

December 17, 2003

MEMORANDUM TO: Catherine Haney, Director
Policy and Rulemaking Program
Division of Regulatory Improvement Programs, NRR

FROM: Peter C. Wen, Project Manager */RA/*
Policy and Rulemaking Program
Division of Regulatory Improvement Programs, NRR

SUBJECT: SUMMARY OF NOVEMBER 25, 2003, MEETING WITH INDUSTRY
FOCUS GROUP REGARDING OPERATOR LICENSING ISSUES

On November 25, 2003, the NRC staff held a public meeting with the industry focus group (FG) on operator licensing (sponsored by the Nuclear Energy Institute (NEI)) to discuss Draft Revision 9 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and other operator licensing issues. Attachment 1 lists the attendees at the meeting.

This was the latest in a series of public meetings intended to promote the efficient, effective, and consistent preparation and administration of initial operator licensing examinations. The primary purpose of the meeting was to compare experiences and solicit feedback on Draft Revision 9 of NUREG-1021, which was issued for trial use and public comment in January 2003. The meeting also followed up on the status of outstanding issues that had been raised during prior meetings. Attachment 2 is the agenda for the meeting; the discussion topics are summarized in Attachment 3; Attachment 4 summarizes the results of the operator licensing examinations administered using Draft Revision 9 during fiscal year 2003; and Attachment 5 is a draft revision to the simulator grading criteria.

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

Project No. 689
Attachments: As stated
cc w/atts: See list

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Project No. 689

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List of Attendees - NRC / NEI Focus Group Meeting - November 25, 2003

Name	Organization
Bruce Boger	NRC / HQ
William Beckner	NRC / HQ
Dave Trimble	NRC / HQ
George Usova	NRC / HQ
Fred Guenther	NRC / HQ
John Munro	NRC / HQ
Richard Conte	NRC / RI
Mike Ernstes*	NRC / RII
Roger Lanksbury*	NRC / RIII
James Drake*	NRC / RIV
Fred Riedel	APS
Chuck Sizemore	NMC
Gregg Ludlam	Progress Energy / CP&L
Charles Sawyer	Duke Power
Robert Evans	NEI
Richard Chin	PPL
Kent Hamlin	Institute of Nuclear Power Operations
Carey Fleming	Winston and Strawn, LLP
* Participated via telephone bridge.	

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

November 25, 2003; 9:00 a.m. - 12:00 noon
U.S. Nuclear Regulatory Commission
One White Flint North, Room 7B4
11555 Rockville Pike, Rockville, MD 20852

<u>TOPIC</u>	<u>LEAD</u>
● Introductions and Opening Remarks	NRC/FG G
● Public Input	Public
● Draft Revision 9 of NUREG-1021 - Review September 2003 clarifications adding fuel handling system to SRO written sample eliminating K & A categories from SRO written sample RO written waivers for upgrade applicants walk-through overlap limits from prior exams TS minimum coverage and rating factors for SROs Generic fundamentals exam shelf life LSRO exam process ERS/CRW eligibility - Written exam sampling A2 and G in Tiers 1 and 2 additional industry guidance on SRO questions - Simulator test grading Communications and Crew Interaction grading single opportunity noncritical errors	NRC/FG
● Other Issues (as time permits) - IP 71111.11 changes (test item repetition) - LSRO license reactivation FAQs on the web - No-solo license conditions - Simulator rule change implementation - Revised Form 398 and electronic submittals	NRC
● Focus Group Issues	FG
● Public Questions and Answers	Public
● Summary / Conclusion / Action Item Review	NRC/FG

Operator Licensing Meeting With Industry Focus Group (FG) on November 25, 2003
Discussion Summary

Draft Revision 9 of NUREG-1021

The NRC staff opened the meeting by reviewing a number of issues (identified in parentheses) that were clarified on the NRC's Operator Licensing Web Site in October 2003; several new issues were raised as noted below. The FG was given the opportunity to seek additional clarification and to raise related issues for discussion.

- The NRC staff reviewed its previous proposal (Issue #6) to adjust the **SRO sample plan** to include all the knowledge and ability (K/A) categories related to the fuel handling systems and to eliminate the "K" and "A" categories from the remainder of the SRO sample plan. The staff also raised a new concern, given the limited size of the SRO examination, that a small number of question deletions during the grading process could be detrimental to examination validity. Consequently, the staff noted that it is considering the need to further adjust the SRO sample plan by shifting the Tier 1 / Tier 2 point distribution from 12/6 to 10/8 and by requiring at least two items per Tier in both the "A2" and "G" categories. The FG had no significant questions or concerns related to these new or previously-discussed changes.
- With regard to **waiving the RO written examination for SRO-upgrade applicants** (Issue #2), the FG suggested that an applicant who held an active RO license for a year or more should be eligible for a waiver. The NRC staff responded that the regulatory basis for this waiver (i.e., 10 CFR 55.47(a)(1)) requires the applicant to have "extensive actual operating experience... within two years before the date of application." The staff also noted that the criteria outlined in ES-204 and the subsequent clarifications address routine Regional waivers and that the program office would review other requests on a case-by-case basis. On a related subject, the staff reminded the FG that SRO-upgrade applicants who do not stay current in the RO requalification program must be restricted from performing licensed duties. In light of the difference in cut scores for SRO applicants who take the 100-question examination (i.e., 80% overall, with a 70% on the 25 SRO-only questions) and those who obtain a waiver of the RO portion of the examination (i.e., 80% on the SRO-only questions), the FG expressed an interest in discussing the results of the Revision 9 examinations completed to date. The NRC staff summarized the preliminary results and agreed to provide a more detailed breakdown when it becomes available; Attachment 4 provides such a breakdown.
- With regard to **developing the written examination outlines**, the FG requested the NRC staff to reconsider its decision to eliminate the facility licensee's option to propose 10 site-specific priority topics as possible replacements for randomly selected K/A statements. The NRC staff responded that its decision had been motivated by a desire to improve consistency and limit the potential for bias, and it noted that the more risk-informed sample plan in Revision 9 should reduce the need for topic replacements and that facilities are free to test site-specific priorities during the audit examination. The staff indicated that it will consider the FG's request, but noted that the previous allowance would be excessive given that the written examination has been shortened in Revision 9. The staff also indicated that it is considering the need to develop additional guidance that would require facility licensees to append site-specific systems (e.g., the integrated control system (ICS) at B&W facilities) and components to the written examination outline before beginning the random selection of K/A statements. The FG

- responded favorably to the proposal but asked the staff to consider including some limited allowance for site-specific priority topics.
- In order to maintain the **integrity of the walk-through operating test**, the NRC staff had previously clarified (Issue #7) that it would apply the 30% limit on repeating test items, separately, to both the administrative and systems portions of the test; the FG voiced no objection to this clarification. To further limit the predictability of the walk-through and ensure that the test assesses the applicants' understanding of the items listed in 10 CFR 55.45(a), the staff made a new proposal to limit the repetition of test items from the last two walk-through tests at the facility and to require at least one of the new or significantly modified tasks to test an alternate path procedure. The FG indicated that the additional requirement could be problematic since the number of procedurally-driven alternate path tasks is limited. The FG also suggested that the staff consider defining the limits using numbers of test items rather than percentages.
 - The FG reiterated its desire to **shorten the RO walk-through test** from 15 tasks (4 administrative and 11 systems) to 10 tasks (2 - 3 administrative and 7 - 8 systems) based on the resources required to administer the tests and the FG's view that examiners should be able to determine the applicant's competence after only a few tasks. The NRC staff responded, for the record, that it still considers 10 tasks to be too small a sample to make a valid and reliable licensing decision.
 - The NRC staff reviewed its previous proposal to require all SRO applicants to demonstrate their **ability to use the facility's technical specifications (TS)** during at least two situations / events (Issue #8) and outlined a new proposal to combine the first two rating factors under the TS competency (i.e., "recognize" and "locate"), with a weight of 0.4, and to increase the weight of the "compliance" rating factor from 0.4 to 0.6. The staff indicated that it is considering these changes to better reflect the relative importance of these skills, but the FG questioned whether the same goal could be accomplished by simply adjusting the weights of the existing rating factors; otherwise, the FG had no significant comments.
 - The NRC staff reviewed its experience with the **revised simulator grading criteria** for non-critical errors and noted that they have not resulted in any additional failures, with well over 100 applicants having taken Revision 9 examinations to date. The staff pointed out that the purpose for changing the criteria was to enhance consistency and ensure that the test assesses the applicants' competence based on all their performance errors because an error that has no observable safety consequences in a particular test scenario could have a significant impact on safety under a different set of circumstances. The FG reiterated its opinion that the revised criteria appear more subjective, since the "behavioral anchors" have been eliminated, and asked the NRC to keep an open mind and solicit examiner feedback before abandoning the Revision 8 grading process. The staff responded that it sees the changes as more objective and noted that it has informally polled the Regional operator licensing Branch Chiefs on this issue and that they are generally comfortable with the changes. Moreover, as suggested during the August 2003 meeting, the staff outlined a proposal that would require any error related to communications and crew interaction (Competency 4) to have a material effect on the course of the scenario in order to justify a failing score on a rating factor. However, because this change, in combination with the lower cut score that has always been applied to Competency 4, would make it virtually impossible for an applicant to fail in this area, the proposal would also raise the Competency 4 cut score to greater than 1.8, as it is for all the other simulator competencies. Per the FG's

- request, a draft revision of the applicable grading criteria is provided for review and comment as Attachment 5.
- The NRC staff revisited an unresolved issue related to the **grading of single non-critical simulator errors**, which would nominally result in a rating factor score of “2” even if the applicant did nothing correct to justify the passing score. The staff proposed that the solution would be to run another scenario that would provide the data required to support a passing or failing score on the subject rating factor. The FG acknowledged the concern and had no objections to the proposed solution.
 - The FG indicated that it had not completed its review of the revised **examination process for SROs limited to fuel handling (LSROs)** (Issue #5) but committed to do so by the end of the official comment period. The FG noted that its preliminary impressions were generally favorable but suggested that the walk-through might be too long given the scope of the LSRO’s responsibilities. The NRC staff acknowledged the FG’s concern.
 - With regard to the previous clarification (Issue #9) related to **engine room supervisor (ERS) and chief reactor watch (CRW) experience**, the representative from the Institute of Nuclear Power Operations (INPO) informed the NRC staff that he had contacted the Navy to obtain additional information about those watch stations’ job responsibilities. He noted that the ERS is actually comparable to the chief machinery watch on a surface ship and that the CRW supervises the primary side of one of the ship’s reactor plants. The FG supported keeping the CRW on the list of military watch stations considered equivalent to a licensed RO, even though CRWs are not qualified to stand watch in the reactor control room. The INPO representative indicated that his management is still considering whether to amend the National Academy guidelines.
 - The representative from INPO opened the discussion regarding the “**shelf life**” of the **Generic Fundamentals Examination (GFE)** (previous Issue #3) by suggesting that the “good for life” policy in Revision 8 of NUREG-1021 was adequate. He compared the GFE to the initial Engineer-In-Training (EIT) examination and indicated that professional engineers never have to retake a fundamentals examination after passing the EIT. The NRC staff pointed out that, apart from participating in licensed operator requalification programs, operators do not regularly review or use key fundamentals topics such as reactor theory and that the GFE topics are part of the initial licensing examination, which can only be waived for up to two years as specific in 10 CFR 55.47. The staff also noted that research on learning and forgetting suggests that operators would forget a fair amount of their GFE knowledge over two years and that INPO in 1997 had expressed concern about operating errors stemming from inattention to fundamentals training. To minimize unnecessary burden, the clarified Revision 9 proposal will give facility licensees the option of administering a previous GFE, to be selected at random from the NRC’s web site, as a means of demonstrating an applicant’s proficiency instead of requiring the applicant to retake a new, NRC-developed GFE. Although facility licensees could provide refresher training in any form they chose, including self-study, the FG indicated that licensees would feel obligated to provide classroom training because it would be unfair to expose an applicant to another examination based on self-study alone. The FG noted that they understand the staff’s position on the regulation and acknowledged that the proposed option will have minimal resource impact.

Other Issues

- As an update to an item discussed during the last meeting, the NRC staff reminded the FG that it expects to issue a revision to IP 71111.11 (the “**Licensed Operator Requalification Program**” baseline inspection procedure) within the next month. In order to maintain exam integrity, the revision will require inspectors to evaluate the written examination results for evidence of grade creep if more than half the questions on any examination are repeated from prior examinations in the same testing cycle. In response to the FG’s previous request, the NRC staff noted that the protocol for revising inspection procedures does not include the publication of draft revisions for industry and public comment.
- The NRC staff updated the FG on the status of the **LSRO license reactivation** issue, noting that a number of questions and answers (related to the timing, location, and level of supervision required when performing an under-instruction watch for the purpose of reactivating a license to supervise fuel handling activities) have now been posted on the NRC’s Operator Licensing Web Site. The staff also noted that the questions and answers were clarified, based on discussions during the previous meeting, to address the possibility of requesting a regulatory exemption if a facility can not conform with the regulations in spite of the allowances provided. The FG acknowledged that the allowances appear reasonable and sufficient, and the representative from Palo Verde noted that his facility may ask for an exemption so it can maintain active licenses for its fuel handlers.
- The NRC staff raised a new issue regarding the “**no-solo**” **license restrictions** that require a person capable of summoning assistance, and in some cases another qualified individual, to be present when an operator who does not meet the applicable medical standards is performing licensed duties. The staff indicated that a number of recent questions related to these license restrictions have prompted it to review the wording of the restrictions in an effort to clarify the requirements and reduce the burden on facility licensees. The staff noted that it is considering replacing the two-tiered approach with a single restriction that would require another qualified individual to be present when performing control manipulations and someone capable of summoning assistance to be present at all other times. The FG questioned how the restriction would be applied to senior operators supervising control manipulations but otherwise expressed no objections to the staff’s approach.
- The NRC staff briefly reiterated its expectations regarding **scenario-based and core performance testing**. The FG had no significant questions or comments.
- The NRC staff briefly reviewed some recent **changes to the license application** (NRC Form 398) and noted that a recent regulatory change will allow facility licensees to submit their applications (and other correspondence) electronically beginning in January 2004.

Industry Focus Group Issues

- The FG outlined an industry proposal to review and **revise the generic section of NUREG-1122**, “Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Pressurized Water Reactors,” to better reflect current licensed operator responsibilities. The project would involve the establishment of a working group to scrub the existing K/A statements and add new ones, as appropriate, and to develop a process for job incumbents (and others) to rate the importance of the resulting statements. Both the NRC and INPO

- staffs would be involved in the project, which could start as early as June 2004 and could someday be expanded to include the other sections of the K/A Catalog.
- The FG provided the NRC staff with a “heads up” regarding a **possible request to discontinue the shift technical advisor (STA)** as a separate job function. The FG noted that Section I.A.1.1 of NUREG-0737, “Clarification of TMI Action Plan Requirements,” states that the need for STAs may be eliminated when the qualifications of the shift supervisors and senior operators and the man-machine interface in the control room have been upgraded. The NRC staff responded that it has discussed this issue with INPO and is not sure that eliminating the position is justified, given the continuing need for someone with engineering expertise to stand back and monitor activities during plant transients.

Preliminary¹ Summary of SRO Examination Results
 For 15 Examinations Administered During Fiscal Year 2003
 Using Draft Revision 9 of NUREG-1021

	No. of Applicants	Average Grade	No. Failed	Pass Rate	No. Failed ¹	Pass Rate ¹
U-100	14	92.2	0	100.00%	0	100.00%
U-25 (All)	37	88.1	7	81.08%	4	89.19%
U-25 (Only)	23	86.4	7	69.57%	4	82.61%
I-100	45	87.8	2	95.56%	1	97.78%
I-25	45	83.7	4	91.11%	1	97.78%
SRO-25 Total	82	85.7	11	86.59%	5	93.90%
SRO-100 Total	59	88.9	2	96.61%	1	98.31%

Notes:

1. The results of one examination may change as a result of applicant appeals that are undergoing review. The two right-hand columns reflect the overall results if that examination is entirely excluded.
2. "U-100" refers to the 14 SRO-upgrade applicants who took the 75-question RO examination in addition to the 25-question SRO exam. The average grade is based on all 100 questions. All 14 applicants scored above 80% on the SRO-only questions and would have passed even if they had only taken the 25-question SRO exam.
3. "U-25 (All)" includes all 37 SRO-upgrade applicants' results on the 25-question SRO examination.
4. "U-25 (Only)" includes only those 23 SRO-upgrade applicants who did not take the 75-question RO examination. Only 1 of the failing applicants scored below a 70%; the other 6 would have passed if they had taken the 100-question examination.
5. "I-100" refers to the 45 SRO-instant applicants' overall results on the 100-question examination.
6. "I-25" refers to the 45 SRO-instant applicants' results on the 25-question SRO examination.
7. "SRO-25 Total" and "SRO-100 Total" combine the results for SRO-upgrade and instant applicants on the 25- and 100-question examinations.

e-[D.2.]b. Form ES-303-1, Category C The "Simulator"

Using Form ES-303-3 or ES-303-4, depending on the applicant's license level, and the following generic guidance, evaluate any deficiencies coded for Category C the simulator test to determine a grade for every applicable rating factor (RF) and competency. Circle the integral Rating value (1 through 3) corresponding to the behavioral anchor that most accurately reflects the applicant's performance. Keep in mind that the simulator test is generally graded based on competencies rather than consequences; every error that reflects on an operator's competence is considered equal unless it is related to the performance of a critical task (as determined in accordance with ES-301 and Appendix D).

- If there is no basis upon which to grade a rating factor (i.e., it is "not observed"), circle the "0" "Weighting Factor," enter an "RF Grade" of "N/O," and explain in accordance with Section D.3 below. Depending upon which RF is "N/O," circle the appropriate "Weighting Factor" for each remaining RF applicable to that competency; the "Weighting Factors" for each competency must always add up to "1." If more than one rating factor per competency or more than two rating factors overall are not observed, inform NRC regional office management and consult the NRR operator licensing program office to determine if the test supports a licensing decision. As discussed in ES-301, Competency 53 is optional for SRO upgrade applicants and may be scored as "N/O." However, the examiner shall evaluate Competency 53 if the applicant rotated into an operating crew position that required the applicant to manipulate the controls. If Competency 3 is graded, then RF 1.c shall be evaluated as "N/O."
- If an applicant performs activities related to a rating factor and makes no errors, circle an "RF Score" of "3" for that rating factor.
- If an applicant makes a single error related to a rating factor, circle an "RF Score" of "2" for that rating factor, unless the error was a critical task, in which case a score of "1" would be required. Missing one or more critical tasks does not necessarily mean that the applicant will fail the simulator test, nor does success on every critical task prevent the examiner from recommending a failure if the applicant had other deficiencies that, in the aggregate, justify the failure based on the competency evaluations.
- If an applicant makes two non-critical errors related to a rating factor, circle an "RF Score" of "1" for that rating factor unless a score of "2" can be justified (and documented as discussed in Section D.3 below) based on correctly performing another activity (or activities) related to the same rating factor; three or more non-critical errors generally require a score of "1," regardless of the applicant's compensatory actions **unless they relate to Competency 4, "Communications and Crew Interactions."** **Multiple non-critical errors associated with any of the Competency 4**

rating factors can be aggregated as a "RF Score" of "2" if none of the individual errors prevented the proper performance of any of the validated required operator actions identified on Form ES-D-2, "Required Operator Actions." For example, an SRO applicant who failed to properly complete the last leg of the facility licensee's "3-way" communication process three or more times during his or her examination scenarios can be assigned a "RF score" of "2" for rating factor C.4 (c) if none of these errors resulted in missing or mis-performing of a required operator action according to Form ES-D-2. Note that three or more aggregated non-critical errors with no effects as described above shall be combined with any additional non-critical errors that have an effect on any of the Form ES-D-2 required operator actions and result in a "RF score" of "1." A rating of "1" would be justified if the applicant missed a critical task (i.e., by omission or incorrect performance) or committed multiple errors of lesser significance that have a bearing on the rating factor.

Multiply each integral rating value "RF Score" by its associated "Weighting Factor" to obtain a numerical measure ("RF Grade") of the applicant's performance on each rating factor. Then, circle the corresponding numbers (or "N/O," as appropriate) on page 3 of the RO or SRO applicant's Form ES-303-1.

For each competency on page 3 of Form ES-303-1, sum the circled rating factor grades and enter the resulting competency grade in the "Total" designated column. (The grades should range between 1 and 3.)

Using the following evaluation criteria, determine if the applicant's overall performance in Category C on the simulator test is satisfactory or unsatisfactory and document the grade by placing an "S" or a "U" in block C, the "Simulator Operating Test" "Integrated Plant Operations" block of in the "Operating Test Summary" on page 1 of Form ES-303-1. Enter "W-N/E" if this category part of the operating test was waived in accordance with ES-204.

- If the "total" grade for *all* competencies is greater than 1.8, the applicant's performance is generally satisfactory.
- **If the "total" grade for Competency 64, "Communications and Crew Interactions," is less than or equal to 1.8 but greater than 1.0, and the individual "total" grades for all other competencies are 2.0 or greater, the applicant's performance is satisfactory.**
- If the "total" grade for **Competency 64 is 1.0, or the "total" grade for any other** competency is 1.8 or less, the applicant's performance is **generally** unsatisfactory.

Note: Competency 53, "Control Board Operations," is optional for SRO upgrade applicants. However, if it is evaluated, it shall be factored into the applicant's final grade.

Document and justify every deficiency in accordance with Section D.3.

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