

January 25, 2006

MEMORANDUM TO: Eileen M. McKenna, Chief  
Financial, Policy and Rulemaking Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

FROM: Joseph L. Birmingham, Project Manager */RA/*  
Financial, Policy and Rulemaking Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF NOVEMBER 30, 2005, MEETING WITH INDUSTRY  
FOCUS GROUP ON OPERATOR LICENSING ISSUES

On November 30, 2005, the NRC staff held a public meeting, at the Nuclear Energy Institute in Washington D.C., with the industry focus group (FG) on operator licensing to discuss a number of operator licensing issues. Enclosure 1 lists the attendees at the meeting.

This meeting was the latest in a series of meetings intended to promote the efficient, effective, and consistent preparation and administration of initial operator licensing examinations. The discussions addressed issues related to the implementation of Revision 9 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," licensed operator requalification programs, simulator fidelity and testing, and other operator licensing issues. Enclosure 2 is the agenda for the meeting; the discussion topics are summarized in Enclosure 3; Enclosures 4 through 8 are handouts that were distributed during the meeting.

Representatives of the NRC and the industry agreed that this meeting was useful for the exchange of information on this subject and agreed to continue the periodic meetings.

Project No. 689  
Enclosures: As stated  
cc: See list

January 25, 2006

MEMORANDUM TO: Eileen M. McKenna, Chief  
Financial, Policy and Rulemaking Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

FROM: Joseph L. Birmingham, Project Manager */RA/*  
Financial, Policy and Rulemaking Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF NOVEMBER 30, 2005, MEETING WITH INDUSTRY  
FOCUS GROUP ON OPERATOR LICENSING ISSUES

On November 30, 2005, the NRC staff held a public meeting, at the Nuclear Energy Institute in Washington D.C., with the industry focus group (FG) on operator licensing to discuss a number of operator licensing issues. Enclosure 1 lists the attendees at the meeting.

This meeting was the latest in a series of meetings intended to promote the efficient, effective, and consistent preparation and administration of initial operator licensing examinations. The discussions addressed issues related to the implementation of Revision 9 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," licensed operator requalification programs, simulator fidelity and testing, and other operator licensing issues. Enclosure 2 is the agenda for the meeting; the discussion topics are summarized in Enclosure 3; Enclosures 4 through 8 are handouts that were distributed during the meeting.

Representatives of the NRC and the industry agreed that this meeting was useful for the exchange of information on this subject and agreed to continue the periodic meetings.

Project No. 689  
Enclosures: As stated  
cc: See list

DISTRIBUTION: See next page

ADAMS Accession Number: ML060170090

OFFICE	PFPB:DPR		IOLB:BC		PFPB:BC	
NAME	JBirmingham		DTrimble*		EMcKenna	
DATE	01/17/2006		01/23/2006		01/25/2006	

\*with comments

OFFICIAL RECORD COPY

DISTRIBUTION: SUMMARY OF NOVEMBER 30, 2005, MEETING WITH INDUSTRY  
FOCUS GROUP ON OPERATOR LICENSING ISSUES

PUBLIC  
SGuenther  
AHsia  
RidsNrrDpr  
RidsNrrAdro  
RidsNrrDir  
RidsNrrDir  
RidsNrrDirslolb  
RidsOgcMailCenter  
RidsAcrcAcnwMailCenter  
RidsRgn1MailCenter  
RidsRgn2MailCenter  
RidsRgn3MailCenter  
RidsRgn4MailCenter

---

Nuclear Energy Institute

Project No. 689

cc: Mr. Jim Davis, Director  
Operations  
Nuclear Energy Institute  
Suite 400  
1776 I Street, NW  
Washington, DC 20006-3708  
jwd@nei.org

List of Attendees - NRC / Industry Focus Group Meeting on Operator Licensing  
November 30, 2005

Name	Organization
David Trimble	NRC / HQ
John Munro	NRC / HQ
George Usova	NRC / HQ
Lawrence Vick	NRC / HQ
Richard Pelton	NRC / HQ
David Muller	NRC / HQ
Richard Conte	NRC / RI
Brian Haagensen	NRC / RI
Peter Presby	NRC / RI
James Moorman	NRC / RII
Hironori Peterson	NRC / RIII
Tony Gody	NRC / RIV
Kelly Clayton	NRC / RIV
James Davis	Nuclear Energy Institute (NEI)
Chris Earls	NEI
Chuck Sizemore	Nuclear Management Company
Gregg Ludlam	Progress Energy
Kerry Wright	Florida Power & Light (Seabrook)
Kent Hamlin	Institute of Nuclear Power Operations (INPO)
Chuck Hess	PPL Susquehanna
Frank Tarselli	PPL Susquehanna
Pat Wiley	Arizona Public Service
Ken Masker	Constellation Energy
Jim Kelly	FirstEnergy Nuclear Operating Company
Jeff Hansen	Exelon
Al Hagenmeyer	Southern California Edison Company

List of Attendees - NRC / Industry Focus Group Meeting on Operator Licensing November 30, 2005 (Continued)	
Name	Organization
Gary Caspersen	Comanche Peak Steam Electric Station
Ken McCall	General Electric Boiling Water Reactor Owners Group
Timothy Dennis	ANS-3.5 Working Group

AGENDA FOR PUBLIC MEETING WITH INDUSTRY FOCUS GROUP (FG)  
ON OPERATOR LICENSING ISSUES

November 30, 2005; 9:00 a.m. - 2:00 p.m.  
Nuclear Energy Institute  
1776 I Street, NW, Suite 400  
Washington, D.C. 20006-3708

<u>TOPIC</u>	<u>LEAD</u>
● Introductions and Opening Remarks	NRC/FG
● Public Input	Public
● Generic Issues - Training and examinations to address grid reliability - NRC Form 396 - medical conditions - Simulator fidelity and testing	NRC/FG
● Initial Licensing Issues - Fiscal Year 2005 examination results - K/A suppression criteria - K/A Catalog Project Update - Exam projections / budget for 2006 - 2008	NRC/FG
● Public Questions and Answers	Public
● Requalification Issues - Examinations (uniform conditions) - License proficiency watches	NRC/FG
● Focus Group Issues	FG
● Public Questions and Answers	Public
● Summary / Conclusion / Action Item Review	NRC/FG

## DISCUSSION SUMMARY

### Generic Issues

#### Training and Examinations to Address Grid Reliability

The staff noted that Staff Requirements Memorandum (SRM) M050426 dated May 19, 2005, directed review of the NRC's programs related to operator examination and training to ensure that these programs adequately capture the importance of the influence of grid conditions and offsite power issues on the design, assessment, and safe operation of the plant, including appropriate interactions with grid operators. (The SRM may be accessed in the agencywide document access and management system (ADAMS) under ADAMS Accession Number ML051390156). The staff further noted that a generic letter on the impact of grid reliability would be issued in December 2005 and it would likely request information describing how the operators are trained and tested regarding grid stability and offsite power issues, e.g., procedures to check with the transmission system operator to determine the grid condition. The FG expressed concern with the NRC's perceived over-emphasis on this particular issue rather than a more appropriate look at how facility licensees incorporate new issues into the licensed operator training programs. The FG also expressed concern that licensed operator applicants could be unfairly affected if the generic letter responses resulted in the inclusion of new knowledge and ability (K/A) topics on licensing examinations beyond the validated knowledge and ability (K/A) topics in NUREGs-1122 and -1123.

#### NRC Form 396 - Medical Conditions

The staff noted that a proposed revision to NRC Form 396, "Certification of Medical Examination by Facility Licensee," was published as part of a *Federal Register* notice (FRN) on August 2, 2005, for public comment and questions. The substantive part of the proposed revision changes the wording of two existing medical restrictions for conditioned operator licenses and adds four new restrictions. The FRN was the NRC's "draft" submittal to the Office of Management and Budget (OMB) for continued approval of information collections required according to NRC Form 396. No public comments or questions were received regarding the proposed revision.

The staff also noted that the "final" FRN regarding the NRC's proposal to extend the existing approval for collection of information required by NRC Form 396 was published on November 17, 2005. The staff reminded the FG that any comments and questions regarding this proposal should be submitted as directed in the FRN by January 17, 2006. The staff indicated that they anticipated the revised NRC Form 396 would be issued for use early in calendar year 2006 following OMB approval.

#### Simulator Fidelity and Testing

The NRC staff discussed the current status of simulator fidelity and testing following the jointly sponsored NRC-MANTG (Middle Atlantic Nuclear Training Group) conference in August of 2005. The staff agreed to provide a written description of an acceptable approach for the conduct of scenario-based testing (SBT) (description provided below). The FG representatives

responded favorably to the approach as described contingent upon representative pilot demonstrations evaluated by NRC inspectors. The staff also considered a proposal by the FG (Enclosure 4) to limit the number of scenarios tested and determined that this approach is not feasible because it challenges the basis of SBT, in that the simulator should be tested prior to use in the configuration in which it will be used.

The staff proposes the following SBT approach as an acceptable method:

As described in ANSI/ANS-3.5-1998, Section 4.4.3.2, scenarios used for operator training or examination, including appropriate instructor interfaces and cuing, shall be tested before use. Facilities shall confirm that the simulator is capable of being used to satisfy predetermined learning or examination objectives without exceptions, significant performance discrepancies, or deviation from the approved scenario sequence. Simulated key parameters, determined for each specific scenario, will be electronically captured and evaluated to ensure simulator response meets the acceptance criteria listed in Section 4.1.4 of the standard. At a minimum, the captured data will allow for effective evaluation of parameter response and that key alarms actuate or do not actuate as expected for the plant conditions. Captured data should include operator or instructor actions that affect process parameters such that simulated plant response can be understood and effectively evaluated. Facility staff will document the results of the evaluation of the scenario and key parameter response, using the Section 4.1.4 acceptance criteria and provide a signed affirmation that acceptance criteria were met. Problems encountered during the test shall be identified and entered into the simulator corrective action process for resolution. Electronic data will be retained with a copy of the scenario and the documentation of completion of the scenario test. Records of the test will be available for review by NRC on a sampling basis during requalification inspections under NRC Inspection Procedure 71111.11.

## **Initial Licensing Issues**

### Fiscal Year 2005 Examination Results

The staff distributed a summary of the initial licensing examination results for FY 2005 (Enclosure 4) and noted the absence of any significant trends or concerns in the overall examination grades or the pass-rates on either the written examinations or the operating tests. The staff noted that it has posted summary graphs on the operator licensing web page and has included data on the SRO-only portion of the written examinations as discussed during the January 2005 FG meeting. The staff did note, for the record, that the RO written examination pass-rates were somewhat lower on examinations prepared by the NRC than on those prepared by facility licensees. However, the staff also noted that RO written examination average grades for both the NRC- and facility licensee-prepared examinations were approximately the same, i.e., 85.4% for NRC-prepared versus 86.2% for facility licensee-prepared examinations.

### K/A Suppression Criteria

The staff indicated that some facility licensee computer software programs delete all K/A statements having importance ratings < 2.5 and the facility licensees are providing this as the sole reason for K/A rejection according to Form ES-401-4, "Record of Rejected K/As." The

staff advised that the facility licensees should also consider in their K/A elimination review whether there are any site-specific priorities that would justify keeping these K/As even if their importance ratings were < 2.5. The staff indicated that an explanation stating one or more K/A(s) statement(s) was/were eliminated based on importance ratings < 2.5 would be sufficient in these instances. In other words, the facility licensee would not be required to provide any additional rationale explaining why the eliminated K/As were not site-specific priorities eligible for sampling. However, the staff also reminded the FG that a "Reason for Rejection," beyond the K/A statement's importance rating, is required according to Form ES-401-4 for all other rejected K/As.

### K/A Catalog Project Update

The NRC staff reviewed the background and its progress to date on the Westinghouse Owners Group (WOG) project to update Section 2 of NUREG-1122, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Pressurized Water Reactors, Revision 2." In attendance at the meeting was a representative from the Boiling Water Reactor Owners Group (BWROG) who expressed support for, and interest in, participating in the update project.

The staff described, in general, the WOG's recommendations to revise the catalog. Among the recommendations the WOG had made (e.g., editorial and verbal clarifications to 37 K/A statements, moving select K/A statements to different sections of the catalog, removing select redundant K/A statements, and adding one new K/A statement), the staff concluded, that the most meaningful recommendation involves the 37 K/A statement clarifications. The staff also concluded, on balance, that the remaining recommendations did not provide a sufficient basis to revise section 2 of NUREG-1122. The staff explained several of the considerations that were used to support its decision. They were:

1. The 37 editorial and verbal clarifications supported the WOG's original basis for the project, i.e., to reduce alleged rework associated with test items that were derived from potentially ambiguous K/A statements.
2. The remaining changes were more organizational and logistical in nature but were not changes that would meaningfully affect the validity of the catalog.
3. Adding the one additional new K/A statement could not be justified as a basis to completely revise section 2 of NUREG-1122 at this time, especially given the likelihood of upcoming future NUREG-1122 and -1123 revisions necessary for the introduction of new reactors. Logistically, the staff made the argument that the effort to revise NUREG-1122 for all of the WOG's recommended changes, notwithstanding the 37 clarifications, was largely organizational in nature and would be a duplicitous effort in light of an upcoming revision.

With regard to the addition of new K/A statements to Section 2, the staff discussed the WOG's original argument for the revision project, vis-a-vis, that the RO and SRO jobs had changed over time, resulting in the likelihood that new K/A statements would need to be added to Section 2 of NUREG-1122. However, the WOG effort, as stated above, resulted in adding only one new K/A statement, which was deemed an insufficient basis to revise Section 2 of NUREG-1122.

The FG expressed support for the WOG's overall efforts and discussed the WOG's recommended changes, suggesting that the clarifications made, contained new embedded knowledge, tantamount to additional new K/A statements. Other FG views were that these types of clarifications merely expanded the existing statements with options for testing. The FG requested the staff to query the WOG on why there were not additional new K/A statements, as the WOG initially stated there would be, and to reconsider the staff's decision not to implement fully the WOG's recommendations.

The staff agreed to contact the WOG and/or the BWROG regarding the staff's concerns with the project's apparent omissions regarding new K/A statements and the NRC's interim decision to implement only the project's 37 K/A statements' clarification recommendations via an errata change to NUREG-1122.

#### Exam Projections/Budget for 2006 - 2008

The staff noted that some facility licensees did not provide a voluntary response to Regulatory Issue Summary (RIS) 2005-19, "Preparation and Scheduling of Operator Licensing Examinations." The staff cautioned the FG that facility licensees, in particular the licensees that chose not to respond to RIS 2005-19, need to keep their NRC Regional Office apprised of their examination needs in order to ensure sufficient NRC resources are budgeted for operator licensing activities. The staff noted that work on proposed budget allocations for operator licensing activities for fiscal years (FYs) 2007 and 2008 would occur in January and February 2006.

#### **Public Questions and Answers**

No members of the general public attended the meeting.

#### **Requalification Issues**

##### Examinations

The staff initiated a discussion over the quality and integrity of requalification testing programs and reiterated that their concerns over examination integrity discussed at previous FG meetings have not been clearly addressed over the past two years. The staff noted that given a general rise in requalification program inspection findings, individual stakeholders' concerns over the integrity of some requalification examinations, and a lack of definable criteria for examination quality in Inspection Procedure (IP) 71111.11, there remained concern regarding the quality of utility requalification examinations, upon which an NRC operator license renewal decision is based, i.e., a potential public health and safety concern.

The requalification examination integrity issue was raised at past FG and Institute of Nuclear Power Operations (INPO) meetings, but there has been no initiative forthcoming from industry to address the issue. In fact, following the January 2005 FG meeting, in which the staff made the FG aware of these issues, the FG acknowledged their awareness. However, when the FG brought the issue to its full membership, as revealed at this meeting, the full membership conveyed to the FG that there was no need for additional action or required

guidelines/standards for development of requalification examinations beyond those that already exist in each facility's Systems Approach to Training (SAT) requalification training program.

As a result, the staff noted that it consulted the NRC's Office of General Counsel (OGC) to determine the applicability of Uniform Conditions (UCs) to the requalification examination process required by 10 CFR 55. (NOTE: UCs, a part of Section 107 of the Atomic Energy Act, would require a uniform framework of standards that all requalification examinations would adhere to). The NRC staff, upon consultation with OGC, concluded that UCs were applicable to requalification exams. Toward this end, the staff provided the FG a listing of such conditions (Enclosure 6) and invited them to take the lead in the development of a process.

The FG members disagreed that such UCs were needed and believed that the existing regulations permitted them to design their requalification examinations in accordance with their approved SAT program. In response, the staff pointed out that the SAT process focuses on trainee mastery of learning objectives, but falls short of the evaluation demands associated with licensing and license renewal, e.g., test bank usage, psychometrics, higher cognitive level testing, discriminating job performance measures, and objective grading.

As a result of the discussion, the INPO representative committed to meet with the NRC to discuss the extent of the problem and INPO's findings and actions in this area. The NRC would then consider INPO's results in determining how best to proceed in addressing the apparent lack of enforceable/required "uniform standards" for facility licensee-developed requalification examinations.

#### License Proficiency Watches

The NRC staff outlined a proposed process for resolving license proficiency watch issues: (1) obtain early input from the nuclear industry on new or clarified staff guidance, and then, (2) add proficiency guidance to ES-605, NUREG-1021. The staff noted that this approach will involve a future public meeting and resolution of any additional comments from industry and/or public stakeholders. The NRC staff presented a draft white paper (Enclosure 7) to the FG for industry comments. The FG agreed to provide a consolidated set of comments on the white paper back to the NRC staff. The NRC staff briefly summarized the key points contained in the white paper. Some members of the FG voiced concern with the NRC's proposal to not credit proficiency hours for all licensed operators who stand watch in excess of technical specification required minimum staffing levels. The FG expressed their view that the abstract and question numbers 251 and 252 of NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, Part 55 on Operators' Licenses," allow proficiency credit for all extra operators above the technical specification required minimum staffing levels.

#### **Focus Group Issues**

Refer to the preceding topics with the following addition. The FG proposed for NRC consideration suggestions (Enclosure 8) for possible future changes to NUREG-1021, ES-701, "Administration of Initial Examinations for Senior Operators Limited to Fuel Handling." The FG indicated their proposal would revise ES-701 to "alleviate utility challenges of a limited

LSRO task base” and “simultaneously satisfy NRC exam concerns.” The staff agreed to review the FG’s proposal for consideration during the next revision or supplement to NUREG-1021.

**Industry SBT Approach  
November 29, 2005**

***Bound the number of SBTs:***

1. A minimum standard for the number of scenarios subjected to SBT should be established. For example, examination scenarios utilized for requal annual operating exams and initial license exams and scenarios used to take credit for reactivity manipulations will be utilized as the SBT component of the overall simulator test program as a minimum.
2. Scenarios previously evaluated in SBT would not necessarily require re-validation or SBT each time they are used; SBT would be conducted again only if the scenario has been significantly modified or simulator modeling has been significantly modified since the last time SBT was conducted.

***Bound the extent of testing and documentation in SBT:***

1. Utilize paragraph 4.1.4 of the 1998 standard to evaluate the causes and effects directly related to scenario malfunctions used in SBTs as follows:
  - a. To meet (1) of 4.1.4, validate that the simulator scenario utilizes plant procedures without deviation or exception.
  - b. To meet (2) of 4.1.4, perform an evaluation of parameter trends relevant to the use of the malfunction in the scenario (basis documents, plant procedures, FSAR, relevant plant data, etc.).
  - c. To meet (3) of 4.1.4, perform an evaluation of annunciator response and automatic actions relevant to the malfunction (basis documents, plant procedures, FSAR, relevant plant data, etc.).
  - d. To meet (4) of 4.1.4, assert that no unexpected alarms or automatic actions occurred relevant to the malfunction.
2. Document SBT IAW Appendix A, paragraph A.4 of the 1998 standard as follows:
  - a. To meet A.4 (1) and (2), reference the simulator scenario and revision utilized.
  - b. To meet A.4 (3), attach simulator parameters/trend plots used for the evaluation of SBT.
  - c. To meet A.4 (4) and (5), list or reference the data used for evaluation and validation of malfunction response. List any simulator discrepancies identified as a result of SBT evaluation.

## FY 2005 Exam Results & Observations

- Number of Exams: 43 Facility + 9 NRC = 52 Total (including retakes)
- Number of Applicants: 139 ROs and 215 SROs (including 10 LSROs)
- Consistent with recent trends: no big surprises or concerns
- Website graphs have been updated
- Written Exam Grades:
 

	RO	SRO	SRO-25
Overall Avg:	86.0	87.1	85.5
Overall Range:	84.3 - 87.0	85.3 - 89.0	84.8 - 86.5
NRC-prep Avg:	85.4	87.1	86.0
NRC-prep Range:	82.7 - 89.9	84.3 - 88.8	81.5 - 88.5
Fac-prep Avg:	86.2	87.1	85.4
Fac-prep Range:	84.9 - 86.7	85.0 - 89.8	82.5 - 87.7
- Written Pass Rates:
 

	RO	SRO	SRO-25
Overall Avg:	92	96	96
Overall Range:	86 - 96	94 - 98	94 - 98
NRC-prep Avg:	85	95	93
NRC-prep Range:	82 - 89	88 - 100	88 - 100
Fac-prep Avg:	94	96	96
Fac-prep Range:	86 - 100	94 - 98	94 - 100
- Op-test Pass Rates:
 

	RO	SRO
Overall Avg:	97	99
Overall Range:	96 - 100	96 - 100
NRC-prep Avg:	100	100
NRC-prep Range:	100	100
Fac-prep Avg:	97	98
Fac-prep Range:	95 - 100	94 - 100
- NRC-prep small sample size may increase variability
- SRO-Upgrade Waivers: 2 (both passed SRO-25)
- SRO-25 Failures w/ Overall Pass: 3
- SRO-Overall vs. SRO-25: SRO-25 generally 1 - 2% lower

## UNIFORM CONDITIONS

The following are some Uniform Conditions (UCs) (or common standards) and/or process standards:

- unbiased test sampling within the content covered in the two year training cycle
- adherence to psychometric standards
- judicious test bank usage
- level of knowledge of test items, e.g., minimum high cognitive level (HCL) items or adequate discrimination
- emphasis upon test items that use procedures for problem-solving, decision-making
- limited test item repeatability among and within exams (no repeatability of entire exams within crews)
- established security agreements
- minimum # of job performance measures (JPMs) having alternate (problem solving) paths
- proper validation procedures (good practices)
- objective and accurate grading practices (all exam sections, including simulator)
- timely remediation and follow-up testing that adheres to UCs

## NRC WHITE PAPER:

## CLARIFICATION OF WATCHSTANDING PROFICIENCY REQUIREMENTS FOR LICENSED OPERATORS

The NRC continues to identify instances of licensed operators not properly maintaining watch standing proficiency, or not correctly re-establishing proficiency. Recent examples include operators crediting proficiency hours for time spent in non-technical specification (TS) required positions, SROs only standing RO watches and yet still considered proficient at SRO-only duties, and licensed operators not performing complete plant tours associated with re-establishing proficiency. The purpose of this white paper is to clarify the regulations and NRC's interpretations of the regulations associated with licensed operator watch standing proficiency, and to interact with stakeholders on these issues.

Licensed operator duties, watch standing proficiency, and re-establishing proficiency are set forth in Title 10 of the *Code of Federal Regulations*, Part 55 (10 CFR 55). In regard to past NRC interpretations in these areas, a vast majority are contained in NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, Part 55 on Operators' Licenses," November 1987, pp. 71- 81. Other NRC interpretations in these areas may be found in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Section ES-605. (Both NUREG-1262 and NUREG-1021 are available at [www.nrc.gov](http://www.nrc.gov), under "Nuclear Reactors - Operator Licensing: Regulations, Guidance, and Communications.")

### SUMMARY OF ISSUES

#### ACTIVE VERSUS INACTIVE LICENSES

With regard to operator proficiency and in the parlance of 10 CFR 55, there are two states to any RO/SRO license: the license is either active, meaning proficiency requirements have been met, or inactive.

#### Regulations

The regulations to be discussed in this section include a portion of 10 CFR 55.53(e), and three definitions contained in 10 CFR 55.4:

10 CFR 55.53(e): "If a licensee has not been actively performing the functions of an operator or senior operator, the licensee may not resume activities authorized by a license under this part..."

10 CFR 55.4 definition: "*Operator* means any individual licensed under this part to manipulate a control of a facility."

10 CFR 55.4 definition: "*Senior operator* means any individual licensed under this part to manipulate the controls of a facility and to direct the licensed activities of licensed operators."

ENCLOSURE 7

Technical contact: David S. Muller, NRR Operator Licensing  
[dsm3@nrc.gov](mailto:dsm3@nrc.gov) 301-415-1412

11/30/05

10 CFR 55.4 definition: “*Controls* when used with respect to a nuclear reactor means apparatus and mechanisms the manipulation of which directly affects the reactivity or power level of the reactor.”

### Implications and clarifications

1. An active license is required for those individuals who either (1) manipulate plant controls, or (2) direct the manipulation of plant controls, where plant controls are those controls which directly affect the reactivity or power level of the nuclear reactor.
2. It is expected that the responsibilities for control manipulations and directing control manipulations are assigned to specific licensed personnel positions within a shift crew, as established by each facility’s TS and/or facility procedures. Licensed ROs and SROs who stand watch to meet a facility’s minimum TS-required crew staffing levels are required to maintain an active license.
3. As a corollary to the above, not every licensed RO/SRO is required to maintain their license active. It is expected that there are many RO/SRO license holders at a facility with inactive licenses, including ROs and SROs who do not routinely stand watch as part of a shift crew (e.g., Operations Managers, training department personnel). In addition, ROs and SROs who are part of a shift crew, but act in a supporting role and are in excess of a facility’s minimum TS-required shift staffing, also do not require an active license (e.g., licensed personnel on shift in the work control center, licensed “extra” SROs acting as the shift technical advisor, licensed SROs acting as in-plant or field supervisors).
4. An active SRO license is also required to directly supervise core alterations, as specified in 10 CFR 50.54(m)(2)(iv).

### MAINTAINING AN ACTIVE LICENSE

In general, the shift crew positions which require an active license are the same shift crew positions where watch standing proficiency hours are credited towards maintaining an active license. Some examples identified by the NRC where watch standing hours were improperly credited towards maintaining an active license include:

1. Watch standing hours for three RO positions on a shift crew were credited for maintaining active licenses, although the facility’s TS only required two ROs per shift crew. Watch standing hours in the third RO position, i.e., the position not required by the facility’s TS, should not have been credited. Other instances have been observed where licensed individuals have improperly credited watch standing hours in administrative positions in support of maintenance and work planning, where these positions were not a part of the crew required per TS.
2. Watch standing hours in the shift technical assistant position were credited for maintaining active licenses, although the shift technical assistant position at this particular facility was not required to hold an NRC RO or SRO license.

3. Watch standing hours in the Operations Supervisor position (which did require a SRO license) were credited for maintaining an active licenses, but the Operations Supervisor position was only filled during the day and was not a part of the crew required per TS.

### Regulations

The regulations to be discussed in this section include another portion of 10 CFR 55.53(e), and one definition contained in 10 CFR 55.4:

10 CFR 55.53(e): “To maintain active status, the licensee shall actively perform the functions of an operator or senior operator on a minimum of seven 8-hour or five 12-hour shifts per calendar quarter.”

10 CFR 55.4 definition: “*Actively performing the functions of an operator or senior operator* means that an individual has a position on the shift crew that requires the individual to be licensed as defined in the facility’s technical specifications, and that the individual carries out and is responsible for the duties covered by that position.”

### Implications and clarifications

1. The seven 8-hour or five 12-hour shifts per calendar quarter requirement may be satisfied by a combination of *complete* 8- and 12-hour shifts, totaling a minimum of 56 hours per calendar quarter, with watches not truncated to satisfy the 56-hour requirement.
2. In order to credit watch standing hours towards maintaining an active license, **all** three parts of the 10 CFR 55.4 definition must be met: (1) the position must be part of a shift crew, (2) the position must be required per technical specifications (TS), and (3) the position must require a RO or SRO license. If a facility’s TS only requires 2 licensed ROs and one licensed SRO, then only 2 licensed ROs and one licensed SRO can credit hours toward maintaining their licenses in an active status per shift. This should not be taken to discourage having extra licensed individuals to support a shift crew. If a facility has determined that extra licensed individuals are necessary to support safe operations, then this is purely a decision left up to each facility. However, in order for extra licensed individuals on a shift crew to receive credit towards maintaining an active license, these extra individuals must rotate into licensed crew positions required by the facility’s TS within the calendar quarter.
3. Individuals who are licensed on two (or more) similar units at a facility are not required to establish proficiency on each of the similar units. Performing the required 56 hours of watch standing on a single unit maintains the license active for all similar units at a facility.

### Special implications and clarifications for SROs

1. A SRO is licensed to both manipulate plant controls and direct licensed activities, i.e., a SRO license consist of two parts: an operator (RO) portion and a supervisory (SRO) portion.

2. A SRO could maintain **only** the operator (RO) portion of the license active, by performing the minimum of 56 hours of watch standing per quarter entirely in an RO position required by TS. Maintaining only the RO portion of a SRO license active is not expected to be a common practice, but it is an option for SROs who routinely stand only RO watches. For SROs with only the RO portion of the license active, supervisory (SRO) duties which require an active SRO license may not be performed.
3. In order to perform the duties which require an active SRO (supervisory) license, proficiency must be demonstrated at performing supervisory licensed duties, i.e., the supervisory portion of the SRO license must be in an active status. To maintain the SRO (supervisory) portion active, a SRO must stand at least **one** complete watch (8 or 12 hour shift) per quarter in a shift crew position where TS requires a SRO license, with the remainder of complete watches (to meet the required minimum of 56 hours of watch standing per quarter) in either TS-required SRO or RO positions.
4. A SRO who maintains the senior operator portion active per item 3 above, is automatically considered active regarding the operator (RO) portion of the license. A SRO need not stand RO watches to maintain the RO portion active. This is based on the “hierarchy of watch stations” principle - “If I’m active as a supervisor, I’m automatically active for non-supervisory positions.” Operator skills for SROs are maintained by virtue of their oversight of licensed ROs, and their participation in licensed operator requalification training, which includes an evaluation of senior operators’ RO skills during the required annual requalification operating test.
5. SROs supervising core alterations shall have their watch standing hours credited towards the supervisory (SRO) portion of their license.

## LICENSE REACTIVATION

Licensed individuals who have not maintained their license in an active status are required to reactivate their license prior to performing the duties which require an active license. License reactivation requires performing shift crew functions under the direction of an active license holder in a TS-required position, plus a complete plant tour and shift turnover.

Some examples identified by the NRC where licenses were improperly reactivated include:

1. Not performing a complete plant tour as part of license reactivation.
2. Reactivating licenses for under direction duties not performed in a TS-required shift crew position.
3. Assigning more than one individual at a time to be under the direction of an active license holder, and taking reactivation credit for all the under direction watchstanders.

## Regulations

The regulations to be discussed in this section include a portion of 10 CFR 55.53(e), and the majority of 10 CFR 55.53(f):

10 CFR 55.53(e): “If a licensee has not been actively performing the functions of an operator or senior operator, the licensee may not resume activities authorized by a license under this part except as permitted by paragraph (f) of this section...”

10 CFR 55.53(f): “If paragraph (e) of this section is not met, before resumption of functions authorized by a license issued under this part, an authorized representative of the facility licensee shall certify the following:

- (1) That the qualifications and status of the licensee are current and valid; and
- (2) That the licensee has completed a minimum of 40 hours of shift functions under the direction of an operator or senior operator and in the position to which the individual will be assigned. The 40 hours must have included a complete tour of the plant and all required shift turnover procedures. For senior operators limited to fuel handling under paragraph ©) of this section, one shift must have been completed.”

### Implications and clarifications

1. If an individual’s license has not been maintained active per 10 CFR 55.53(e) (and per the previous section of this white paper, “Maintaining an active license”), then that individual must reactivate his license per 10 CFR 55.53(f) (and per this section), prior to performing duties which require an active license.
2. Since 10 CFR 55.53(f) requires an authorized representative of the facility to **certify** license reactivations, the NRC expects that license reactivations will be documented. The documentation of license reactivations should be retrievable, maintained for the current 6-year effective period of each individual license, and available for NRC inspection.
3. Identical to crediting proficiency watch standing hours, reactivation watch standing hours shall only be credited for watch standing performed under the direction of the holder of an active license who is standing watch in: (1) a position that is part of a shift crew, (2) a position required per technical specifications (TS), and (3) a position that requires an RO or SRO license. A simple test is that if watch standing hours can be credited towards the proficiency for the active license holder, then an individual under the direction of the active license holder can receive reactivation credit.
4. Although not explicitly stated in 10 CFR 55.53(f), under the direction watch standing shall be performed on a one-on-one basis. Only **one** under direction watchstander shall be assigned to an active license holder. The active license holder shall not have multiple individuals reactivating under his or her direction.
5. The 40 hours of under direction watch standing for license reactivation do not need to occur in complete shifts or be completed on consecutive days. All 40 hours must occur within the same calendar quarter, and at least one complete on-coming shift turnover and one complete off-going shift turnover must be performed while under the direction of the active license holder.

6. The 40 hours of under direction watch standing need not all occur in the control room. The 40 hours of watch standing shall occur under the direction of the active license holder and wherever the duties of the active license holder are performed.
7. The 40 hours of under direction watch standing must include at least one complete plant tour. Since the plant tour is a part of the 40 hours of under direction watch standing, the plant tour must be performed under the direction of an active license holder.
8. Although the regulations do not define the scope of a complete plant tour, the NRC expects that this tour includes all readily accessible major areas of the plant, including areas that: (1) are routinely toured by in-plant operators, (2) contain safety related equipment, and (3) contain structures, systems and components governed by NRC's maintenance rule (10 CFR 50.65). If a facility has developed a checklist of areas to tour, it is generally inappropriate to skip plant areas and mark the items as "non-applicable," unless there is sufficient justification (e.g., personnel hazard, radiation hazard).
9. Individuals who are licensed on two (or more) similar units at a facility are not required to reactivate their license on each of the similar units. Performing the required 40 hours of under direction watch standing on a single unit reactivates the license for all similar units at a facility.

#### Special implications and clarifications for SROs

1. As previously discussed, a SRO is licensed to both manipulate plant controls and direct licensed activities, i.e., a SRO license consist of two parts: an operator (RO) portion and a supervisory (SRO) portion.
2. A SRO could reactivate only the RO portion of the license, by performing 40 hours of required shift functions under the direction of an active RO in a TS-required, shift crew RO position. This is not expected to be a common practice for a SRO to reactivate only the RO portion of the license, but it is an option if the SRO upon reactivation will stand only RO watches.
3. Typically, it is expected that a SRO will reactivate his or her license by performing 40 hours of shift functions under the direction of an active SRO in a TS-required, shift crew supervisory (SRO) position. A SRO who reactivates his or her license in this way, by standing 40 hours of under direction supervisory watches, reactivates the supervisory (SRO) portion of the license, and also the operator portion (RO), since a SRO who is active in the SRO portion is by default considered active for RO duties. A SRO is not required to stand additional under the direction watches in an RO position to activate the RO portion of the license, if a SRO completes the 40 hours of under direction watches in a supervisory (SRO) position.

#### Special implications and clarifications for SROs supervising core alterations

This section applies to full scope SROs who will be reactivating their license to perform core alterations and to SROs limited to fuel handling (LSROs). This section summarizes the

requirements contained in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, section ES-605 C.2.b.

1. There are two acceptable methods to reactivate a SRO or LSRO license for supervising core alterations:
  - (a) Perform one complete shift on the refuel fuel floor during actual core alterations under the direction of an SRO or LSRO with an active license, or
  - (b) Complete a facility-developed reactivation program that specifies, in detail, the refueling tasks, activities, and procedures that must be completed or simulated in order to demonstrate watch standing proficiency for core alterations. At a minimum, the reactivation program will be equivalent to performing a complete shift supervising core alterations. The inactive license holder will perform this reactivation program under the direction of an active SRO, similar to standing a complete under direction shift. The reactivation program can be completed prior to actual core alterations, but ideally, the program should be completed no more than one week prior to the reactivated license holder supervising core alterations.
2. Only **one** under direction watchstander or reactivation program participant shall be assigned to an active license holder. An active license holder shall not have multiple individuals reactivating under his or her direction.
3. A SRO who reactivates their license as described above is only considered active for supervising core alterations, and cannot perform full scope active SRO or RO duties.

**Changes to ES-701  
November 30, 2005**

**Condition Statement**

The issuance of NUREG-1021, Revision 9, section ES-701 has presented significant challenges in developing an LSRO exam since the NUREG was issued. It is anticipated that subsequent LSRO exams will be more challenging. Alternatives have been discussed among the affected utilities and are presented here for your review. The main area of concern is in the operational portion of the exam (i.e. JPMs) and how to revise the standard to prevent or allow resampling the limited task base associated with the LSRO initial program. The intent was to determine how best to revise the existing standard to simultaneously satisfy NRC exam concerns and alleviate utility challenges of a limited LSRO task base. Exam security is not compromised by these changes. Suggestions are offered in the following two areas:

**E/APE Walkthrough.**

The problem in this area is that there are typically only a few procedures that can be used to develop JPMs (One utility has five). This limits the task base and therefore the number of JPMs that can be written. The standard allows only one repeat from the last two NRC exams and at least one that is new or significantly modified. With the restrictions on repeats and the few procedures to select from, the third JPM is not likely to be a bank JPM and may not be able to be new.

Suggestions:

1. Instead of not being allowed to repeat from the last 2 NRC exams, change the wording so that it is only the last NRC exam. This was the wording prior to Rev. 9. This would recognize the fact that the total number of JPMs for AOP/EOP usage is greatly limited.
2. Provide flexibility to say that the third JPM would be modified but could be from the previous two exams. This change would allow one repeat, one new or modified and the last one could also be a modified bank JPM, possibly from one of the previous two exams.
3. Reduce the number of JPMs in the AOP/EOP category to help alleviate the concern over resampling. Specifically, reduce the total number of AOP/EOP JPMs from 3 to 2 and increase the system JPMs from 4 to 5. This would keep the total JPM count at 10.

**System JPMs**

1. NUREG-1021, Section E.1.b of ES-701 requires that "two JPMs related to systems other than fuel handling equipment listed in Tier 2" must be developed. In the site-specific SAT process for the LSRO program most systems listed in Tier 2 are knowledge related items and not operational tasks. JPMs are task based. Creating JPMs for a knowledge-based KA is contrary to the purpose of a JPM and creates conflict with the SAT process. System JPMs constructed this way tended to be challenged for their ability to discriminate at the SRO level and generally contained few task steps, of which very few were critical. Accepting questions in

lieu of generating a task-based JPM was a way around a problem in the past. Therefore, it is recommended that wording describing the construction of system JPMs in ES-701 would allow fuel equipment operations in progress and the system failure leads to consequences associated with fuel movement. Fuel equipment response would be required with potential follow up questions related to T.S. or system relationship issues. This construction blends a fuel handling related task with system knowledge creating a job-specific, challenging, SRO discriminating JPM. This approach was used with success at one facility.