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WGC-80-G-623

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

Northeast Utilities has reviewed NUREG/CR-1280, "Power Plant Staffing" prepared by Basic Energy Technology Associates. We understand that the NRC is reassessing its requirements regarding the selection, training, and licensing of personnel involved in the operation and maintenance of licensed nuclear power plants. The subject report has been issued to solicit industry comments that will be considered in the development of new requirements or guidance.

As an operator of three nuclear power units, and a strong supporter of the Institute of Nuclear Power Operations (INPO), Northeast Utilities has a vital interest in participating in the development of any new requirements for plant operating and maintenance personnel.

The following comments are offered for your consideration. We recognize that the initial 30-day comment period has expired, but we were unable to complete our review earlier.

A. General Comments

The Preface of the subject report states:

> "This report outlines the results of a comparative review of current NRC requirements, licensed nuclear power plant practices and the Naval Nuclear Propulsion Program procedures for the selection, training and qualification of personnel involved in nuclear plant operation and maintenance."

The information on the Naval Program is said to have been extracted from the "Statement of Admiral H. G. Rickover, USN, Director, Naval Nuclear Propulsion Program, before the Subcommittee on Energy Research and Production of the Committee on Science and Technology, U. S. House of Representatives, May 24, 1979."

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The comparison with industry practice was based on a review of documents from three nuclear utility companies. No visits to utility nuclear power plants weremade, and it acknowledged that, ". . . recognition should be given to the limited coverage of this aspect of the review. . ."

We believe that the depth of the details of the Naval Nuclear Propulsion Program (NNPP) as produced by Admiral Rickover's statement, coupled with the author's own years of experience in the NNPP, are sufficient to document these activities with an acceptable degree of reliability.

However, we are particularly concerned with the depth of the review of the nuclear industry program. To limit the review to certain documents, without benefit of conversation with nuclear plant management or interviews with operating and maintenance personnel, leads, in our view, to a superficial appraisal of the industry practice. This belief is at least partially held by the author in his acknowledgement of the ". . . limited coverage of this aspect of the review . . ."

In view of the superficial nature of the review of the nuclear industry program, and numerous statements which are unsubstantiated or clearly in conflict with our understanding of the industry program, we urge that extreme caution and screening be imposed before accepting the information in the sections of the report titled, "Industry Practice" and "Differences (from the NNPP)". In latter paragraphs of this letter specific examples are given which highlight our concern.

Another aspect of the report that we view with concern is the apparent premise that the NNPP is superior to the utility nuclear program. While we consider the NNPP to be an excellent program, it must be recognized that it has had shortcomings and some major failures. Also, due to classification restrictions that are large gaps in our knowledge of the program which precludes us from judging its overall comparative success. We have noted that whenever differences are found between the NNPP and the utility nuclear program, recommendations are formulated to bring the utility nuclear program into conformance with the NNPP. We seriously question the wisdom of this approach. We find that a sound basis for this is lacking. We believe that a more balanced approach is called for, one which evaluates the elements of the NNPP program, selecting those which appear to be superior, investigating the implementation to ascertain if they are truly effective in improving reliability and safety, and finally recommending only those which would clearly enhance the reliability and safety of the commercial utility nuclear program.

It appears to us that another shortcoming of the study is the failure to recognize the significant differences between the operating environment at a civilian nuclear power plant and that on a military vessel "at sea". Cognizance of this difference would render many of the program comparisons mute. For example, in many of the situations encountered in the NNPP, being "at sea" is implicitly an emergency situation, empowering the commanding officer with increased authority and almost unlimited availability of the on-board personnel. Rarely is written headquarters approval feasible to authorize emergency action until return to port, and frequently radio silence imposed for tactical reasons, may preclude any communication whatsoever.

Further, there are numerous paragraphs throughout the report that demonstrate a serious lack of understanding of Nuclear Regulatory Commission (NRC) regulations concerning a utility quality assurance program, and the utility program which is developed and implemented to meet these requirements. Nor is there any apparent familiarity with the Inspection and Enforcement Office of the NRC which inspects, audits, surveils, and otherwise assures itself that the NRC regulations and the utility program and procedures are being met. For example, one of the recommendations state:

> "Amend 10CFR50.34 to include a requirement that the applicant have . . . a procedure which covers the performance of . . . maintenance of . . . safety related systems."

The requirement for instructions and procedures to control safety related activities is already covered in 10CFR50 Appendix B, Criteria V. Also, another recommendation states:

> "10CFR50 Appendix B already requires the applicant to verify by audits the effectiveness of his quality assurance programs, including maintenance. NRC should periodically check the applicant to determine if he is, in fact, conducting these audits . . ."

It is generally known that the NRC Office of I&E conducts periodic audits to determine licensee compliance with 10CFR50 Appendix B Criterion XVIII.

As a final General Comment, we would like to express our dismay that the many requirements issued to licensees and applicants since the Three Mile Island accident have not been incorporated into the report. Nor does the report include the great strides the industry has made in upgrading and increasing plant personnel. Scant mention is made of the Institute of Nuclear Power Operations (INPO) and then only an expression of negativism:

> "It is important that the relationships which will be established between NRC, INPO and the industry be such that its net result is to operate reactors safely and not one of creating another organization which could cloud the issues."

B. Specific Comments

The following comments address specific paragraphs and statements throughout the report.

1. Maintenance Personnel, Page 5, Paragraph IV.A.

NU Comment

The list provided is construction craft or task oriented. A single job title may encompass several of the tasks identified.

Qualification lists stress craftlines as construction work is performed. This is not desirable for operating plants where it is essential to have people who are qualified to, and can perform, multiple tasks.

2. Maintenance Personnel, Page 10, Paragraph IV.D.1.a.

NU Comment

We agree that some technicians should undergo extensive training in theory, systems, and reactor safety as well as the general employee training (i.e., I&C Technician). However, we believe specifying a minimum 12 weeks of training is unnecessary and undesirable. The training should be set up to satisfy training objectives and as long as it does, the time frame is irrelevant. Certification by the utility could satisfy this concern.

Training for mechanical maintenance should include less extensive amounts of theory, systems, and reactor safety training. Licensing of mechanics is not necessary or desirable; from an industry standpoint, it may tend to drive away competent and qualified maintenance personnel who can find jobs elsewhere without the problems of licensing.

We do not believe HP/chemistry technicians must be licensed reactor technicians. However, training and certification of their competency as HP/chemistry technicians is appropriate.

3. Maintenance Personnel, Page 10, Paragraph IV.D.1.c.

NU Comment

The basis for requiring at least three years of experience in the trade skill involved is not clear, since the Navy typically commences using nuclear trained personnel in as little as a year and a half. The Navy system, in effect, has a number of levels of qualification which allows personnel to qualify in a succession of positions with progressively increasing levels of responsibility. It is generally accepted that personnel learn more when they have specific responsibilities than when tney are still "in training". At all levels they must be subject to an appropriate amount of supervision, even if qualified. The utility should be allowed to specify appropriate advancement paths and qualification requirements.

4. Maintenance Personnel, Page 11, Paragraph IV.D.1.f.

NU Comment

There need to be provisions for bringing in personnel with prior nuclear experience at a different plant or utility. Personnel working in a central maintenance organization, for example, must be aware of plant differences, but depending on the task, do not require six months' experience at each plant.

5. Maintenance Personnel, Page 11, Paragraph IV.D.2.

NU Comment

Plant maintenance personnel are required to work to approved procedures on safety related equipment. Strict compliance to the procedures is a requirement. There is a mechanism for changing a procedure within the control of plant management which has worked satisfactorily.

The time it would take to get a procedure reviewed by the NRC would be unacceptable. Besides, we do not believe the NRC has the personnel to provide a review of plant procedures. The personnel who understand the plant and procedures should be allowed to change procedures as necessary under a controlled established approval system.

6. Maintenance Personnel, Pages 13 & 14, Paragraph VI.D.6.

NU Comment

The engineer-constructor or NSSS supplier may have little operating experience. Also they are not particularly maintenance oriented. While we agree that as-built drawings are essential, the continued role of the engineer-constructor or NSSS supplier who sometimes have high personnel turnover, is questionable. Note it is currently an NRC requirement for the licensee to maintain a set of as-built drawings.

7. Maintenance Personnel, Page 15, Paragraph IV.D.8.

NU Comment

Our participation in the Nuclear Plant Reliability Data System (NPRDS) provides the same detail as the Navy 3M Program.

8. Maintenance Personnel, Page 15, Paragraph IV.D.9.

NU Comment

As noted earlier, there is an apparent unawareness of the controls and practices which are followed by the nuclear industry. Also, there is no evidence that improperly substituted spare parts are a problem.

9. Operators, Page 17, Paragraph V.C.2.

NU Comment

This paragraph contains sweeping generalizations which could not be substantiated on an industry-wide basis. Except for simulators, most utilities have an in-house capability to conduct some training. We believe that a contract person, if used in-house, is just as effective as a utility instructor.

10. Operators, Page 18, Paragraph V.C.3.

NU Comment

It is agreed that the unevaluated use of academicians who do not comprehend the end product can be risky. More significant, however, is placing reliance on a training system which does not incorporate feedback from the trainee. Qualified instructors are a traditional way to get that feedback. However, placing complete reliance on instructors would be a mistake. We believe a properly prepared exam, with adequate analysis and post-exam review with the trainee, can be as effective as a single instructor because it can incorporate a variety of viewpoints.

The statement that, ". . . There is no place in training reactor operators for an independent self-pacing form of teaching . . ." is unrealistic. The Navy "plus-four" Program and early qualification are almost solely self-paced, self-taught efforts, based primarily on reading. In fact, there is considerable scientific evidence that learning by viewing (e.g., video tape) can be more effective than by reading.

11. Operators, Page 22, Paragraph V.E.1.

NU Comment

The discussion on nuclear utility use of simulator training does not reflect the changes since the TMI accident. Also, we believe that no one individual, i.e., a qualified senior operator, should be the sole judge of whether simulator training is satisfactorily completed. It would be better to use a "board" evaluation approach with representatives from the simulator facility, plant operations, and plant training.

12. Operators, Page 23, Paragraph V.E.3.

NU Comment

The comments concerning background information in hiring ex-Navy personnel have some validity. However, these comments fail to recognize that informal personal contacts can provide much useful information. Even so, the associated "Recommendations" appear worthwhile.

13. Operators, Page 25, Paragraph V.E.6.

NU Comment

If the examination is valid, passing the examination should be the criterion, not how many times it was previously failed. There are factors other than ability which can influence the results.

The basic problem is that the validity of NRC examinations can be questioned. An on-going study should be initiated to monitor the validity of all nuclear examinations, i.e., NRC and utility, used for qualifiecation and licensing.

14. Shift Supervisors, Page 28, Paragraph VI.E.1.

NU Comment

The report glosses over the industry practice for Shift Supervisors, devoting only six lines to the topic. Further, the report does not address two significant facts. One is that the Navy EOOW frequently supervises personnel with greater experience than himself. Until the EOOW has been qualified for some time, this is almost invariably the case. Second, is the fact that Shift Supervisors almost invariably have more nuclear power experience than both EOOW's and the personnel they supervise.

15. Shift Supervisor, Pages 29 & 30, Paragraph VI.E.1.

NU Comment

The recommendation for having a "Shift Engineer" on shift duty has several significant drawbacks. In effect it amounts to having a permanent STA who has the authority to give orders to the Shift Supervisor.

It is our understanding that in the Navy the responsibility (and accountability) chain for safe and effective operation of the nuclear power plant is always clear and direct. This would not be the case in the proposed Shift Engineer reporting chain.

Also, we have found that an "experienced engineer" would not be willing to work shifts on a long-term basis. Typically junior engineers, who may be available, would have less experience than shift supervisors.

The use of an STA (or Assistant Shift Supervisor or Shift Engineer) for providing additional technical expertise is desirable where the Shift Supervisor's academic qualifications have not been updated to the new standards.

16. Shift Supervisor, Page 30, Paragraph VI.E.2.

NU Comment

The report is misleading as to the amount of time Navy personnel spend on the job. First is the fact that the job includes more than just "watches". Second is the fact that watch sections are organized on a one in three basis (i.e., four on - eight off, or six on - twelve off) far more frequently than on a one in four schedule as stated in the report. In addition, because of shortages of qualified personnel

"watch and watch" (i.e., one in two) must be used frequently. Beyond their watch standing and divisional maintenance duties, Navy personnel must spend time on training and qualification duties. In short, 12 working hours a day or longer is fairly routine for Navy nuclear personnel.

17. Shift Supervisor, Page 31, Paragraph V. E.3.

NU Comment

The report alludes to the dislike of shift work and recommends that ". . .utilities face up to this problem". Although the report never describes specifically what the problem is, we believe that utilities "face up" to the shift work problem as well or better than the Navy addresses shift work and sea duty. Comparative personnel retention statistics tend to confirm this point.

18. Senior On-Site Managers, Page 33, Paragraph VII.D.1.

NU Comment

The report tends to be misleading in the statement that if a prospective Commanding Officer fails the special three-month course, he cannot repeat it. While this is true, the failed individual examinations are typically required to be repeated.

19. Senior On-Site Managers, Page 34, Paragraph VII.D.1.

NU Comment

If Navy officers can become nuclear ship commanding officers without first serving as Engineer Officers, it does not appear consistent that at least two years' service as an Operations Manager is a prerequisite for senior on-site managers. Navy commanding officers are not required to repeat the three-month special course when they are transferred to command ships with a different type power plant. Requiring senior on-site managers to take the entire training course for a new plant is not necessary if the individual previously held an SRO license.

20. Senior On-Site Mangers, Page 34, Paragraph VII.D.2.

NU Comment

The statement that, ". . . the Senior Onsite Manager tended to be autonomous. He is given the authority to change the plant design . . . if he himself is satisfied that it is technically correct", is simply not correct. First, plant design changes (PDC's) must conform to QA requirements per 10CFR50 Appendix B. Second, the PDC must undergo a safety evaluation per 10CFR50.59. Third, if an unreviewed safety question is involved in the change, then NRC approval is required prior to implementing the change.

21. General Comments, Page 36, Paragraph VIII.C.

NU Comment

We cannot agree with the philosophy suggested by this paragraph. Passing the examination should be the criteria, not how much time is spent in the classroom. Usually, the hot license candidate will have "lived" with the equipment for several years prior to hot licensing and, therefore, less classroom time is required. Actual control room experience will also be provided for the hot license candidate, which makes simulator time requirements less.

22. General Comments, Pages 36-42, Paragraph VIII.D.

NU Comment

These pages contain fifty items from the "Technical Staff Analysis Report on Selection, Training, Qualification and Licensing of TMI Reactor Operating Personnel". It is improperly inferred that these items are part of the President's Commission (Kemeny) report on TMI. They are not. In fact, a review of the Kemeny Report has not located a single one of the items. The Kemeny Commission apparently did not endorse these items. We believe this should be made clear.

C. Conclusion

During our review of NUREG/CR-1280 we have observed numerous incorrect statements, a general lack of understanding of NRC regulation and enforcement policy, and a superficial review of nuclear utilities' quality assurance programs and procedures. Our review has also revealed that the great strides the nuclear utility industry has made in plant personnel upgrading and expansion since the TMI accident have been ignored. Further, the recently issued requirements on operating and support personnel contained in the "NRC Action Plan Developed as a Result of the TMI-2 Accident" NUREG-0660, have obviously not been considered in NUREG/CR-1280.

In view of these observations and the 22 specific comments we have made, Northeast Utilities strongly recommends that consideration be given to revising appropriate sections of the NUREG prior to its official release.

It is intended that the preceding comments be constructive and provide guidance to the NRC in their review of NUREG/CR-1280. We are genuinely concerned with the continued growth of nuclear power and believe that a sound, rational approach to nuclear power plant staffing is necessary if it is not to be stifled.

Very truly yours,

W. G. Counsil
Senior Vice President

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