

Washington Public Power Supply System

P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000

June 16, 1981

Dr. Steven H. Hanauer, Director
Human Factors and Safety Division
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue, Room P-518
Bethesda, Maryland 20014



Dear Dr. Hanauer:

Subject: QUALIFICATION OF REACTOR OPERATORS

INPO has requested that we comment direct to you on the version of SECY 81-84 prepared by Commissioner Ahearne.

Attachment 1 contains the detailed comments on the changes made by Commissioner Ahearne. Comments on the earlier version prepared by Commissioner Gilinsky were previously sent to Mr. Hendrie and you in our letter of June 8, 1981 (G02-81-133) and are still valid. In particular, that letter described an alternative which we believe is superior, on a long-term basis, to both the "grandfathering" approach and the one requiring a Bachelor's Degree for shift personnel. Our alternative, specific to the needs of those personnel who will operate, test, and maintain nuclear power plants, addresses its coverage of needed topics by an appropriate blend of both education and training. Much of the education can be provided within the framework of a largely technical core curriculum which is part of an accredited, university-level, technology oriented Bachelor's Degree program.

Attachment 1 also contains comments on Mr. Dircks' letter of June 9, 1981 to Mr. E. P. Wilkinson at INPO.

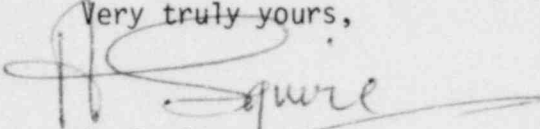
We continue to be concerned by the basic SECY 81-84 approach which is indicative of overregulation through incorporation of excessively detailed and prescriptive requirements into Federal law.

We consider Commissioner Ahearne's version to be unresponsive to the real needs of nuclear utilities. There is no evidence, objective or otherwise, which supports a job-related need for shift personnel to have college degrees. The nuclear utility situation differs significantly from that faced by either the Navy or the airlines.

Dr. Steven H. Hanauer
Page Two
QUALIFICATION OF REACTOR OPERATORS

For the reasons noted in Attachment 1, Comment 4, we doubt that Commissioner Ahearne's phase-in plan would, in practice, significantly increase the proportion of experienced operators possessing college degrees on nuclear plant staffs. We do support his belief in the desirability of broadening the operational experience of engineering and management staffs, but do not believe that additional regulatory requirements are needed or desirable.

Very truly yours,



A. Squire,
Deputy Managing Director

Attachment

cc: Mr. E. P. Wilkinson, President
Institute for Nuclear Power Operation
Mr. E. L. Thomas
Institute for Nuclear Power Operation

DETAILED COMMENTS
QUALIFICATION OF REACTOR OPERATORS AS PROPOSED
BY NRC COMMISSIONER J. AHEARNE, JUNE 9, 1981

REFERENCES

These comments are referenced to the following documents:

1. Memo from J. Ahearne to Chairman Hendrie, Commissioners Gilinsky and Bradford, dated June 9, 1981, "Operator Qualifications and Licensing Proposed Rule (SECY 81-84)," with attachment giving J. Ahearne's proposed version of V. Gilinsky's proposed changes to SECY 81-84; and
2. NRC/W. J. Dircks' letter to E. P. Wilkinson, INPO, dated June 9, 1981 regarding educational requirements for RO, SRO, and Shift Supervisors.

COMMENTS ON REFERENCE 1, MEMO FROM J. AHEARNE, DATED JUNE 9, 1981

NOTE: The Washington Public Power Supply System previously commented on Commissioner V. Gilinsky's proposed changes to the SECY 81-84 proposed rulemaking in R. L. Ferguson's letter of June 8, 1981 (G02-81-133) to J. M. Hendrie with copy to Dr. Steven H. Hanauer, NRC Staff. These comments are still valid and will not be repeated here, except as they relate to the additional changes proposed by Commissioner Ahearne.

1. Cover memo, first paragraph in which Commissioner Ahearne states his belief "that the overall qualifications of reactor operators can be improved in a significant and important way by requiring operators to have a Bachelor of Science (BS) or Bachelor of Engineering (BE) Degree."

Comment: Commissioner Ahearne does not provide any facts to support his contention, either as to the type of degree (i.e., Science or Engineering) or to the level (i.e., Bachelor). Although it is generally conceded that there is a need for SROs to have some college-level instruction, NUREG/CR-1750, "Analysis, Conclusions, and Recommendations Concerning Operator Licensing," has concluded that "a college degree in Engineering or other related field is not a necessary requirement for the Shift Supervisor position." The consultant performing the study supported his conclusion by analytical evidence.

The question as to the type of degree which would be required has even more significance than the question of whether a degree should be required. This is because the nature of the degree affects the content and emphasis of the individual courses. Increasingly, nuclear utilities addressing their needs for academic upgrade for operations are coming to the realization that those needs are better met by technology-oriented courses than by engineering or science programs. This point is expanded upon in our prior letter to Mr. Hendrie.

2. Cover memo, first paragraph regarding the value of a BS or BE Degree.

Comment: The need for a BS or BE Degree, particularly as it relates to the technical knowledge and general attitude needed to cope with unanticipated emergency situations when written procedures may not apply, is open to question given the facts of the TMI-2 accident. Personnel having Bachelor-level degrees were already on the scene at TMI-2 when a number of the questionable decisions were made. Even more significant is the fact that NRC decisions and directives regarding reactor coolant pumps made after full mobilization of regulatory and industry resources had to be reversed after several weeks.

3. Cover memo, first paragraph regarding airline pilot education.

Comment: It is assumed that the facts, as stated by Commissioner Ahearne are correct. It is believed that these facts result far more from the airlines historic preference to hire ex-military pilots who have already accumulated a significant number of flying hours in high performance aircraft than from any particular desire to have people with college degrees. The airlines get mostly four-year college people because the armed services recruit their pilot candidates mostly from among this group. It is believed that the Navy and Air Force policies in this regard result more from management development and career enhancement considerations than from any known differences in piloting aptitude. To some extent, it is believed that the services also use the degree requirement in partial compensation for the youth and relative inexperience of its pilot recruits.

Commissioner Ahearne noted that 56 percent of the major airline carriers "required or preferred" new pilot hires to have a four-year degree. More pertinent to the proposed rulemaking would be the percentage of the carriers which established the college degree as a firm requirement.

It is believed that the airline pilot comparison might be placed in better perspective by posing the question of whether the very thorough investigations into airline accidents have ever drawn a conclusion that the pilot's lack of a college degree was a contributing factor. The proportion of active airline pilots with college degrees is much lower than the quoted current hiring statistics would indicate.

4. Cover memo, subparagraph one, regarding the phase-in of degreed ROs.

Comment: The actual result of Commissioner Ahearne's proposed phased basis for filling new RO positions would depend upon the relative attrition rates between the degreed and non-degreed operators. If degreed operators have a higher and, perhaps excessive, attrition rate (as some people expect for a variety of

reasons related to characteristic personal preferences) as compared with non-degreed operators, only a policy of replacing any lost degreed operator with another degreed operator would keep the proportion of degreed operators from declining.

Another possible result of the Ahearne proposal is that if the non-degreed operator attrition rate were to remain at its current rate, but the degreed personnel rate were higher, the overall attrition rate would increase, thereby lowering the overall level of experience on shift.

5. Cover memo, subparagraph 4, regarding rotation of engineers from support and maintenance staffs through operator positions.

Comment: The rotation of staff engineers through operator positions is beneficial in broadening the experience base of key engineering and management staff and is supported. This can and should, however, be done without the mandate of a regulation which may not in many cases have adequate flexibility to address widely-varying and continually-changing personnel situations in a manner which best fulfills safety and operational performance objectives.

The engineers will learn more from the career operators if the latter do not feel threatened by the prospect of having to train personnel who may either replace them or, subsequently, preempt their advancement solely by virtue of having a college degree which may contribute little, if any, to superior performance.

6. Cover memo, next to last paragraph, last sentence, "Sufficient pay and advancement incentives can outweigh the disadvantages of shift-work."

Comment: This statement is undoubtedly true for some people. It is doubtful, however, that sufficient advancement opportunities can be created after a utility has tapered off its nuclear growth to provide sufficient incentive to retain enough people to maintain an orderly advancement progression through the operator ranks. In addition, this approach leads to a situation in which the majority of the operators are those who are unable to progress to other positions.

7. Cover memo, last paragraph.

Comment: As noted in our previous letter to Mr. Hendrie, it is believed that addressing operator education in a regulation will make the latter too detailed and overly prescriptive. It is further believed that the process of changing regulations is sufficiently cumbersome that this mechanism should not be used to solicit public comment. Regulatory Guides can be used much more easily for this purpose than can regulations.

8. Proposed rule, page 1, "Note."

Comment: Although only the pages noted had substantial changes by Mr. Ahearne, material on pages 13-19 was included in a sequence varying markedly from that in the Gilinsky version. The intent of this "shuffling" was not apparent.

9. Proposed rule, page 13, "Footnote."

Comment: Although the DOD preferred policy may be to not accept equivalency examinations, in actual practice the Navy has always in the past and still does make extensive use of GED High School test to satisfy the high school graduation requirement. In the Navy's case, greater reliance is placed on the nuclear candidate's test battery scores. Using an equivalent test battery provides a reliable and controllable measure of knowledge whereas high school graduation may represent more than a minimal effort over a three or four year period.

10. Proposed rule, page 16, last paragraph.

Comment: For the reasons mentioned in Comment 4, this is not a meaningful requirement and, in practice, could serve to lessen the credibility of the nuclear industry. The industry will support and willingly comply with reasonable and meaningful requirements.

11. Page 17, top paragraph.

Comment: If there is any evidence that a Bachelor's Degree has any validity as a measure of mental aptitude and sense of responsibility, it should be presented.

12. Page 17, second paragraph.

Comment: Most, if not all, nuclear utilities do look to staff the senior positions, in particular, with the most qualified personnel they can find based upon consideration of all pertinent factors.

13. Page 17, last paragraph.

Comment: If the number of degreed people on the staff and on shift did not increase significantly, it is unlikely that a percentage of degreed people would not subsequently be specified.

14. Page 18, top paragraph.

Comment: This policy would preclude using any ex-Navy nuclear personnel until they had acquired a degree. It could also discriminate, without apparent recourse, against other personnel even if they were better qualified by prior experience and aptitude than the available college graduates.

15. Page 43, last paragraph.

Comment: The control method used to achieve the desired result, a low limit of 25 percent of new recipients of reactor operator licenses be unfair to individual license applicants, the employing utility and the nuclear industry as a whole by denying a qualified, non-degreed applicant a license merely because NRC operator licensing needed to meet the 25 percent "quota." The utility controls who applies; the NRC controls the granting of the licenses, i.e., the number of "recipients." The licensee utility already faces a great number of uncertainties in getting sufficient personnel through the long and arduous training and licensing process; it should not be subject to yet another uncertainty which is based on a criteria that is not directly related to safe and effective operation of its own plants. If the 25 percent (or 50 percent) criteria is to be applied, it should be on a "per plant" basis. The requirement, as written, will undoubtedly be an additional deterrent to new, non-degreed personnel entering the industry -- who wants to be in a position which could preclude advancement even if one were the best qualified candidate overall.

It is possible that the approach of establishing a quota for a percentage of degreed personnel is a violation of the laws regarding equal opportunity employment. The nuclear industry should try to minimize legal entanglements.

As noted in Comment 1, a technology-oriented degree program is more germane to the needs of an operator in a nuclear plant than is either an engineering or science degree.

COMMENTS ON REFERENCE 2,
LETTER FROM W. J. DIRCKS, DATED JUNE 9, 1981

16. Letter, second paragraph.

Comment: "Grandfathering" can make sense for one of two reasons:

1. It is an interim measure taken because the probabilities of adverse consequences are acceptably low for a limited period of time; and
2. The requirements themselves are not deemed to be valid indicators of expected performance.

As the Supply System has already noted in its previous letters to Mr. Hendrie, the Bachelor's Degree is not considered to be either necessary or desirable for Shift Supervisors, although a certain amount of college-level work, nominally 60 semester credit hours, is appropriate.

Considering the number of people already at the Shift Supervisor level who can be expected to stay in that position rather than advance, it is not believed, as a matter of principle, that valid requirements should be "grandfathered" for an indefinite period. Indefinite grandfathering could also be detrimental to the credibility of both the NRC and the nuclear industry, even if there were no more significant accidents.

It is believed that regulatory efforts should concentrate on defining and enforcing as early as is reasonable a valid set of minimum requirements. Utilities should continue their individual and collective efforts to meet all their education and training needs, surpassing, where deemed desirable, the regulatory requirements.

17. Letter, third and fourth paragraphs.

Comment: It is believed that the issue of academic credit is being allowed to distort the basic question of having the operations people know what they need to safely and effectively operate their plants in both normal and abnormal situations. It is firmly believed that the important issue is the latter and that the question of academic credit is essentially one of enhancing our credibility by using a mechanism with which much of the public is somewhat familiar. Using the INPO Training Guidelines for Non-Licensed and Licensed Operators, as a basis for what operators need to know, topics which are worthy of receiving college-level credit are distributed throughout, from non-licensed operators to Shift Supervisor. Operators should cover the topics in a logical and efficient sequence based upon educational and training considerations, rather than one based on regulatory and licensing factors.

18. Letter, fourth paragraph, second sentence.

Comment: The overall training program, including both training and education, should address the process of coping with unexpected events, as well as the prescribed events. The broader understanding will result from a mix of education, training, and experience. The problem with the Bachelor's Degree requirement is that it is likely, in practice, to over-emphasize education at the expense of experience.

19. Letter, fourth paragraph, next to last sentence.

Comment: The Navy does require entry level engineering officers to possess degrees, but this needs to be placed in perspective. Sea-returnee enlisted personnel without degrees, but with extensive (three to four years) experience, have always been and are still allowed and encouraged to qualify as Engineering Officers of the Watch at the land-based prototypes. The policy as to similar qualification on board ship has varied over the years. In addition, it is believed that the Navy uses degreed officers as input

into nuclear engineer officer training for the same basic reasons the college-degree personnel are used for pilot training as noted in Comment 3.