

BISHOP, COCK, PURCELL & REYNOLDS

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March 29, 1989

Mr. Samuel J. Chilk
Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Notice of Proposed Rulemaking:
Education and Experience Requirements
for Senior Reactor Operators and Supervisors
at Nuclear Power Plants
53 Fed. Reg. 52,716 (Dec. 29, 1988)

Dear Mr. Chilk:

In accordance with the above-captioned Notice of Proposed Rulemaking (the Notice), ^{1/} Bishop, Cook, Purcell & Reynolds hereby submits its views on the proposed "college degree" regulation on behalf of Duke Power Company; Florida Power & Light Company; Florida Power Corporation; Portland General Electric Company; Southern California Edison Company; System Energy Resources, Inc.; TU Electric; and Washington Public Power Supply System. We appreciate the opportunity to comment on the proposed regulation, which would either (i) amend 10 C.F.R. § 55.31 to require an applicant for a senior reactor operator (SRO) license to have earned a college degree and to have acquired certain practical experience at a nuclear power plant; or (ii) amend 10 C.F.R. § 50.54 to require a plant shift supervisor to have earned a college degree or an alternative enhanced educational credential and to also have acquired certain practical experience.

We believe that the promulgation of the regulation would be unsound as a matter of policy. We also believe that it would be arbitrary, capricious, and an abuse of discretion because, as the

^{1/} The original February 27 deadline for the submission of comments on the proposed regulation subsequently was extended to March 29. 54 Fed. Reg. 8201 (Feb. 27, 1989).

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1/ The original February 27 deadline for the submission of comments on the proposed regulation subsequently was extended to March 29. 54 Fed. Reg. 8201 (Feb. 27, 1989).

Notice candidly acknowledges, the rulemaking record clearly militates against the imposition of a college degree requirement. We consequently urge the Commission to withdraw the Notice.

The Purpose of the Proposed Regulation

The purpose of the proposed regulation essentially is identical for each of the two alternatives contemplated in the Notice.^{2/}

The purpose of [the first] proposed alternative is to upgrade the operating, engineering, and accident management expertise on shift by combining both engineering expertise and operating experience in the senior operator function. The NRC believes this approach will enhance the capability of the operating staff to analyze and respond to complex transients and accidents and thereby further ensure the protection of the health and safety of the public.

53 Fed. Reg. at 52,718. The ultimate objective of the proposed regulation -- to promote the safe operation of nuclear power plants -- is, of course, laudable. However, the contemplated combination of "expertise" and "experience" that is designed to achieve that objective actually is largely unrealistic at an individual level. Both expertise and experience, at a shift level, are important to promote the capability of the control room staff to analyze and respond to accidents. However, as a practical matter, it is unnecessary and very difficult to combine the two in one individual.

We endorse, in this regard, the comments filed today by the Nuclear Management and Resources Council (NUMARC), which persuasively argues that the imposition of a college degree requirement, and its emphasis on expertise, will not necessarily increase the competence and effectiveness of the control room staff and that it actually could counterproductively result in a decline in experience in that staff.^{3/} That conclusion, the

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- ^{2/} For the purposes of our comments, we will address our views to the proposed regulation generally; we believe they are applicable to the two contemplated alternatives equally.
- ^{3/} This decline is notwithstanding the proposed provision to require an SRO license applicant, or a plant shift supervisor, to acquire three years of experience at a nuclear power plant, one of which was as a licensed control room operator.

basis of which we will not reiterate in the interest of brevity,^{4/} echoes the additional views of Commissioner Roberts on the proposed regulation:

I continue to believe a requirement for degreed senior operators is ill advised. Not only is there no demonstrated safety benefit from this action but there is a significant potential for negative safety implications.

53 Fed. Reg. at 52,721. We consequently believe the proposed regulation, as a matter of policy, is unsound.

We believe, moreover, that this conclusion is adequately documented in the rulemaking record, which consequently militates against the promulgation of a college degree regulation. Thus that promulgation would be arbitrary, capricious, and an abuse of discretion.

The Rulemaking Record

As candidly acknowledged by the Notice, the rulemaking record is replete with evidence that documents the inadvisability of a college degree requirement. The Notice, however, fails to explain the disregard for and dismissal of that evidence by the Commission.

The Notice notes that a college degree requirement initially was contemplated after the Three Mile Island (TMI) accident, several assessments of which concluded that there was a need for more technical expertise among plant operators.^{5/} To address that concern, Item I.A.1.1 of the TMI Action Plan required each control room shift to include a shift technical advisor (STA), who is to have earned "a bachelor's degree or equivalent in a scientific or engineering discipline" Clarification of TMI Action Plan Requirements, NUREG-0737 (November 1980) at I.A.1.1-1.6/ However, no college degree requirement per se was imposed. The Notice observes that NUREG-0737 "identified the STA

4/ NUMARC thoroughly discusses that position in its comments.

5/ See generally Lessons Learned Task Force, NUREG-0585 (1979); Three Mile Island: A Report to the Commissioners and to the Public, NUREG/CR-1240 (1980).

6/ See also TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations, NUREG-0518 (July 1979); Generic Letter No. 84-16, Adequacy of On-Shift Operating Experience for Near Term Operating License Applications (June 27, 1984).

as a temporary position pending a Commission decision regarding long range upgrading of reactor operator and senior operator capabilities." 53 Fed. Reg. at 52,717.

To assist it in this regard, the NRC established a Peer Advisory Panel on Operator Qualifications in 1981.^{7/} In March 1982, it submitted a report that recommended the NRC should impose no college degree requirement:

The Panel considered this question in some detail and concluded that imposition of such a requirement, without evidence that the requirement is needed to perform the job, is likely to result in a decrement in overall performance and thus impair public safety.

SECY-82-162, Report From the Reactor Operator Qualifications Peer Review Panel (April 15, 1982), Enclosure at 6.8/ Subsequent to the submission of that report, the NRC Staff concluded that the resolution of the college degree issue should be based on a job-task analysis and certain related research.

Notwithstanding the Peer Advisory Panel recommendation and the unavailability of the research proposed by the Staff, the Commission directed the Staff in February 1983 to expedite its schedule for the resolution of the issue. In March 1984, therefore, it submitted to the Commission a proposed regulation that would have required a senior manager on each control room shift; moreover, it would have required that individual to have earned a college degree. SECY-84-106, Proposed Rulemaking Concerning Requirements for Senior Managers (March 7, 1984). The draft Notice of Proposed Rulemaking that accompanied that proposal acknowledged that "[e]mpirical evidence does not exist to demonstrate the relative effectiveness of degreed versus nondegreed nuclear power plant operating personnel in emergency

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- ^{7/} The Panel was acclimated with a report prepared by the Battelle Human Affairs Research Centers, which observed that "the justification for setting qualifications requirements is based on the relationship of these requirements to subsequent successful job performance. These relationships, however, often are assumed rather than empirically demonstrated." Alternative Approaches to Establishing Personnel Qualifications Requirements: Considerations for Nuclear Power Plant Operations at 25 (emphasis added).
- ^{8/} The Report noted that the scientific evidence "from similar, high vigilance, high stress occupations indicates that a degreed individual does not necessarily perform better than a non-degreed individual." Enclosure at 8.

situations." SECY-84-106, Enclosure A at 4. Moreover, the regulatory analysis for the proposed regulation acknowledged that an alternative proposal -- a college degree requirement for senior operators or shift supervisors, ultimately could compromise the competence and effectiveness of a control room staff:

Furthermore, [the senior manager] alternative does not change existing educational requirements for licensed operators, nor does it change the existing career path for nondegreed operators, senior operators or shift supervisors, so it is not expected to compromise the experience level of operating shift staff.

Enclosure B at 15. A shift supervisor college degree requirement was previously considered by the Advisor Committee on Reactor Safeguards (ACRS), which rejected it.^{9/}

The NRC further refined its consideration of a college degree requirement with a subsequent report prepared by the Battelle Human Affairs Research Centers on the issue. The report, however, failed to conclude that such a requirement is a necessary prerequisite for an SRO license:

This work has determined that a substantial amount of academic knowledge needed by [a control room operator or an SRO] is college level material. This finding does not necessarily imply specific college educational requirements. Determination of specific requirements depends on identification of appropriate programs for obtaining mastery of the college-level material, which could include both formal education and specialized training programs.

NUREG/CR-4051, Assessment of Job-Related Educational Qualifications for Nuclear Power Plant Operators (April 1985) at 4-2.

The October 28, 1985 Commission Policy Statement on Engineering Expertise on Shift established a de facto college

^{9/} Letter from ACRS to NRC, ACRS Report on a Proposed Rule Requiring On-Shift Engineering Expertise (August 9, 1983) at 2 (additional comments) ("We do not agree with the proposed requirement that . . . the shift supervisor must have a bachelor's degree or equivalent.").

degree requirement. 50 Fed. Reg. 43,621. The Policy Statement provides two options for the implementation of Item I.A.1.1 of the TMI Action Plan, discussed above. The Policy Statement authorizes a licensee to staff each shift either with a dedicated STA who has earned a college degree "or equivalent" or with a combined STA/SRO who has earned a college degree (or a professional engineer license). The election of the combined STA/SRO is preferred by the NRC, and by many licensees because it necessitates the assignment of one less individual to each shift under 10 C.F.R. § 50.54(m) (minimum requirements per shift for on-site staffing of nuclear power units by operators and senior operators).

Not satisfied with its de facto college degree requirement, the NRC continued to examine,^{10/} and attempt to justify, a legal requirement. In February 1986 the Staff proposed a regulation that would have required on each plant shift after January 1, 1991 a shift manager that had earned a college degree and was an SRO; it also would have required an SRO license applicant after that date also to have earned a college degree. SECY-86-70, Proposed Rulemaking: Degree Requirements for Senior Operators at Nuclear Power Plants (February 28, 1986).

Ultimately, the NRC elected not to proceed with a shift manager requirement. Rather, in May 1986 it published an Advance Notice of a proposed regulation that would require an SRO license applicant after January 1, 1991 to have earned a college degree -- essentially the first alternative in the Notice.^{11/} Indeed, many of the paragraphs in the Notice are borrowed verbatim from the Advance Notice. Compare 51 Fed. Reg. at 19,561, col. 3 (discussion) with 53 Fed. Reg. at 52,718, col. 2 (discussion and alternative). The Advance Notice posed twenty questions on the contemplated regulation; it also noted that Commissioner Roberts was "concerned that this rulemaking will negatively affect the

^{10/} See, e.g., NUREG/CR-4411, Assessment of Specialized Educational Programs for Licensed Nuclear Reactor Operators (February 1986).

^{11/} The Advance Notice also indicated the NRC would issue in connection with a college degree regulation a policy statement that would encourage its plant licensees to develop their own programs to enable each SRO and CRO to earn a college degree and to receive some academic credit for his or her experience. This proposal is identical to that contemplated in the Notice.

level of experience and expertise of senior operators"
51 Fed. Reg. at 19,565.^{12/}

The public response to the Advance Notice overwhelmingly opposed it. See generally SECY-87-101, Issues and Proposed Options Concerning Degree Requirements for Senior Operators (April 16, 1987). The NRC received 200 letters; five letters favored the proposed college degree requirement and 195 opposed it. The Staff recognized that the public response would complicate the promulgation of a regulation. "Given the extensive comments and adverse impacts identified by commenters . . . the Staff believes that significant resources would be required to develop the regulatory and backfit analyses required for the proposed rule." SECY-87-101 at 3. Notwithstanding that conclusion, the Commission directed the Staff in June 1987 to proceed with the development of the proposed regulation.

In August 1987, the ACRS reviewed SECY-87-101 and the contemplated college degree requirement. It concluded that "although the purported goals of the proposed rulemaking are laudable, we think that the depth of the concern about adverse effects of the proposed rule should be reconsidered" Letter from ACRS to NRC, ACRS Comments on the Advance Notice of Proposed Rulemaking: Degree Requirements for Senior Operators (August 12, 1987) at 2.

Similarly, in August 1988, the Staff was briefed by KMC, Inc. on a survey it concluded of plant operators with respect to the anticipated safety impact of an SRO college degree requirement. The survey concluded that such a requirement would have an adverse impact on the safe operation of nuclear power plants:

This survey of operations personnel revealed broad based opposition to the degree requirement for the SRO licensee.

* * * * *

For example, among licensed operators with a technical degree, three responded that safety would decrease under the proposed rule for every one who felt it would increase.

^{12/} Former Commissioner Asselstine similarly observed that "it is not clear that requiring a baccalaureate degree in engineering provides the best means for assuring that senior reactor operators have the knowledge needed to carry out their responsibilities." 51 Fed. Reg. at 19,565.

* * * * *

In predicting much higher attrition rates for degreed operators, they cited the ready availability of non-shift work positions for graduate engineers as a major problem in maintaining them in operations work.

Report at 203.

At the same time, the Staff received the views of the Committee to Review Generic Requirements (CRGR) on the proposed college degree regulation. "The Committee recommended that the rule not go forward at this time, but that the Staff should develop additional information to better demonstrate the need or justification for it." Letter from CRGR to Executive Director for Operations, Minutes of CRGR Meeting Number 141 (August 15, 1988).

The Arbitrary and Capricious Standard

The Notice references some but not all of the documents discussed above; moreover, it completely fails to address their conclusions. The Notice claims that "[t]he Commission has carefully considered the numerous comments received on the [Advance Notice] as well as the recommendations of the ACRS." 53 Fed. Reg. at 52,718. However, there is no explanation for the complete disregard for and dismissal of that overwhelming evidence in the rulemaking record that clearly militates against the promulgation of a college degree regulation. The imposition of such a regulation, in the absence of such an explanation, would be arbitrary, capricious, and an abuse of discretion.

The Administrative Procedure Act (APA) establishes the standard that governs the judicial review of any NRC regulation:^{13/}

The reviewing court shall --

* * * * *

(2) hold unlawful and set aside agency action, findings, and conclusions found to be --

(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

^{13/} The NRC should be guided by the APA whether or not a final college degree regulation actually is challenged.

* * * * *

In making the foregoing determinations, the court shall review the whole record or those parts of it cited by a party, and due account shall be taken of the rule of prejudicial error.

5 U.S.C. § 706 (emphasis added). Under this standard, "[i]t is the function of the reviewing court to searchingly and carefully scrutinize the entire record in order to determine whether the agency's conclusions are drawn from the facts." Stein, Mitchell, Mezines, Administrative Law § 51.03 at 51-58; see generally Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402 (1971); Burlington Truck Lines, Inc. v. United States, 371 U.S. 156 (1962). A court consequently is to "consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error in judgment." Bowman Transportation, Inc. v. Arkansas Best-Freight System, Inc., 419 U.S. 281, 285 (1971). Under this standard, therefore, "the agency must examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co., 463 U.S. 29, 43 (1983) (citation omitted).

The APA similarly requires that "[a]fter consideration of the relevant matter presented, the agency shall incorporate in the rules adopted a concise general statement of their basis and purpose" 5 U.S.C. § 533(c). Consequently, "[i]n cases involving informal rulemaking, in which there may not be a full evidentiary record, it is the duty of the agency to supply at least a statement containing some factual elements which it considered in formulating the rule. If the statement is insufficient to support the agency's findings, the court may not conduct further inquiry into the facts, but must remand the matter to the agency." Administrative Law § 51.03 at 51-59 to 51-61. See, e.g., Lorion v. NRC, 785 F.2d 1038, 1042 (D.C. Cir. 1986) ("... an agency has a duty to consider all the evidence, and to explain its decision fully."); National Association of Regulatory Utility Commissioners v. FCC, 737 F.2d 1095, 1124 (D.C. Cir. 1984) ("An agency decision arrived at through informal rulemaking must have a rational basis in the record and be based on a consideration of the relevant factors under its statutory mandate."); Amoco Oil Co. v. EPA, 501 F.2d 722, 739 (D.C. Cir. 1974).

We believe the NRC would be unable to provide a concise statement of the basis for a college degree requirement, the promulgation of which, therefore, would be arbitrary, capricious, and an abuse of discretion.

First, the Notice fails to explain the disregard for and dismissal of (i) the ACRS recommendation; (ii) the CRGR recommendation; (iii) the views of the Peer Advisory Panel on Operator Qualifications; (iv) the conclusions presented in two reports prepared by the Battelle Human Affairs Research Centers; (v) the regulatory analysis for the previous "senior manager" college degree regulation, discussed above;^{14/} (vi) the public response to the Advance Notice; (vii) the Staff views noted in SECY-87-101; or (viii) the results of the KMC survey. The Notice references some of this evidence, but it fails to reconcile it with the decision to proceed with a college degree requirement. There is no factual basis in the rulemaking record to reject the ACRS and CRGR recommendations. The Notice merely explains that "[a]lthough comments received on the [Advance Notice] were generally unfavorable, the Commission believes that it would be beneficial to have a full public airing of views on these [two] proposals." 53 Fed. Reg. at 52,718.

Second, there similarly is no factual basis in the Notice to support the proposed regulation. It references no report or study; it discusses no advisory group conclusion or recommendation. The Notice merely states the purpose of a college degree regulation and, in a Herculean leap of logic, assumes that it will indeed "enhance the capability of the operating staff to analyze and respond to complex transients and accidents and thereby further ensure the protection of the health and safety of the public." 53 Fed. Reg. at 52,718. There simply are no facts to support this assumption. It is based merely on the abstract proposition that, as to education, "the more the better." However, that proposition fails to reflect the adverse impact on experience of an emphasis on education.

Third, and as a result, there is no "rational connection between the facts found and the choice made." 463 U.S. at 43. The Notice states that the Commission, after the Advance Notice, considered three options -- (i) an SRO college degree regulation; (ii) a senior manager college degree regulation, which was proposed in SECY-84-106; and (iii) a revised Policy Statement on Engineering Expertise on Shift, which would "explicitly encourage licensees to develop programs leading to degrees, to utilize the combined SC/STA option and to phase out use of separate STA." 53 Fed. Reg. at 52,718.

The first option was discredited by the public response to the Advance Notice -- yet it is the first alternative in the Notice. The second option, which ostensibly is intended to address the concerns raised in the public response to the Advance Notice, merely resurrects the SECY-84-106 proposal -- yet it is

^{14/} See generally SECY-84-106.

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the second alternative in the Notice. There is no explanation, however, that suggests the second alternative could effectively address the numerous problems associated with the first alternative.

Indeed, only the third option, which the Commission rejected, could address those problems. However, again, there is no explanation to suggest that the policy statement would not adequately increase the ranks of the college educated senior reactor operators and should consequently be rejected. Because the relationship between that objective and the public health and safety is uncertain, moreover, a revised policy statement appears to be a rational middle course.

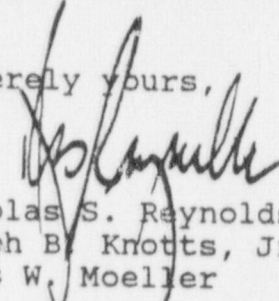
To be sure, the NRC is not required by the APA to provide "a concise general statement" in a Notice of Proposed Rulemaking, which similarly is not reviewable under the arbitrary and capricious standard. However, the NRC has studied and considered a college degree requirement since 1979, and the Advance Notice, in particular, provided it with an opportunity to marshal its facts and to fashion an empirical and logical justification for a regulation. We are confident the NRC would have included such a justification in the Notice if indeed it existed.

Summary and Conclusion

We believe the proposed regulation, for the reasons discussed in the NUMARC comments and the previous public response to the Advance Notice, is unsound as a matter of policy. We further believe that the rulemaking record militates against the imposition of either an SRO or a supervisor college degree requirement, and that in either event its promulgation would be arbitrary, capricious, and an abuse of discretion.

For the foregoing reasons, we urge the Commission to withdraw the Notice.

Sincerely yours,



Nicholas S. Reynolds
Joseph B. Knotts, Jr.
James W. Moeller

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