



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

MAY 17 1994

MEMORANDUM FOR: Bruce Boger, Director  
Division of Reactor Controls  
and Human Factors, NRR

FROM: Robert M. Gallo, Chief  
Operator Licensing Branch  
Division of Reactor Controls  
and Human Factors, NRR

SUBJECT: MEETING WITH NUCLEAR ENERGY INSTITUTE (NEI)  
REGARDING OPERATOR LICENSING KNOWLEDGE AND  
ABILITIES CATALOG REVISIONS

The subject meeting was conducted on Wednesday, May 11, 1994 at the NEI offices. The Staff opened the meeting and provided explanatory discussions of the following topics:

- the Knowledge and Abilities (K/A) catalogs revision project
- integration of the K/A catalogs with the NRC's Examination Question Bank
- plans for K/A catalog revision workshops in August
- release of a supplement to NUREG-1021, Examiner Standards

K/A catalog revision discussions were based on the attached NEI comments to the project preliminary technical letter report.

PARTICIPANTS:

|                 |             |
|-----------------|-------------|
| <u>NRC</u>      | <u>NEI</u>  |
| D. Lange, NRR   | R. Whitesel |
| F. Collins, NRR | R. Evans    |
| J. DeBor, SEA   |             |

A handwritten signature in cursive script, appearing to read "Robert M. Gallo".

Robert M. Gallo, Chief  
Operator Licensing Branch  
Division of Reactor Controls  
and Human Factors, NRR

MEMORANDUM FOR: Bruce Boger, Director  
Division of Reactor Controls  
and Human Factors, NRR

MAY 16 1994

FROM: Robert M. Gallo, Chief  
Operator Licensing Branch  
Division of Reactor Controls  
and Human Factors, NRR

SUBJECT: MEETING WITH NUCLEAR ENERGY INSTITUTE (NEI)  
REGARDING OPERATOR LICENSING KNOWLEDGE AND  
ABILITIES CATALOG REVISIONS

The subject meeting was conducted on Wednesday, May 11, 1994 at the NEI offices. The Staff opened the meeting and provided explanatory discussions of the following topics:

- the Knowledge and Abilities (K/A) catalogs revision project
- integration of the K/A catalogs with the NRC's Examination Question Bank
- plans for K/A catalog revision workshops in August
- release of a supplement to NUREG-1021, Examiner Standards

K/A catalog revision discussions were based on the attached NEI comments to the project preliminary technical letter report.

PARTICIPANTS:

|                 |             |
|-----------------|-------------|
| <u>NRC</u>      | <u>NEI</u>  |
| D. Lange, NRR   | R. Whitesel |
| F. Collins, NRR | R. Evans    |
| J. DeBor, SEA   |             |

Original signed by:  
Robert M. Gallo

Robert M. Gallo, Chief  
Operator Licensing Branch  
Division of Reactor Controls  
and Human Factors, NRR

DISTRIBUTION:

A. Mendiola  
OLB R/F  
PDR  
Central Files  
NRC Participants

RETURN TO REGULATORY CENTRAL FILES

| OFFICE   | HOLB/DRCH   | HOLB/DRCH   | HOLB/DRCH   |
|----------|---|---|---|
| NAME     | FCollins:rc/fc  | DLange  | RGallo  |
| DATE     | 5/17/94   | 5/17/94   | 5/17/94   |
| COPY DOC | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |

04M-7-NUMARC/NEI  
X-04M-6-meetings

OFFICIAL RECORD COPY Document Name: G:\COLLINS\NEIMTG.511

260031 9405270266

DF03



NUCLEAR ENERGY INSTITUTE

April 1, 1994

Mr. Joseph F. Collins  
Senior Nuclear Engineer  
Human Factors Assessment Branch  
U.S. Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

Dear Mr. Collins:

Enclosed please find industry comments on the preliminary technical letter report titled, "Project to Review the Knowledge and Abilities Catalogs."

The report was provided to the industry in February for its review and comment, as well as to members of the NUMARC Working Group on Operator Issues. The working group is comprised of operations and training professionals that provided both a corporate and a plant perspective in the review.

There is a clear industry consensus for not changing the Knowledge and Abilities (K/A) Catalogs. The industry feels that the cost/benefit ratio is not sufficiently compelling to institute a program of change. However, there are some items in the preliminary report which a majority of respondents believe are potential candidates for cost-effective action should the revision cycle move forward. These items include:

- The referencing of 10 CFR 55 items to the K/As;
- The deletion of non-nuclear safety K/As from the plant-wide generic K/As;
- Add anticipated transient without scram mitigation system actuation circuitry for PWRs (AMSAC) task; and
- The revision of the examiners' handbook to reflect the actual methodology used by the job incumbents.

~~94-150047~~  
APP.

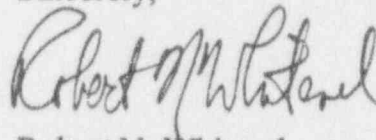
Mr. Joseph F. Collins

April 1, 1994

Page 2

We appreciate the opportunity to provide comments on the preliminary report. We are available to discuss our comments or other related issues at your convenience. If you have any questions, please call Bob Evans or me.

Sincerely,



Robert N. Whitesel  
Manager  
Operations, Management and  
Support Services

RNW/RCE/ec  
Enclosures

**INDUSTRY COMMENTS ON FINDINGS AND RECOMMENDATIONS  
FOR THE REVISION OF NRC KNOWLEDGE/ABILITIES (K/A)  
CATALOGS (NUREGs 1122 and 1123)**

**GENERAL COMMENTS:**

1. The industry has a mature training and examination system in place. The existing K/A Catalogs have been, and continue to be, adequate yardsticks for ensuring that industry-generated examinations are tied to the knowledge and skills appropriate to the licensed position requirements. Having reviewed the report, there is no identified value added in making any changes. The K/A Catalogs should not be changed.
2. Some of the NRC proposed revisions go beyond the scope of the current operator license exams and enter the position description area for positions such as shift supervisor. The NRC proposes adding a number of "higher level skills" to the K/A Catalogs, yet the items listed are virtually all administrative topics and could result in de-emphasizing areas important to health and safety. Approximately 60 percent of the examiners in your survey indicate that the current catalogs provide sufficient information in the area of "higher level skills." We agree that the K/A Catalogs are sufficient in these areas.
3. The K/A Catalog is the basis for and is specifically referenced in nearly all training and exam material used in the operations training area. The proposed revisions and addition of new requirements will have a dramatic impact on operations training programs and their support materials. This additional scope will require new materials to be developed which will go beyond the job scope of many utility operators. The scope increase will require extension of industry training and qualification programs, as well as operator examinations, at significant cost with no direct benefit or value added.
4. Many of the proposed modifications can be addressed using the existing K/A Catalog system. There is no need for the K/A Catalog to specifically address every single item that can be conceived. Job Task Analysis (JTA) fills in and expands in areas that are not specifically addressed in the K/A Catalog. This has been and still is a very viable methodology to specify industrywide knowledge and abilities.

5. Most utilities have integrated the current format of the K/A Catalogs into their training information management systems. The proposed major reformatting and renumbering of the catalogs would result in unnecessary effort and cost. A more appropriate revision methodology would minimize unnecessary utility resource expenditure, clearly identify deletions from the catalogs, and identify new items for inclusion in the catalogs.

#### **SPECIFIC COMMENTS ON THE FINDINGS/RECOMMENDATIONS:**

*[NOTE: There are several instances in the following specific comments where there is a difference of opinion. We chose to show the dichotomies because they reflect the same lack of unanimity observed in your survey of license examiners.]*

#### **Finding 1:**

##### Recommendation 1

This would add a new section with K/As for items covered in 10 CFR 55.43(b) which governs written examinations for SRO's. Rather than make it generic, make it more specific in the areas of the FSAR. Licenses would have to go through all their training material to address these new items and it would probably require them to develop new lesson material for the FSAR.

##### Recommendation 2

Cross referencing the K/As to the requirements of the appropriate sections of the Code of Federal Regulations (CFR) is an excellent idea. If implemented, this suggestion will make it simpler for utilities to regularly construct exams which meet the respective sections of the CFR.

**Finding 2:**

Recommendation 1

This would denote which type of examination the K/A was intended for. In some cases this could be of some benefit, but it could also generate considerable work for utilities with computerized training material and test management systems with no substantial benefit.

Recommendation 2

This would add supplements for areas lacking in support of NUREG-1021 in order to select topics for initial examinations. This does not appear to be of any potential benefit; it will, however, create a substantial amount of work.

Recommendation 3

This would add an electronic version of the catalog for each type of test based on Recommendation 2 above. This has the potential to "wipe out" the work that has been done in referencing all the sites' questions.

**Finding 3:**

Recommendation 1

This would delete non-nuclear safety K/A's from the Plant-Wide Generic K/A's and add new K/A's. This would generate a requirement for very little work and might prove helpful.

Agree with proposed change, considering that most, if not all, of these items are already being tested on initial exams.

**Finding 4:**

Recommendation 1

This would completely reorganize the structure (format) of NUREG-1122. If the numbering system is changed, licensees would have to discard all work done in

cross referencing to NUREG-1122. Even if a cross reference from old to new were provided, it would require a significant amount of work.

Recommendation 2

There are format problems. (The following comments were submitted by a single utility:)

- a) The separation of "Systems" into "Task Modes" is not needed. When the Job Analysis is done, and the tasks are identified, there is no need to try to "pigeon hole" the task. It doesn't matter if the task starts up the system or changes the mode of the system, the tasks requirements won't change.
- b) Separation of Knowledge and Abilities into "Topics" is not needed. This would be especially true if we followed Findings 1B and 8 recommendations to link with the 10 CFR 55 items.
- c) Task and Knowledge and Abilities must be linked. In this industry we train and learn tasks. We must know which knowledge and which ability is linked to which task(s) in order to train/learn/test these tasks properly.

**Finding 5:**

Recommendation 1

This would add new system/areas to the K/A Catalog and delete the BIT. This could be very helpful to us. Also add K/A for loss of annunciators.

**Finding 7:**

Recommendation 1

The K/A Catalog needs also to address operating tests for NUREG-1021 sections 603 and 604 for requalification examinations.



## Finding 8:

### Recommendation 1

This would eliminate the importance ratings for all K/A's and replace them with applicability for RO/SRO and which type of examination process. Several utilities now have the ability to increase the importance factors in areas they feel are important, based on LER's, NRC findings, etc. This recommendation could adversely affect this important flexibility by having pre-specified items become a requirement.

Importance factors (ratings) must be used to ensure content validity of the test items - to discriminate between critical and trivial test items.

The proposal to eliminate the importance numbers should be rejected. The description used on page 12 of the report regarding use of the importance number is misleading. K/As with an importance of less than 2.5 can be used if they can be linked to a significant event at the utility (ref. NUREG/BR 0122). A number of plants have used this logic to develop test items on modifications, station events, and LERs.

The difference between importance numbers in the catalog is consistent with the trend that appears during analysis conducted at individual plants. It is true that there are certain K/As that are SRO-only items. Due to the expanded knowledge base and greater responsibility that an SRO has compared to an RO, it is not unusual for the SRO K/As to include technical specifications and design implications when rating an item. The K/As for ROs are generally limited to the actual system or plant response.

The importance numbers, although subjective, are the result of a systematic process used by the NRC to define the scope of the SRO and RO jobs. The Systems Approach to Training required by the Waste Policy Act of 1982 postdates the 14 essential items listed in 10 CFR 55.41. One could argue that even though 10 CFR 55.41 does not indicate that there is a difference in knowledge requirements, actual interviews with subject matter experts from industry and the NRC, indicates that there are indeed differences. The importance numbers are an aid to both the utility and the NRC when trying to define what that difference is.

The K/A ratings seem to have a limited value and suggestions for alternate information seem to be appropriate. However, it is not clear whether the

insignificant K/A items will be deleted from the catalog. The recommendation could be interpreted to mean that only the rating numbers would be eliminated, leaving the insignificant items in the catalog without any method of distinguishing them from the significant items. The insignificant items should be deleted from the catalog along with the K/A ratings.

**Finding 9:**

Recommendation 1

The handbook should be eliminated, provided all information dealing with constructing the exam and exam items is included in the catalog. This document is used to construct utility exam items.

Recommendation 2

The handbook should reflect the actual methodology being used by the job incumbents. This will help obtain consistency in the examination process.

**Finding 12:**

Recommendation 1

Changes to K/A numbering scheme will have a significant effect on licensee training material in many cases because exam banks are cross referenced to the K/A Catalog. In previous years, NRC examiners have used the exam bank to construct license exams. The NRC examiners were able to electronically sort questions by K/As to fill in missing areas required by the SkyScraper program. The revision of the training material to reflect a significant change in the numbering scheme will be difficult. This will have a significant impact on those utilities that use the catalogs to construct exams that meet the intent of NUREG-1021.

## GENERAL QUESTIONS:

During the review of the report, assuming the NRC does make the changes, the following questions were noted:

1. Will the industry receive an electronic version of the revised NUREGs 1122 and 1123 with cross-references? If so, what are the hardware requirements to run this software?
2. Will the K/A numbers be changed? If so, will the industry receive a data base cross-reference to convert old K/A numbers to the new K/A numbers?
3. When will the industry be expected to implement the revised NUREGs 1122 and 1123? Will the revision impact 1994 examinations?
4. When will the NRC-conducted workshops on the revision be held? The effective date of the revision should allow the industry sufficient time to implement necessary changes following the workshop.
5. What is the NRC estimated man-hours impact on the industry to implement the revised NUREGs 1122 and 1123?