instructing that the K/A statements within each randomly selected K/A Category will also be randomly selected. If you select a K/A that is not applicable to your plant or that has an importance value less than 2.5, you may have to randomly select another K/A statement. Failure to train on a selected K/A is not an acceptable basis for selecting another one. If you determine, when reviewing the completed outline in accordance with Section D.1.d, that one of the K/A Categories is under-sampled, you should randomly select another K/A. If your question bank contains more than one question applicable to the selected K/A, you should also randomly select from among the questions rather than chose a favorite question every time.

What do you do if your randomly selected questions identify a K/A that you know was not trained on or has been deselected for training? Do you ask it anyway or do you select another system or does it go deeper?

Section D.1.c of ES-401 allows facility licensees to recommend 10 site-specific, high-priority K/As as replacements for 10 of the randomly selected K/As. The NRC chief examiner will review the recommendations and approve the site-specific substitutions as appropriate. The fact that a K/A was not trained is **not** an adequate basis to replace the item if it is something that the applicants should know.

Can you change a K/A if no one can write a question for it?

How close does model have to be to actual?

As stated in Section D.2.a of ES-401 of NUREG-1021, if it becomes necessary to deviate from the previously approved examination outline, the facility contact is expected to discuss the proposed deviations with the NRC chief examiner and obtain concurrence. The facility should be prepared to explain why the original proposal could not be implemented and why the proposed replacement is considered an acceptable substitute.

Regarding ES-401 and the random selection of K/A's: How do you document obvious non-applicable K/A's to the chief examiner? Can we remove them prior to the random selection or do we select and then drop (with documentation) from the sample plan?

It does not matter if the inapplicable K/As are removed before or after the selection, as long as you can demonstrate that the final sample was systematically developed and justify any deletions. If the outline is developed using one of the forms in ES-401 (i.e., Forms ES-401-1 through 4), the systems and emergency/abnormal plant evolutions that are listed on the form can simply be lined out if they are not applicable to the facility and a brief explanation can be entered on the form.

After systematically/randomly generating a sample plan you discover it is lopsided in one area. Do the questions you use to "balance" the exam take up your allotted 10 site specific? Where do the

Not necessarily. If, for example, the systematic outline for Tier 2 ends up with 7 items under Category K1 and only 1 item under Category K4, you can balance the coverage if one of your 10

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questions come from?

site-specific K/As happens to fit Category K4 and you recommend it as a replacement for a randomly selected item in Category K1. However, you can also recommend your site-specific priorities without regard to the systematic sample, and then systematically select replacements so there are no holes in coverage.

The questions used to implement the outline once it is approved by the NRC shall be taken from the bank, modified from bank questions, or newly developed in accordance with Section D.2 of ES-401.

Tech[nical] spec[ifications] (TS) are too complicated to memorize. They should be open reference or better yet covered by the operating exams (JPM). We do not want our operators to spend valuable time memorizing TS, nor do we want them to operate from memory.

The NRC does not expect operators to memorize the TS, nor does it endorse operating the plant from memory. However, the NRC does expect operators to recognize TS entry conditions, immediate actions, and bases when presented in a multiple choice format on the written examination. If they do not compromise the validity of other questions on the exam, it is acceptable to provide extracts from the TS to the license applicants for use in answering application-level questions.

Based on the SAT-based training program, you test on objectives. The current NUREG-1021 allows asking questions not covered by the utility's training program (objectives). This is contrary to the SAT-based training system. Should there be a way to ensure the students are examined on the training program content? (If it is determined that the program is SAT.)

Attachment 1 (Section II) to SECY-98-266, the Commission paper associated with the April 1999 final rule, responded to a similar public comment on Interim Revision 8 of NUREG-1021. It notes that Sections 55.41(a), 55.43(a), and 55.45(a) of the rule state that the knowledge, skills, and abilities selected for evaluation on a written examination and an operating test will be identified, in part (emphasis added), from learning objectives derived from a systematic analysis of licensed RO and SRO duties performed by each facility licensee. While NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, Part 55 on Operators' Licenses," confirmed the NRC's intent that the training program's learning objectives would become the major source of the licensing examination, it also cautioned that the NRC would not be limited to those learning objectives.

**Learning objectives are not required for the NRC examination, but our SAT-based program still requires them. Do we no longer follow our SAT-based program?**

**The NRC licensing examination is not a part of the facility licensee's SAT-based training process.** The systematic sampling procedures for preparing the written and walk-through examination outlines per NUREG-1021 are designed around the structure of the NRC's K/A Catalogs and may not be compatible with the facility-specific task lists.

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NUREG-1021 contains provisions for facility licensees to add, substitute, or delete specific knowledge and ability requirements on a case-by-case basis. Allowing facility licensees to substitute their entire site-specific task lists for the NRC's K/A Catalogs could decrease the level of examination consistency. The current approach of requiring facility licensees to explain deviations from the NRC's K/A Catalogs is conservative, consistent, and efficient.

**Facility licensees should continue to follow their SAT-based training programs, with the understanding that the content of the NRC licensing examination is not necessarily restricted by the SAT-based training process. Licensees should develop learning objectives covering all the topics required by 10 CFR 55 and all the NRC K/As having importance ratings of 2.5 or higher, unless it can demonstrate that the K/A is not applicable at their facility.**

If learning objectives say that, ". . . given a copy of procedure," can we use as closed reference [question]?

A facility learning objective is not necessarily required for every question, but if one is referenced it should be adhered to unless the licensee makes a conscious decision to deviate from it. In those cases, the licensee should consider revising the learning objective to match the question.

The NRC does not review every learning objective during the approval process. When a question appears on the examination, the NRC will conclude that the facility licensee expects its operators to be able to answer the question **without a reference** regardless what the learning objective says. If such a question is challenged during a license appeal, the NRC may ask the facility licensee to support the question in writing.

The definition of knowledge based versus higher order is not clear. Explain.

Section C.1.d of Appendix B discusses Bloom's Taxonomy and explains the levels of knowledge, and Attachment 3 of the Appendix cites Benjamin Bloom's book on the subject as a reference tool. NUREG-1021 provides guidance on the development, administration, and grading of NRC license examinations. It is not intended or designed to serve as a source book for the body of test and measurement knowledge required to develop sound examinations.

Once we use a comprehensive level question, does it become a knowledge base questions the next time

No. As stated in Section D.2.c of ES-401, the cognitive level of any question taken from the bank

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we use it?

Regarding the ES-400 series. Discrimination validity should not be evaluated separate from operational validity and content valid. If operational validity and content validity are present, then discrimination will be present if good test item writing principles (e.g., plausible distractors, absence of clues) are applied.

Remove level of difficulty evaluation from Form ES-401-9 and all other requirements. There is no need to assess difficulty if content validity, operational validity, and 50-60 higher cognitive level requirements are met.

Why is a validated question not a good question?

NRC validated questions used on previous license examinations at the facility will get limited review. What about questions on similar units?

If it was deemed a satisfactory question by NRC is it "automatically" satisfactory for any facility? (Assuming the question is valid)

Administrative-type items are best suited to open-referenced method because of the expectation for these items in the actual job position. However, the written examination, a closed-reference format, has a significant percentage of administrative questions. This appears contradictory.

How large must the exam bank be before you can select 50 questions from it for use on an exam?

Is there a bank size limitation for use of 50 questions?

How can facilities maximize use of bank question

will be counted at its face value, even though it will function at a lower level because it is available for study (refer to Section C.3.d of Appendix A).

**Comment noted.** However, to determine whether an item has discrimination validity you must ask yourself whether the unsafe, unknowledgeable applicant is likely to miss the answer and be drawn to a distractor. Questions can be psychometrically sound, content valid, and operationally valid, but still not discriminate well.

Although a question that was previously used on an NRC examination at the facility since 10/1/95 (i.e., a validated question) may be acceptable in its own right, it may have to be edited or replaced if it conflicts with another question on the examination or if necessary to meet the criteria on the Written Examination Quality Checklist (Form ES-401-7). Technical and psychometric flaws that cause the question to have no or multiple correct answers would have to be corrected regardless when they are identified.

The current policy is that examiners will review in detail all questions that have not been validated at that facility. Questions previously used on exams at similar units will be reviewed in detail.

10 CFR 55.41(a) and 55.43(a) require the written examinations for operators and senior operators to sample a number of administrative topics. Per ES-401 of NUREG-1021, such questions make up only 13 percent of the RO examination and 17 percent of the SRO examination. The administrative questions that are used on the written exam should be answerable based on recall **and/or** recognition.

The NRC is not controlling the size of examination banks. The nominal 50/40/10 criteria in Section D.2.f of ES-401 apply to every facility licensee, regardless of its bank size. However, from a practical standpoint, the larger the licensee's bank is, the more questions will match the systematically selected sample plan, and the fewer questions the

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(up to 50) if they don't have a sample plan? Recommend systematically selecting the first 50 questions from bank, then systematically selecting remaining K/As to complete outlines. Could also select 40 questions from bank systematically for modification.

We are allowed to use 50 questions from the exam bank (including 25% exact repeats from the last two exams and quizzes), 40 modified questions, and 10 new questions.

In theory we would only need to write 10 new questions. This reduces burden for the exam writer, and reduces difficulty on the student. In reality, students generally are exposed to the entire exam bank during the program so the "50" becomes 25. Also, with the lottery (systematic- random) method of chasing K/As, the likelihood of having more than a handful of repeat or modified questions.

Recommend allowing exam writers to randomly select the 25 repeats and 40+ for modification by pulling questions randomly from all questions asked of the students during the program.

Regarding ES-401, Section D.2.f, does a bank question that the students saw during their training program but is then modified (as defined in the standard) count against the 25 questions that can be reused from the last two NRC exams and training quizzes?

If a question is used at a different facility (IP2/IP3) what or where does this fall into the 50/40/10?

If a bank is 100% pre-approved NRC exam questions and the utility modified these to make them site-specific by changing the stem or distractions, can the utility mark them as 100% modified?

licensee will have to modify or develop. The NRC understands that the Institute of Nuclear Power Operations is planning to develop and maintain a National Exam Bank. That should greatly enhance licensees' ability to find bank questions that fit their systematically developed sample plans.

Recommendations noted.

Comment and recommendation noted.

The NRC has made no effort to control the size of licensees' examination banks, nor does it control the number of quizzes or questions asked of the students during their training program. The proposed solution would certainly make it easier to prepare an examination, but it would also be a disincentive for licensees to ask any more than 65 questions during the training program.

The current process in ES-401 permits bank use without compromising exam integrity and provides an incentive for licensees to grow their examination banks because, as they increase in size, the burden of modifying and writing new questions will diminish.

The 25 question limit (not a goal) applies only to questions that are reused as they appeared on the previous examination. Questions that are significantly modified in accordance with Section D.2.f of ES-401 would not count toward the limit.

In accordance with Section C.1.h of ES-201, questions that the facility licensee (or its contractor) obtained from another bank and deposited in its own bank may be treated as "bank" items provided they have an equal chance of being selected for use on the examination. Items from another bank may be treated as new items if they have not been made available for review and study by the license applicants and there is no basis (e.g., historical precedent or reciprocal arrangements with the other facility licensee) for the applicants to predict their use on the examination.

The NRC considers all banks to be open and available for study by the license applicants. Therefore, the questions can only be classified as modified for purposes of an NRC licensing examination if the **modified versions** are kept out of

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the bank until after they are used on an examination. They would only show up on an examination if they match a knowledge or ability that is part of the systematically-developed sample plan.

At what point does a "modified" question become a "new" question?

**When has a written question been changed enough to be qualified as a NEW question on the written initial exam?**

A modified question tests the same content topic as the original question but **significantly** alters the technical elements in the question (as discussed in Section D.2.f (last bullet) of ES-401) and gives it a different appearance. The intent of the modification is to preserve the focus and topic (i.e., the K/A reference) of the original question. If the question is **created without reference to a bank question** and has not been previously exposed at the facility, then it can be considered a "new" question.

**Can the NRC provide examples of "significantly modified," and "psychometric flaw," questions in an attachment to NUREG 1021?**

**Appendix B of NUREG-1021 already contains a number of example questions that illustrate psychometric flaws commonly seen on NRC examinations. The NRC will consider the need for additional examples during the next revision of the NUREG. The NRC encourages the use of industry-sponsored item-writing workshops as a venue for obtaining and sharing this type of information.**

With a National Exam Bank, how should utilities address number of questions from bank, modified, or new?

The current guidance in Section C.1.h of ES-201, indicates that questions obtained from another bank would normally be treated as bank questions, unless it can be shown that the applicants did not have access to the bank for review, in which case they could be classified as new questions.

If [the Institute of Nuclear Power Operations] INPO creates a national initial licensed operator exam bank, will the NRC consider the INPO bank to be current questions that cannot be used as new questions on the exam to be developed?

The NRC will reassess its policies regarding bank use after it has a chance to review the National Exam Bank.

**If INPO develops/maintains a national exam bank, what will be the limitations associated with this bank? i.e., will exams still be subject to the 50/40/10 criteria? If so, can 50% of the questions come from the bank? Current NUREG guidance allows NRC review for "obvious flaws" for exam questions used on NRC exams since October 1995, "at that facility." How will this affect NRC review of exam questions that are part of the national exam bank used at other facilities? What type of security restrictions will be placed on the bank?**

**Other than the National Examination Bank being developed by INPO, the NRC is not aware of any utility initiatives to share banks. The regional training organizations, owners' groups, Nuclear Energy Institute, and INPO might be able to provide more information in this area.**

Is there a current effort to share "opened and published" exam banks between utilities? If not, who would be interested in this?

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In light of the NRC's new goals of reducing unnecessary regulatory burden and increasing efficiency and effectiveness, would it be possible to allow a licensee to build an initial license exam entirely from the bank (rather than 50% new questions), assuming the bank was an appropriate size and security concerns could be solved?

Regarding ES-401. How do you assure that the extra 10 CFR 55.43 topics are covered in a "representative sample" in the test outline since NUREG-1021 allows selection of SRO questions from K/As that do not reference 10 CFR 55.43.

Regarding ES-401, Section D.2.d: Cannot write SRO only questions for all seven items listed under 55.43(b). Only three items lend themselves to SRO only type questions. Need multiple examples and training for writing SRO only questions for all seven items.

ES-401, Section D.2.f, states that only 25 questions may be repeated from previous tests. If an RO and SRO are written only a total of 25 questions may be reused. Why is it not 25 for the RO and 25 for the SRO? No candidate sees both the RO and SRO exam.

Regarding reusing no more than 25 questions from previous NRC exams, etc. The standard specifically states that when giving an SRO and RO exam at the same time, only 25 questions total may be reused, not 25 questions on the SRO and 25 different, additional questions on the RO. Why does the standard specifically preclude this since this results in more "new" questions that have to be written?

The current guidance in Section D.2.f of ES-401 sets the upper limit on bank questions at 50, with the remaining questions being either new (at least 10) or modified bank questions (to make 100 total). As stated in response to the previous question, the NRC will reassess its policies on bank use after it has a chance to review the National Exam Bank. Although the NRC favors reducing unnecessary regulatory burden, these policies will only be changed if the NRC concludes that the changes will not have a negative impact on reactor safety, public confidence, efficiency and effectiveness.

The fact that the SRO examination outlines (Forms ES-401-1 and 3) are more heavily weighted in Tier 1 (emergency and abnormal plant evolutions) and Tier 3 (generic knowledge and abilities) places greater emphasis on the topics in 10 CFR 55.43(b). As stated in Section D of ES-401, the topics to be sampled on the examination shall be systematically selected, and the 25 SRO-level questions should be distributed among the three tiers of the examination and among the applicable K/A categories. The questions should focus on the topics in 10 CFR 55.43(b), but questions related to 10 CFR 55.41(b) topics may also be appropriate if they evaluate knowledge and abilities at a level that is unique to the SRO job position.

Comment noted. The operator licensing program office is looking into the quality and consistency of SRO-only questions and may develop additional guidance in this area. This is also a good topic for discussion during NRC and industry item-writing workshops, which the NRC will support to the extent possible.

Given that 75 questions from the RO exam are generally repeated on the SRO exam, it is conceivable that all 25 of the SRO-level questions could be repeated if the limit was applied separately. Separate limits would only work if the exams are totally different, which would require significantly more resources.

Since the questions repeated from past exams are a subset of the 50 questions that can be taken directly from the exam bank, having a combined limit of 25 questions should not, by itself, result in having to write more "new" questions.

While verifying initial license written examination construction: how far back in the training program do you have to review when searching for the 25 questions used on the last 2 NRC exams or other training exams?

The current policy includes tests and quizzes given during the entire site-specific training program for the license applied for. In the case of SRO upgrade applicants, it does not include tests and quizzes given during their prior RO license training.

The NRC acknowledges that this policy is burdensome for facility licensees and is considering ways in which to ease the burden without compromising examination integrity. This issue was discussed during a public meeting with the Nuclear Energy Institute on November 4, 1999, and further information will be provided on this web site when it becomes available.

If an instructor has used bank questions, is there a restriction from using them on an examination?

Yes. In accordance with Section D.2.f of ES-401 of NUREG-1021, no more than 25 questions that were used on quizzes, tests, and examinations given during the applicants' license training class or the last two NRC licensing examinations at that facility can be used on a new licensing examination. Additionally, no questions may be repeated from the applicants' audit examination given at the end of their training program.

When an instructor writes questions, are they no longer allowed to use them?

If an instructor writes a question with the intent of using it as a new question on the next NRC examination, then it can not be used. If an instructor simply writes questions for the bank, they would be treated as any other bank item and can be used on other examinations. Theoretically, all the questions in the bank should have an equal probability of being selected for the NRC exam. They would be counted as bank items and would be subject to the other criteria in NUREG-1021 (e.g., repetition from the audit exam, quizzes, and past NRC exams).

"NRC may deny licensee's proposal to use certain individuals to validate the exam." (ES-401, Section E.4) What does this really mean? Does the licensee need to supply names, positions, etc. of validation team prior to using them to review the exam?

The parenthetic statement that was omitted from the quoted passage indicates that certain individuals, such as the applicants' supervisors and coworkers, may not be the most appropriate to use for exam validation because it would raise concerns regarding the potential for examination compromise. Moreover, in accordance with Section D.2.b of ES-201, individuals having knowledge of the examination contents are prohibited from performing a number of activities, including all on-the-job training, practice, coaching, and sign-offs. Although licensees are not required to obtain NRC concurrence before placing personnel on the security agreement, it would be prudent to

From ES-401, Section E.4, regarding regions denying the facility's proposal to use certain individuals for exam validation: What is a "supervisor or co-worker?" This could be any



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licensed operator.

assess the security, and discuss any questions with the NRC chief examiner.

There is no D.2.d in ES-201. It is referenced in ES-401, Section E.4.

The supervisor/coworker connection would be of most concern for ROs seeking to upgrade their licenses.

Comment noted. The referenced section in ES-201 was deleted during the revision process. ES-401 will be corrected during the next revision of NUREG-1021.

For 5 hour exams, do the exams need to be time validated for 5 hours (i.e., does the exam have to be made more difficult?)

No. The exams do not have to be made more difficult. The time limit was increased to 5 hours because of the greater focus on improving the plausibility of the test question distractors and the required range of higher cognitive-level questions. **The exam should be designed and validated so that competent applicants can complete and review the exam within the time allotted. The increase in time ensures that the applicants are not time-limited when taking the exam.**

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## ES-402

Regarding the written exam duration: The exam duration should be presented to candidates as: "The exam duration is scheduled (targeted) for 5 hours: but extensions can be granted," i.e. don't rush through exam to meet the 5 hour time limit.

Comment noted. The NRC will consider changing the briefing sheet in Appendix E the next time NUREG-1021 is revised.

**What is the interpretation of "prior approval" for 1/2 hr. extensions of 5 hours for the initial written examination?**

**As noted in Attachment 1 (Section II) of SECY-99-266, the nature of the NRC licensing examination is such that allowing sufficient time to demonstrate knowledge is of primary concern. Section D.2.c of ES-401 specifies that the examination should be designed so the applicants can complete and review the exam within 5 hours. Moreover, Section E.4 of ES-401 encourages facility licensees to conduct a peer review of the examination, which should confirm that the level of difficulty is appropriate and that the applicants will have sufficient time to complete the exam. As discussed in Section C of ES-402, it is important that the licensee coordinate the administration of the written examination so**

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	<p>there will always be an NRC contact available to respond to questions or problems that might arise. If the facility licensee determines, while proctoring the exam, that a <u>significant</u> number of the applicants will not be able to complete the examination within the 5 hours allotted, the licensee shall contact the NRC Regional Office to request a time extension as discussed in Section D.4.d of ES-402. The NRC does not want to discover after the fact that the licensee has given the applicants more than 5 hours to complete the examination. Per Section E.3.a of ES-501, the NRC will document the time extension in the examination report and expect the facility licensee to evaluate whether a problem with the examination validation or the training of the applicants is indicated.</p>
<p>Must the facility proctor read the entire Appendix E <u>verbatim</u> or just the first part regarding cheating?</p>	<p>Only those items specifically identified in <u>Appendix E</u> (i.e., items A.1 and B.1) need to be read verbatim by the proctor. Per <u>Section D.2.c of ES-402 of NUREG-1021</u>, every applicant shall also be given a copy of the Appendix to review before starting the examination.</p>
<p>What is the guidance on providing additional information or clarifying statements to the candidates <u>during</u> the written exam? Specifically, for facility written exams.</p>	<p>The requested guidance is located in Section D.3.b of ES-402; it is the same regardless who prepared the examination. Anyone providing additional information during the examination must be extremely careful not to lead the applicants or give away answers when clarifying questions. If the proctor has any doubt about how to respond to an applicant's question, it is best to withhold additional guidance and instruct the applicant to do his or her best with the information that is provided. Per Section C.2.b, an NRC examiner will always be available in the NRC Regional Office to respond to questions while the examinations are in progress.</p>

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**DRAFT****ES-403**

Why is ES-403, Section D.2.a & b, different than ES-501, Section C.1.a, concerning grading the written exam?

We have reviewed the referenced sections of ES-403 and ES-501 and did not note any significant differences. There is a similar, but more specific, question related to ES-501. If the answer to that question does not address your concern, please resubmit your question with more specific information.

Is there a checklist that states make copy prior to grading?

No. Section D.2.a of ES-403 of NUREG-1021 instructs the grader to make a copy before marking the original and Section C.1.a of ES-501 instructs the facility licensee to submit the clean copy with the examination package.

Please add note to Form ES-403-1 for the grader to copy the answer sheets. I would also suggest making two copies, NRC and facility to have. (ES-403, Section D.2.a)

This recommendation will be considered during the next revision of NUREG-1021.

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**ES-501**

Does the time-line (5 days) for completing the requirements of ES-501, Section C.1.a, begin after completing the written or the entire exam including the operating test? Assuming the time begins after completing the entire exam, how does this factor into the 30-day allowance between the administration of the written and operating tests as described in ES-402, Section C.2.b?

**Can the NRC expectation for exam comments be delayed until exam completion for utility-administered examinations?**

The purpose of the 5-day time-line is to enable the NRC to achieve its goal of completing the licensing actions within 30 days after the examinations are given. With the exception of the Security Agreements (Form ES-201-3), all of the items listed in Section C.1.a of ES-501 are associated with the written examination. Consequently, those items should be forwarded to the chief examiner as soon as practical (but not necessarily within 5 days) after the written exams were given, even if the operating tests are given at a later date. This will allow the NRC to resolve any comments and review the grading, thereby expediting the completion of the licensing actions after the operating tests are administered.

As always, facility licensees should confirm their specific schedule with the chief examiner. **If the personnel who will compile the post examination comments are busy with other exam activities, talk to the chief examiner and arrange an alternate date for submitting the comments.**

ES-501, Section C.1.a (Bullet 4) states that any comments made by the applicant(s) after the written

ES-402 (Section E) and ES-403 (Section D) encourage facility licensees to collect examination

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exam with explanations of why the comment was accepted or rejected must\* be submitted to the NRC. (\* To be consistent with ES-402, Section E.4, this submission should be "optional.")

Do all comments made regarding the written exam by the applicant and a reason for accepting/rejecting the comment need to be submitted (ES-402, Sections E.4 and 5). I was told not to submit student's rejected comments, only those that cause an exam change. This is a "should," can it be changed to only sending in comments requiring an exam change?

**If the chief examiner conducts a regrade (78-82%), what is the focus of the regrade? (Regrade per the key?) (Validity of the questions?)**

Since senior site management tends to "expect perfection," maybe the NRC could communicate that a number of comments are expected (in the final examination report).

**Comments contained in reports should remain specific to deviations from 10CFR or NUREG. (State the facts, refrain from the use of "several" or "many.")**

**Is there a format for the utility to provide the NRC with feedback on how the exam went? Sort of a reverse exam report? I would think the NRC would be open to feedback so you can also improve the exam process from your end. (I mean a formal feedback process - not casual.)**

comments from the license applicants and consider them during the initial grading process because this **will enhance examination validity**. Although licensees are only required to submit comments and documentation to the NRC to justify question deletions and changes in the answer key, it is useful for the NRC to know, if and when an applicant submits an appeal, that the facility licensee had previously reviewed and rejected the applicant's concern(s). If the facility licensee wrote the examination, the NRC may request the licensee to state its position regarding the applicant's contentions.

The NRC will review and correct the inconsistency between ES-402 and ES-501 during the next revision of NUREG-1021.

**Multiple grading changes and reviews often result in answer sheets that are difficult to read and could result in licensing errors. Therefore, Section D.2.c of ES-501 has tasked the chief examiners to regrade those exams with scores between 78 and 82% using the clean answer sheets copied per Section D.2.a of ES-403. The regrade would be done after all the facility's comments have been resolved and the answer key has been finalized. It would not involve a revalidation of the exam questions.**

Comment noted. The NRC has tried to communicate exactly that message during the operator licensing workshops conducted by each of the NRC Regional Offices. The Operator Licensing Program Office is also working with the NRC Regional Offices in an effort to clarify the guidance regarding the portrayal of examination quality in the final report.

**There is currently no formal process for providing feedback on how an examination went. However, the NRC operator licensing program office is encouraging regional branch chiefs to debrief the facility contact before the examinations are given and again after the entire process is complete. As discussed in Section C.1.j of ES-201, facility licensees are encouraged to call the NRC chief examiner, regional branch chief, or program office any time they have concerns regarding an examination.**

If candidates score in the 80-81% range, are licenses held? If so, how long? (No failures)

If there are no written examination failures, there is no reason for the NRC to withhold a license so they would all be issued simultaneously. The NRC would only hold the license for an applicant that scored between 80% and 81% if another applicant failed the examination and there is a possibility that enough of the questions that the passing applicant got correct could be deleted from the examination on appeal, thereby causing the applicant's score to fall below 80%.

Has the NRC considered changes resulting from deregulation with regard to making examinations public?

In accordance with 10 CFR 2.790, all final NRC records and documents will be made available for inspection and copying in the NRC Public Document Room unless there is a compelling reason for non-disclosure or the document qualifies for one of the exceptions specified in the regulation. It is the intent of the NRC to automatically make publically available information that is anticipated to be of interest to the public without anyone having to file a request under the Freedom of Information Act. Without more specific information, it is unclear how the deregulation of the electric power industry would or should affect the NRC's responsibility to keep the public informed regarding its health and safety mission.

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**ES-502**

How will the facility representatives get a copy of the NRC appeal correspondence?

It is normal practice for the NRC to send a copy of its appeal correspondence to the individual who signed the applicant's license application (NRC Form 398). However, applicants who file an appeal are not required to send a copy of their request to the facility licensee.

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2.5 versus 3.0. What is the minimum task [importance] threshold for initial exams versus requalification? Should be higher standard for requal than initial.

As noted in Attachment 3 of ES-601, all test items used on a an NRC requalification examination should normally have a K/A importance rating of 3 or greater. The minimum K/A importance rating for initial exams is 2.5. In either case, test items with lower NRC K/A values may be used with appropriate justification.

The NRC expects facility licensees to comply with their own requalification program requirements regarding test item importance.

Initial license applicants are held to a higher standard (i.e., more K/As eligible for testing) because the NRC has no prior basis for judging their competence. Once an operator has a license, his/her competence is continually evaluated on the job and in requalification training, thereby justifying a lower threshold for the NRC requalification examination.

Is there a policy for use of computers and maintaining exam security?

The requirements of 10 CFR 55.49 apply to all examinations required by the regulation, including requalification exams, while the requirement to establish, implement, and maintain examination integrity and security procedures in accordance with 10 CFR 55.40(b)(2) only applies to power reactor licensees that elect to prepare their own initial operator licensing examinations. However, it would be appropriate for those licensees that do establish procedures to address all exams required by Part 55. Refer to the section on ES-201 for related security questions.

Does there need to be a specific procedure for requalification examination security?

What is the basis for the statement [in Section E.1.b of ES-601], "Under NO circumstances will another operator be allowed to witness an operating test?" There are instances where the crew being examined may want another operator to observe. (e.g., We had an initial license exam during the annual operating test. When the initial license candidate completed his exam and was assigned to a crew, the crew's shift manager requested that the new crew member be able to observe their operating test from the simulator instructor's booth.)

The bases for this policy include the desire to minimize undue stress on the operators (or applicants) that are being evaluated and the need to minimize crowding in the simulator (for the examinees, NRC examiners, facility evaluators, operations and training representatives, and simulator operators that have to be there). Moreover, the NRC believes it is inappropriate to use NRC-conducted licensing and requalification examinations as training tools for other applicants and operators.

Facility licensees are free to establish their own examination policies for requalification examinations in which the NRC is not involved.

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<b>ES-602</b>	
<p>Why [is there a] static [written exam] if [the] NRC administers requalification? What value [is] added?</p> <p>Static Exams - If [the] NRC administers [a] requal exam, a static is required. If we administer our own, a static is not required. Some utilities have stopped maintaining a static exam bank and use of it, while others (such as us) are continuing to use them. The reason we do is, if NRC comes into a program that hasn't done statics for a long time, and the crews are subjected to statics, and they aren't used to them, a high failure is likely. So, why does this difference exist?</p> <p>Why is there a difference between what the NRC would do for a "for cause" requalification [exam] versus facility requalification [exam]? [This is] unfair [to the operators and may lead to a] high failure rate.</p>	<p>The requalification examination format, including the static written examination, was developed by an NRC/industry working group in 1987. The NRC understands that most facility licensees have stopped using the static written format since the NRC shifted to an inspection-based oversight program in 1994, and the fact that it is still included in the ES-600 series has prompted some facility licensees to continue using it as well or at least to maintain their static scenario banks. As discussed in Section C of ES-601, if a facility licensee's requalification program uses an examination structure or methodology different from that described in the ES-600 series and the NRC decides to conduct an examination, the NRC Regional Office will consult with the NRR Operator Licensing Program Office to determine the appropriate examination procedure.</p> <p>The NRC will reassess the practicality of the static written format during the next revision of NUREG-1021.</p>
<p>What is the policy/requirement regarding extension of time limit for the requalification written exam? ES-401 allows time extensions. Does the ES-600 series?</p> <p>Are time extensions for requalification exams similar to [the initial] written?</p>	<p>Although the examination should be time-validated to preclude the need for extensions, the NRC would consider extending the time limit for <u>NRC-conducted</u> requalification examinations in 30-minute intervals, as it does for initial licensing examinations. When facility licensees conduct their own requalification examinations, the NRC expects them to comply with their program requirements (including the ES-600 series, as written, if the licensee has endorsed the ES as part of its program).</p>

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ES-603

<p>Section B of ES-301 states that initial license exams should sample the items listed in 10 CFR 55.43 but need not cover all 13 items. Is this also true of a requalification annual operating examinations?</p>	<p>Yes. As specified in 10 CFR 55.59(a)(2)(ii), the operating test shall cover a comprehensive (i.e., thorough or broad, but not necessarily complete) sample of the items specified in 10 CFR 55.45(a)(2) through (13) as applicable to the facility.</p>
<p>Is there an expectation that every SRO do an Emergency Plan classification in either a scenario or a JPM?</p>	<p>No. Every operating test is a sample and does not have to include an Emergency Plan classification.</p>
<p>Is changing a JPM to an alternate path JPM considered a different test item (for the 50% [repetition] requirement)?</p>	<p>Yes. This is consistent with the initial examination policy regarding the repetition of test items from the individual's audit examination (refer to Section D.1.a of ES-301).</p>
<p>Are simultaneous JPMs allowed?</p>	<p>The NRC would allow the simultaneous administration of JPMs in the simulator or control room during NRC- conducted tests provided there is no interference between the operating stations. When licensees are conducting the tests, they should follow their approved requalification program.</p>
<p>To what extent is it acceptable to just mark up a procedure versus [following] the ES format [for JPMs]?</p>	<p>In accordance with Section C.1.d of ES-603, Form ES-C-1, "Job Performance Measure Worksheet," or an equivalent facility form should be used to construct and format the JPMs. However, as long as the JPMs include the elements identified in Appendix C (e.g., initiating and terminating cues, critical steps, and performance criteria), it should be possible to adapt facility procedures for use as JPMs by identifying critical steps and entering comments on how to execute particular steps. Section D.1.k of ES-301 authorizes that practice for initial operating tests.</p>
<p>Is the 2/5 alternate path JPM requirement, a required item for annual requalification exams?</p>	<p>No. However, per ES-601 (Section III.C of Form ES-601-2), facility licensees are expected to include some alternate path JPMs in their test item banks for use during NRC-conducted requalification examinations.</p>

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For requalification [examinations, do you] test how you normally staff?

Yes. As stated in Section D.2.a of ES-601, the NRC expects facility licensees to train and examine their operators in the same crew configurations with which they normally operate the plant.

Can an individual who fails in the simulator for a specific task be retested with a JPM, or must it be a scenario?

If an operator fails any portion of an NRC-conducted operating test (initial or requalification), the retest will be in the same format as the part that was failed. If an operator fails a facility-conducted requalification examination, the facility licensee would be expected to administer the retest in accordance with its approved requalification program.

If an operator fails an annual operating exam scenario due to an independently performed competency, can a JPM be used as a retake exam?

Surrogates would be acceptable for an NRC-conducted test, but the facility licensee would have to follow its program requirements if it conducts the test.

Can an individual failure [on the simulator operating test] be retested with surrogates, or must it be with a shift?

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**ES-605**

NUREG-1021 allows postponement of requalification requirements for up to 2 years for off-site development assignments, such as INPO. We also have on-site development assignments, such as Work Control or Site Engineering, which are intensive from a workload standpoint. Why can't the requirements of requalification be suspended for an on-site/off-shift developmental assignment?

This issue was recently raised by the Administrator of the NRC Region I Office. The Operator Licensing Program Office has a number of concerns regarding such a policy change (e.g., the quality of the make-up training and testing, limits on the number and duration of the assignments, public perception, NRC involvement and resource implications) and discussed the issue with the Nuclear Energy Institute and a number of facility representatives during an operator licensing focus group meeting on November 4, 1999. Additional information regarding this issue will be posted on this web site as it becomes available.

Operator Medicals are required every 24 months with no grace [period]. This causes a need to schedule shift crews more often so 24 months not exceeded. With a fixed requalification schedule, 24-month refueling outage cycle, it would be nice to have medicals the same cycle every year. So, if critical equipment (RPS, etc.) surveillance frequencies can have grace [periods], why can't operator medicals?

As noted in Appendix F of NUREG-1021, a biennial requirement can extend beyond 730 days if the requirement is met during the anniversary month of the second year. For example, a biennial medical examination last performed on January 10, 1995, would be due again by January 31, 1997. This, in essence, provides a variable grace period of up to 30 days.

**Notification of administrative suspension of licenses due to medical reasons. (Details)**

**In accordance with Section C.3.a of ES-605, the facility licensee does not need to notify the NRC if the medical condition is temporary and the**

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Can someone stand 8 hours of a normal 12 hour watch?

operator is administratively prevented from performing licensed duties.

As discussed in Section C.2 of ES-605, the 10 CFR 55.53(e) requirement for licensed operators to maintain their proficiency may be satisfied 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. 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 watch-stander does not count toward proficiency time.

Are there any unwritten restrictions for "no solo" license conditions?

No. The nature of the restriction, which is determined case-by-case based on the individual's medical status, is clearly stated on the license. The most common restriction simply requires the presence of another person capable of summoning assistance. In rare instances, the restriction may require another qualified person to be present when the individual is performing licensed duties.

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<b>IP-71001</b>	
<p>10 CFR 55.59 - the use of [systematic approach to training] SAT-based program vice regulatory based programs. Why do you have to track individual control manipulations if you have a SAT-based program?</p>	<p>10 CFR 55.59(c) allows licensees to substitute the appropriate SAT-based program elements (as defined in 10 CFR 55.4) for the requirements in paragraphs (c)(2), (3), and (4) (i.e., lectures, on-the-job training, and evaluation). Record-keeping is not a SAT-based program element. Therefore, facility licensees are <u>all</u> required to comply with Section 55.59(c)(5) and document every operator's participation in the requalification program.</p>
<p>"Control Manipulations" in Requal - a prior guidance from previous NRC meeting clearly indicated bean counting control manipulation from the Denton letter was a thing of the past - SAT based requal training would naturally contain a large portion of the annual/biennial tasks and evolutions, therefore, program participants would be involved during simulator training/evaluation, and/or annual Op. Eval. JPMs; "individuals simulator critical tasks" went away and "crew critical tasks" were</p>	<p>The control manipulations conducted per 10 CFR 55.59(c)(3) or your SAT-based requalification program are <u>individual, on-the-job training requirements</u>, which are not to be confused with individual or crew critical tasks on the annual simulator operating test.</p> <p>The NRC's policies on what qualifies for and how to document control manipulations have not changed. It appears that there may have been a</p>

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<p>required. Teamwork/ communications, command &amp; control/by the team was the most important. Bottom line - the implied expectation expressed on 8/12/99 is not congruent with that provided in 1989 by T. Peebles, S. Lawyer, and others who provided us guidance. It appears that we are returning to the middle to early 80's again.</p> <p>Reactivity Manipulations for [licensed operator continuing training?] LOCT: [The Institute of Nuclear Power Operation's] INPO's policy for tracking manipulations seems to be in conflict with NRC requirement (INPO doesn't require tracking on an individual basis).</p>	<p>miscommunication of the NRC's requirements and expectations.</p> <p>The fact that INPO does not require facility licensees to track control manipulations on an individual basis has no bearing on the NRC's expectation that licensees will comply with the existing regulations.</p>
<p><b>Is it required that each SRO be evaluated during the Emergency Operating Procedures [EOPs]? Does their documentation for the evaluation need to be done in accordance with the requirements of conducting annual exams? If so, what is the basis for this requirement?</b></p>	<p><b>Although each SRO does not have to be evaluated during the EOPs on every annual operating test, every SRO should be at risk of being evaluated on all of the items in 10 CFR 55.45(a) during any test. The NRC does not differentiate between different levels of SROs, so the test-item sampling should be the same regardless whether or not the operator normally stands watch in an EOP-reader position.</b></p>
<p>Are requalification inspections conducted using NUREG-1021 as the standard (i.e., 600 series) for the inspection? Are facilities subject to violations because an aspect of NUREG-1021 is not utilized during a requalification exam or is it just the inspection plan (i.e., 71111-11 vs. ES-600)?</p>	<p>Requalification inspections are conducted using IP-71001 or IP-71111-11, in the case of facilities participating in the pilot oversight program. Facility licensees are not required to use the ES-600 series of NUREG-1021 to conduct their requalification examinations. However, if a licensee's requalification program endorses or incorporates the NUREG-1021 examination process, the NRC will expect the facility to comply with its established program.</p>
<p><b>Can I take credit for questions other than multiple choice questions in the LOR [licensed operator requalification] exam bank, including maintenance of the bank?</b></p>	<p><b>Yes. However, licensees are encouraged not to abandon their multiple choice question banks in case the NRC determines that a for-cause requalification examination is necessary. Facility licensees are expected to follow their own program guidelines for bank maintenance; the guidelines in ES-601 would only apply if the licensee has endorsed NUREG-1021 as part of its LOR program.</b></p>
<p><b>How is the cognitive level determined if essay and short answer are used? (applies to operator requal exams)</b></p>	<p><b>As discussed in Section C.1.d of Appendix B, the NRC uses Bloom's Taxonomy to classify the cognitive level of test questions. That classification approach would apply regardless of the question format. Facility licensees are not obligated to use the same approach.</b></p>
<p>What is the criteria (guidance) for test item reuse</p>	<p>The NRC does not have definitive criteria regarding</p>

...hout a biennial [requalification] cycle? ((i.e., 1) items used on more than 1 weekly quiz; 2) item used on weekly quizzes to be used on biennial exam)

**Need a number (upper limit) on requal test question reuse. Subjective limits lead to variability in standards and enforcement. Suggest 20-25% limit.**

**What is the expectation or threshold on reuse of exam materials? During the Region I Conference the NRC stated that internal policy is <50% duplication of items between exams. We all agree we want to protect the validity of the exams. However, without clear expectations from the NRC, and subjective application by an evaluator, it will be difficult to predict acceptability.**

**Does ES-601 E.3.b(6) allow for subjective interpretation from examination to examination based on what the specific examiner "feels" is appropriate; can we not identify this internally and have the examiner base his decision on plant specific requirements?**

Biennial requalification exam -- What is the standard for reusing exam questions from weekly exams from the last 2-year biennial training program?

If a JPM exam is failed, can one of the failed JPM's be used in the retake examination?

**During a recent inspection, the validation of a scenario did not match crew response. The utility's examiner response was to remove the scenario from the exam. What and where are the standards for this?**

the number of test items that can be reused on weekly quizzes or biennial examinations. However, as stated in Section E.3.b(6) of ES-601, the amount of item duplication will be taken into consideration during the program evaluation because it could affect the discrimination validity and integrity of the examinations. Whenever test items are repeated, they should be selected in a distributed manner and approximately equally over all previous examinations to reduce predictability (if a large number of items were taken from the most recent examination). As always, facility licensees are expected to comply with their approved training program requirements, which would be expected to vary based on the licensee's specific circumstances. For example, the same level of question repetition would have less impact if the licensee does not distribute or post its examinations until after they are all complete. The NRC will evaluate every situation on its own merits; the same upper limit may not always be appropriate, nor would it be enforceable unless it was adopted as a regulatory requirement or licensee commitment.

**Examiners and inspectors that document this as a weakness must demonstrate that the integrity of the examination was compromised or the discrimination validity of the examination was affected by inappropriate reuse of test items.**

It would certainly be appropriate to test the operator to determine if the remedial training was successful, and to include the failed material in that sample. However, the annual operating test given pursuant to 10 CFR 55.59 should consist of a new sample of test material to confirm the operator's overall competence.

**If the NRC were administering the test, it would not replace the scenario because a crew did not perform as expected unless the scenario was found to contain a serious flaw. Rather, the examiners would document actions taken by each of the crews and later determine if they responded correctly under the given conditions.**

**In accordance with 10 CFR 55.4, a training program based on a systematic approach must be evaluated and revised based on the performance of the trained personnel in the job setting. The fact that a crew deviates from a validated**

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**scenario suggests a problem in the training program that may not be fully understood if the scenario is replaced.**

If an instructor sees a scenario, trains [the] next crew, [then] administers same scenario [to that crew] (doesn't know in advance), is this a problem?

Yes. After seeing the first scenario, the instructor should not have used it for training without first determining whether the scenario was going to be reused for another operating test.

If the facility licensee's program includes exam security restrictions similar to those endorsed by the NRC in Section D.6 of ES-601, then the instructor should not have been involved in training activities after gaining knowledge of the exam contents.

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### 10 CFR 55

What is target release date for the proposed rule-making on performing reactivity manipulations on certified simulation?

The staff anticipates that the proposed rule, if approved by the Commission, could be released for public comment during the first half of 2000.

Will the anticipated rule change require licensees to upgrade to a higher ANSI standard for the simulator (ANSI 3.5-1998)?

No.

How long does it take for an exemption request to be received and to be answered?

The time required will depend on the nature of the request and the quality of the licensee's submittal. Plan at least two months to get an answer. If the NRC requires additional information to make a decision, it will probably take longer.

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### General / Other

Is there some way to do a better distribution of clarifications/rulings from one site in the region to another? This would help all of us meet your expectations.

One of the NRC's goals in establishing this web site is to improve communications with facility licensees and to enhance consistency.

Will there be a revision to NUREG-1262 at any time soon?

No. The NRC has not yet made a decision to revise NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, Part 55 on Operators' Licenses," which was published in November 1987. That is a low priority task for which resources have not been budgeted.

**NUREG-1262 contains information that conflicts with NUREG-1021, Revision 8. Is there any intent to make NUREG-1262 current?**

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**If there are conflicts between NUREG-1262 and any other guidance issued since then (including Revision 8 of NUREG-1021 and the answers to these questions), the more recent guidance would take precedence.**

Has the question been asked about the "intellectual rights" of the examination work product owner versus publish of examinations?

**Examination authors are not prohibited from copyrighting their work. However, the NRC can not accept copyrighted materials unless the holder of the copyright signs a release form to allow its publication.** When those materials are placed in the public document room, users are permitted to make one copy for personal use. If additional copies are required, the user will have to obtain permission from the copyright holder.

Is the ES-601 definition of "low power" serious?

Yes. The NRC staff's evaluation of shutdown and low-power operations at commercial nuclear power plants, which was reported in NUREG-1449, included operations with the reactor in the subcritical (i.e., shutdown) state and in transition between subcriticality and 5 percent power (i.e., low power). When NUREG-1021 was revised to place more emphasis on those operating conditions, it made more sense to use the same definition than to develop a new one.

Low power - Is it really criticality to 5%?

**Low power scenarios are defined as criticality to 5% reactor power. Is this the expectation to receive credit for a low power scenario?**

**The NRC intends for the operating tests to sample the full range of operating conditions and power levels so they do not become predictable. It is unlikely that the NRC would deny credit for a scenario simply because it exceeded the power limit specified in a somewhat arbitrary definition.**

What is/where do I find my "Commission Approved" training program?

As noted in the Statements of Consideration for the 1987 amendment to 10 CFR 55, a facility licensee's training program is considered Commission-approved when it becomes accredited by the National Nuclear Accrediting Board.

How familiar are, and what kind of training have the examiners received on the SAT process? How familiar (knowledgeable) are the headquarters management on the SAT process? What kind of training have they received?

The staff of the NRC Operator Licensing Program Office includes four training and assessment specialists who are well-versed on SAT-based training processes and have over 60 years of combined training experience. Issues and questions that come up regarding SAT-based training requirements and expectations are referred to one or more of those specialists for resolution.

NRC examiners and managers having responsibilities in this area have received instruction on the SAT process during periodic operator licensing examiner conferences.

**DRAFT**

I would like to see the NRC go more toward an inspection process for plants that volunteer to write the exams. Have only one NRC examiner involved, allow the utility to administer all parts of the exam and use the resident if more oversight is needed during the exam administration. The NRC should continue to make the final licensing decision.

NRC needs to understand that increased difficulty of exam process is a negative motivator and could be a distraction to competent board operators. Recommend survey to understand scope and potential impact on safe plant operations.

The examination process seems to be getting harder as compared to a few years ago.

Exam difficulty has gone beyond reason and is impacting the requal program. People are not willing to put up with the hassle and it does not result in better operators. It is impossible to meet question standards and avoid "tricky" questions, very knowledgeable operators can appear less than competent based on complexity of question rather than a test of knowledge.

Comment noted. Although the NRC favors reducing unnecessary regulatory burden, the examination policies will only be changed if the NRC concludes that the changes will not have a negative impact on reactor safety, public confidence, efficiency and effectiveness. **At the present time, the NRC sees significant benefit in conducting individual examinations as part of the operator licensing process.**

As reported in Attachment 1 (Section 1) of SECY-98-266, the NRC has also noted a slight decrease in the average passing rates on both the written and operating portions of the facility-prepared examinations when compared with the passing rates on NRC-prepared examinations. However, the decrease could be caused by a number of factors including variations in the average level of experience of the license applicants, changes in the quality of the training or the facility licensee's threshold for screening its applicants before they take the licensing examination, or variations in the average level of difficulty of the examinations. Although the staff did not intend for the level of difficulty or the failure rate on the examinations to increase, the examiners' efforts to achieve NRC standards regarding the cognitive level of questions and to improve the plausibility of the distractors may have improved the discrimination validity of the examinations. Consequently, those applicants who may have passed an examination containing lower cognitive level questions on which some of the distractors could be eliminated as implausible are now having more difficulty selecting the correct answers; in essence, their chances of passing the examination by guessing some of the correct answers have diminished. Considering the historical fluctuation in the average examination passing rates and the other factors that could be responsible for some or all of the observed decline, the NRC has concluded that any increase in the level of difficulty is not significant. It is also worth noting that the NRC may not have proceeded with the pilot process if the applicants' average performance on the facility-prepared examinations had improved.

Although the Operator Licensing Program Office does not have the funding to conduct the suggested survey, it will continue to monitor the applicants' performance for indications that the examinations are becoming too difficult.

# DRAFT

The most common issue raised by Hot License Candidates and Requal license holders surround the issue of "trick questions" and operator written exams not being a fair test of operator knowledge.

The NRC exam has become an exercise in exam taking skills instead of a knowledge assessment.

The NRC goes to considerable lengths to ensure that its examinations measure what they are intended to measure, thereby enabling the NRC to distinguish between applicants who have and have not mastered the knowledge and abilities required to be safe nuclear power plant operators. The principles of fairness, validity, and safety have guided the NRC throughout the process of developing and implementing Revision 8 of NUREG-1021.

As stated in Attachment 1 of Appendix B of NUREG-1021, the NRC strives to minimize unnecessary difficulty, trickiness, and irrelevancy in its written examination questions. Authors and (multiple) reviewers are expected to identify and correct these psychometric deficiencies. Moreover, Section E.4 of ES-401 encourages facility licensees to peer-validate the written examination in a final effort to identify and correct deficiencies that might affect the validity of the examination.

Although the NRC has increased its emphasis on higher cognitive level questions and the plausibility of distractors in an effort to enhance the discrimination validity of the examinations, some may have misinterpreted these actions as an effort to trick or fool otherwise knowledgeable applicants. Truly knowledgeable applicants should be able to pass the examination regardless of their test-taking skills. Applicants who rely too much on their test-taking skills or their ability to guess the right answer after eliminating the implausible distractors should not be able to pass the licensing examination.

**Guidelines shouldn't be open for individual examiner interpretation if it could show up as a weakness in the exam report. Example: Amount of question/operating test overlap on the requal exam from week to week.**

**Comment noted. NRC examiners are expected to comply with the guidelines in NUREG-1021 and to exercise good judgement in those areas requiring a subjective evaluation. The reviews and audits conducted by NRC regional management and the operator licensing program office and the continuing training program for examiners help minimize individual examiner interpretations and ensure consistency.**

Need region workshops to calibrate us on future

The NRC has sponsored and participated in a number



**DRAFT**

JPM direction.

We may want to have an exam writing workshop.

Who would be interested in putting together a utility sponsored exam question writing seminar?

Suggest national NUREG-1021 workshop twice a year with focus on facilities with upcoming exams (within 6-12 months).

Will you "endorse" the Sonalyst Workshop?

Install a bulletin board on the NRC web page for lessons learned as discussed in the workshop.

Can we get a copy of the two year NRC examining schedule?

of examination workshops and, to the extent possible, will continue to work with facility licensees and industry training groups in this area. The NRC encourages facility licensees to pool their resources and work together to develop their examination-writing skills. The regional training organizations, Nuclear Energy Institute (NEI), and Institute of Nuclear Power Operations (INPO) might be able to provide support in this area.

Suggestion noted.

The NRC reviewed the Sonalyst Workshop to ensure that it was consistent with NUREG-1021. However, as a matter of policy, the NRC does not endorse specific vendors or programs provided by them.

Suggestion noted.

The examination and inspection schedule (covering at least the next year) is posted on this web site. We will try to update the schedule on a monthly basis.

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staff committed to shortly develop the revised criteria, implement the changes on a voluntary trial basis early in 2000 while it solicits feedback and public comments, and formalize the revised criteria with a supplementary change to NUREG-1021.

Regarding the second significant issue, the staff acknowledged that the comments in the examination reports sometimes have unintended consequences in terms of exaggerated utility response. To remedy the situation, the staff outlined a proposal to establish a threshold of examination changes below which the examination report would simply state that the draft examination was within the NRC's expected quality band and acceptable for administration. Examination quality concerns would only be documented in detail if the staff concludes that the threshold was exceeded. An examination would be characterized as unacceptable only if there is an apparent programmatic root cause or a repetitive problem. The staff indicated that it would shortly issue clarified guidance regarding this matter to the NRC Regional Offices.

In the area of license eligibility for senior reactor operators, the representative from INPO reported that the National Academy for Nuclear Training is reinstating and revising those guidelines to create a pathway for directly licensing SROs comparable to that in the NRC's Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants." The INPO and NEI representatives indicated that they will expect facility licensees to clean up their licensing bases and to comply with the revised guidelines even if their licensing basis commits them to less restrictive guidance. The INPO representative provided the NRC attendees with copies of the draft criteria and invited the NRC to comment. A copy of the draft criteria is attached.

As noted in the second attachment, the NRC staff also reviewed the proposed answers to some of the questions that had been collected during the recently-completed operator licensing workshops. A copy of the handout is attached. The NEI representatives indicated that they would solicit and consolidate comments from the other focus group members and provide feedback to the NRC staff. The final questions and answers will eventually be posted on the NRC's operator licensing web site.

The staff believes that significant progress was made on resolving a number of issues in a manner that will maintain examination validity, enhance clarity and consistency, minimize unnecessary burden on facility licensees, and possibly increase the level of participation in the examination development process.

If you have any questions, please call me at 301-415-2942.

Attachments: As stated

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