September 20, 2001

MEMORANDUM TO: Cynthia A. Carpenter, Chief
Risk Informed Initiatives, Environmental, Decommissioning,
and Rulemaking Branch
Division of Regulatory Improvement Programs, NRR

FROM: Peter C. Wen, Project Manager**/RA/**
Risk Informed Initiatives, Environmental, Decommissioning,
and Rulemaking Branch
Division of Regulatory Improvement Programs, NRR

SUBJECT: SUMMARY OF AUGUST 16, 2001, MEETING WITH THE NUCLEAR ENERGY INSTITUTE REGARDING OPERATOR LICENSING ISSUES

On August 16, 2001, the NRC staff participated in a public meeting with the Nuclear Energy Institute (NEI) in their offices at 1776 I Street (NW), Washington, DC, to discuss issues related to the implementation of Revision 8 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." Attachment 1 lists attendees at the meeting.

This was the latest in a series of public "focus group" meetings intended to promote the efficient, effective, and consistent preparation and administration of initial operator licensing examinations now that facility licensees are preparing approximately 75 percent of those examinations for NRC review and approval in accordance with 10 CFR 55.40. The meeting focused primarily on the status of outstanding issues that had been raised during prior meetings, the last of which was held on February 9, 2001. (Refer to ADAMS Accession Number ML010720244 for a summary of that meeting). The issues discussed during the meeting are summarized in Attachment 2, and the handouts that were distributed are provided as Attachments 3 through 6.

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

Attachments: As stated
cc w/atts: See next page

September 20, 2001

MEMORANDUM TO: Cynthia A. Carpenter, Chief
Risk Informed Initiatives, Environmental, Decommissioning,
and Rulemaking Branch
Division of Regulatory Improvement Programs, NRR

FROM: Peter C. Wen, Project Manager**/RA/**
Risk Informed Initiatives, Environmental, Decommissioning,
and Rulemaking Branch
Division of Regulatory Improvement Programs, NRR

SUBJECT: SUMMARY OF PUBLIC MEETING WITH NEI REGARDING
OPERATOR LICENSING ISSUES

On August 16, 2001, the NRC staff participated in a public meeting with the Nuclear Energy Institute (NEI) in their offices at 1776 I Street (NW), Washington, DC, to discuss issues related to the implementation of Revision 8 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." Attachment 1 lists attendees at the meeting.

This was the latest in a series of public "focus group" meetings intended to promote the efficient, effective, and consistent preparation and administration of initial operator licensing examinations now that facility licensees are preparing approximately 75 percent of those examinations for NRC review and approval in accordance with 10 CFR 55.40. The meeting focused primarily on the status of outstanding issues that had been raised during prior meetings, the last of which was held on February 9, 2001. (Refer to ADAMS Accession Number ML010720244 for a summary of that meeting). The issues discussed during the meeting are summarized in Attachment 2, and the handouts that were distributed are provided as Attachments 3 through 6.

Attachments: As stated
cc w/atts: See next page

DISTRIBUTION: See attached page
Document Name: g:\rgeb\pcw\msum0816.wpd
*See Previous Concurrence

OFFICE	RGEB	SC:IOHS/DIPM	BC:IQPB/DIPM	SC:RGEB
NAME	PWen*	DTrimble*	TQuay	SWest
DATE	09/13/01	09/18/01	09/20/01	09/20/01

OFFICIAL RECORD COPY

List of Attendees - NRC / NEI Meeting August 16, 2001	
Name	Organization
Richard Conte	NRC/RI
Guy Bruner	INPO
Jeff Hansen	Exelon
Dave Trimble	NRC/HQ
Ted Quay	NRC/HQ
Bill Dean	NRC/HQ
George Usova	NRC/HQ
Mike Ernstes	NRC/RII
Fred Guenther	NRC/HQ
John Munro	NRC/HQ
Tony Gody	NRC/RIV
David Hills	NRC/RIII
Fred Riedel	APS.
Hironori Peterson	NRC/RIII
Gregg Ludlam	CP&L
Jim Davis	NEI
Peter Presby	Comanche Peak
Ivan Kingsley	Sonalysts
Charles Sawyer	Duke Energy
Don Jackson	PSEG Nuclear
Dale Powers	NRC/RIV
Kerry Wright	NAESCo
Brian Haagensen	PSHA, Inc.
Mike DeFrees	STPNOC
George Thullen	NMC/Duane Arnold
Chuck Sizemore	NMC PBNP/KNPP
Robert Evans	NEI

ATTACHMENT 1

Operator Licensing Meeting With NEI on August 16, 2001	
Agenda Item	Discussion Summary
1. NUREG-1021 Clarifications / Feedback	- The NRC staff explained the additional examination development guidance that was posted on the operator licensing web site in June 2001. The guidance clarifies the staff's expectations regarding the elimination of randomly selected knowledge and ability (K/A) statements that the examination author believes to be inappropriate for testing at the facility. The industry representatives had no specific comments regarding the new guidance, but they concurred that it should ease the burden of having to document rejected K/A statements. - The industry representatives raised a new issue regarding the distribution of K/As on the written examination. They questioned the extent to which the importance and number of K/As related to a particular system or evolution were factored into the design of the standardized written examination sample plans in Section ES-401 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." They stated their view that the current sampling process often over-emphasizes certain topics (e.g., radiological waste and radiation monitoring) and that the author then has to explain any modifications to the NRC. The industry representatives agreed to develop a proposal for a "stratified random sampling process" that could reduce the necessity for manual intervention. - The industry representatives questioned whether the NRC was planning to clarify its expectations regarding peer-checking during the operating test. The NRC staff briefly summarized its current thinking on this issue (essentially that an applicant would be held accountable for an imminent error even if it was detected and prevented by a peer-checker) and indicated that the final policy would be posted on the guidance page of the operator licensing web site as soon as possible.
2. Industry Experience Since the Last Meeting	- The NRC staff distributed and briefly discussed a graph (Attachment 3) that summarizes reactor operator performance on the written licensing examination from 1994 through 2000. The staff noted that since approximately 85% of the examinations have no failures, it generally looks pretty closely and objectively at those exams that do have a high failure rate in an effort to determine if the examination was at fault. The staff acknowledged that some utilities have done very good root cause analyses that have often found multiple contributors to the applicants' poor performance. In some cases it appears that the applicants were simply not prepared for the higher cognitive level (application) questions that make up 50-60% of the examination, and, for various reasons, facility licensees sometimes allow applicants to take the NRC licensing examination despite their marginal or unsatisfactory performance on the facility licensee's audit exam. - The industry representatives acknowledged that a high failure rate on the NRC licensing examination is generally not indicative of a problem with the examination. They noted that it is getting harder to find highly qualified license candidates and that, although facility licensees are pretty successful overall at screening candidates, sometimes their decision-making regarding candidate screening could be improved. - The industry representatives' comments regarding the written examination were generally positive.

Agenda Item	Discussion Summary
3. Proposed Long-Term Examination Options	- The NRC staff indicated that is continuing to evaluate a number of enhancements for the initial written examination and operating test, with goals of maintaining exam validity and fairness while reducing unnecessary regulatory burden. The staff noted that it wanted to share its preliminary thoughts and gauge the industry's interest but cautioned that NRC management has NOT approved any of the possible changes discussed during the meeting. - With regard to the initial written examination: (1) The NRC staff reported that informal feedback on the possibility of developing a common examination for operator (RO) and senior operator (SRO) applicants, which was mentioned during the previous public meeting in February 2001, has not been positive. The industry representatives confirmed that such a change would likely be unacceptable to facilities with operator bargaining units, but they noted that it might be worth implementing on a voluntary basis. (2) The NRC staff indicated that it is considering the possibility of decreasing the length of the RO exam from 100 to 75 questions, which will save resources for both the NRC and the industry without sacrificing validity or fairness. SRO applicants would take the RO exam plus a separate 25 question exam focused on the additional topics required by 10 CFR 55.43. Details regarding the SRO exam sampling guidelines, bank use, grading, waivers, and retakes have yet to be determined. The industry representatives expressed tentative interest in the concept and agreed to discuss and consider it further among themselves before the next focus group meeting. (3) An industry representative inquired whether Option 3 (an earlier industry proposal under which utilities would prepare and administer the exams without prior NRC review) is dead. The NRC staff responded that it is concentrating on refining the current examination process as recommended in NEI's letter dated June 6, 2001 (Accession No. ML 011720017), and that the industry would have to submit a petition for rulemaking if it is serious about pursuing that option. - With regard to the operating test: (1) The industry representatives reiterated their concerns regarding the administrative category of the walk-through (e.g., its perceived artificiality and the difficulty of preparing a valid test given changes in the operators' job function) and recommended that it be rolled into the written examination, subsumed in the systems category of the walk-through, or eliminated altogether. The NRC staff responded that the first and third options would not be possible given the requirements of 10 CFR 55.45, but acknowledged that it is giving serious consideration to the possibility of combining the two walk-through categories. The staff noted that details regarding the number (10 - 15), distribution (admin vs systems for RO and SRO applicants), and grading of test items in a combined walk-through have yet to be resolved. (2) In connection with the industry's desire to combine the administrative and systems categories of the walk-through, the NRC staff indicated that it needs to preserve the overall discriminatory validity of the operating test and that it plans to do more work on an integrated proposal that may include enhancements to the simulator operating test (e.g., reassessing some of the rating factors) as well as the walk-through. (3) Pending resolution of these issues, the NRC staff sought the industry representatives' feedback regarding the following administrative category enhancements that might be possible in the shorter term: increasing flexibility by eliminating the requirement to test every applicant on all four administrative topics; improving reliability by using five job performance measures (JPMs), with no prescripted questions, to test the administrative topics; and instituting more objective grading criteria with a straight 80% cut score for the five administrative JPMs. The industry representatives agreed to consider the staff's proposal before the next focus group meeting.

Agenda Item	Discussion Summary
4. Generic Fundamentals Examination (GFE)	- The NRC staff opened the discussion by summarizing the GFE results over the last ten years (23 examinations) and noting that the stability of those results are indicative that the level of difficulty of the examinations has not increased. The staff acknowledged that the number of higher cognitive level questions has probably increased over time, but noted that access to the examination question bank (which is now available on the NRC's web site) offers a powerful advantage and that the average grades may actually improve as a result. The staff further noted that the scores are highly predictable and that well-trained applicants should have no difficulty passing the exam in light of the 80/10/10 distribution of bank, modified, and new questions. Copies of the associated slides and handouts are provided as Attachments 4 and 5. - The NRC contractor who has prepared the GFEs since the inception of the program presented an overview of the exam development and validation process in an effort to address the industry's concern that an increasing number of questions require the GFE candidates to have more than a basic understanding of plant system design and operation. Copies of the associated slides and handouts are provided as Attachment 6. The NRC staff noted that the industry's training standards for non-licensed operators (the primary source of GFE candidates) require a level of system knowledge that should be more than adequate for success on the GFE. - The industry representatives continued to voice their opinion that the GFEs have become more difficult over time, thereby causing facility licensees to spend more resources to sustain the level of performance on the exams. They suggested that the stable results are misleading because they fail to account for the fact that facility licensees screen out those candidates who are unlikely to do well on the examination. However, the industry spokesperson did not provide any factual data to support their views. The industry representatives also stated their belief that the GFE is a "moving target" because the NRC is writing many of the new questions at cognitive levels that exceed the literal wording of the K/A statements around which facility licensees have designed their GFE training programs. They indicated that they would like the NRC to focus more on the knowledge level of the exam rather than its outcomes, to apply some of the initial exam review criteria (e.g., Form ES-409-9) to the GFE, and to give facility licensees the opportunity to review the exams before they are given. The NRC acknowledged the industry's concerns and agreed to continue evaluating this issue and to provide additional feedback during the next focus group meeting.
5. Reactivity Manipulation Rule Change Update	- The NRC staff indicated that the final rulemaking is before the Commission and that it has no reason to believe that it will not be approved. - The NRC staff also noted that, as authorized by the Commission, it has informed a number of utilities in writing that exemptions would be issued when the license applications are received. Those exemptions would authorize applicants to perform the 5 reactivity manipulations required by 10 CFR 55.31(a)(5) on a simulator. However, to date, no actual exemptions have been requested.
6. National Examination Bank Status	- The representative from the Institute of Nuclear Power Operations (INPO) reported that there are currently about 18,000 questions in the bank. When he noted that the questions are not always linked to a K/A statement, the NRC staff indicated that it would continue its efforts to ensure that all the questions that are made available to INPO include a K/A reference. - The NRC staff reported that it is trying to resolve some software issues that have limited the bank's usefulness to NRC examiners. When the NRC staff enquired whether facility licensees are finding the bank useful, one facility representative indicated that they have successfully used the bank as a source of ideas for developing new site-specific questions.

GFE DATA

Data from June 1992 - June 2001

- **23 exam administrations**
- **4000+ applicants**

	BWR	PWR
Overall Mean Score	**89.4**	**90.2**
Bank Item Score	**93.4**	**94.4**
Modified Item Score	**87.0**	**87.9**
New Item Score	**76.8**	**75.8**

GFE SCORE PERFORMANCE IS HIGH

Data show that well-trained applicants have little or no difficulty passing the overall exam.

Some facts:

In the two most recent exams,

6/01: 47% of BWRs scored 95 or higher
29% of PWRs scored 95 or higher.

2/01: 33% of BWRs scored 95 or higher
37% of PWRs scored 95 or higher.

80-10-10 APPROACH

Other consideration regarding difficulty:

- **80% of all items are derived from the published bank, resulting in high applicant predictability of examination coverage.**

- **Applicants have 100% predictability that 80% (80 items) on any given exam will appear verbatim from the bank.**

- **Bank study can be good and can result in two ancillary benefits:**

  Broader and deeper learning of the content body of knowledge and

  Reduced applicant stress in exam study and preparation.

DATA AND PREDICTABILITY OF SCORES

Data show that the average applicants have little or no difficulty passing the GFE .

The average mean bank score is 93%.

- **Thus, the average applicant has a predictable score of 74 (80 x .93 = 74) going into the exam.**

Of the remaining 20 items, 10 are modified items drawn from the bank.

The average mean modified items score is 87%.

- **Thus, the average applicant has an 8 additional items**
  (10 x 8.7 = 8.7) going into the exam.

Conclusion:

The average applicant has a score of 82% (74+8 = 82) going into the exam.

cc: Mr. Ralph Beedle
Senior Vice President
and Chief Nuclear Officer
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Jim Davis, Director
Operations
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Robert Evans
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Distribution: Mtg. Notice w/ NEI Re Operator Licensing Issues Dated
ADAMS-PUBLIC
IOHB R/F
RGEB R/F
OGC
ACRS
PWen
S Guenther

Email
S. Collins/J. Johnson
W. Borchardt
B. Sheron
D. Matthews/F. Gillespie
C. Carpenter/S. West
B. Boger/W. Dean
T. Quay/D.Trimble
J. Shea, OEDO
R. Conte, RI
M. Ernstes, RII
D. Hills, RIII
D. Powers, RIV
T. Gody, RIV