

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

July 7, 1989

MEMORANDUM FOR: Victor Stello, Jr.  
Executive Director for Operations

FROM: Samuel J. Chilk, Secretary

SUBJECT: STAFF REQUIREMENTS - AFFIRMATION/DISCUSSION  
AND VOTE, 11:30 A.M., THURSDAY, JUNE 29,  
1989, COMMISSIONERS' CONFERENCE ROOM, ONE  
WHITE FLINT NORTH, ROCKVILLE, MARYLAND  
(OPEN TO PUBLIC ATTENDANCE)

I. Policy Statement on Education for Senior Operators and  
Shift Supervisors at Nuclear Power Plants

The Commission, by a 5-0 vote, approved the attached Policy Statement on Education for Senior operators and Shift Supervisors at Nuclear Power Plants and Notice of Withdrawal of the Proposed Rulemaking on Degreed Operators published on December 29, 1988.

The Regulatory Publication Branch is requested to review the Notice and advise us of any editorial changes necessary for conformance with the requirements of the Federal Register. Following this revision we will forward the Notice to the Federal Register for publication.

(EDO)

(SECY Suspense: 7/28/89)

Attachments:  
As stated

cc: Chairman Zech  
Commissioner Roberts  
Commissioner Carr  
Commissioner Rogers  
Commissioner Curtiss  
OGC

GPA  
PDR - Advance  
DCS - P1-24

NUCLEAR REGULATORY COMMISSION

Commission Policy Statement on Education  
for Senior Operators and Shift Supervisors  
at Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Policy statement.

SUMMARY: This presents the policy of the Nuclear Regulatory Commission (NRC) regarding education for senior operators and shift supervisors at nuclear power plants.

FOR FURTHER INFORMATION CONTACT: M. R. Fleishman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3794.

SUPPLEMENTARY INFORMATION:

Background

Since the Three Mile Island Unit 2 (TMI-2) accident on March 28, 1979, to which human error was a major contributor, the issue of academic requirements for reactor operators has been a major concern of the Nuclear Regulatory Commission. In July 1979, the NRC Issued NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term

Recommendations," 1/ which contained specific recommendations for a shift technical advisor (STA) to provide engineering and accident assessment

expertise during other than normal operating conditions. On October 30, 1979, the NRC notified all operating nuclear power plant licensees that STAs should be on shift by January 1980, and that they should be fully trained by January 1981. In November 1980, NUREG-0737, "Clarification of TMI Action Plan Requirements," provided further details to licensees regarding implementation of the STA requirement. It identified the STA as a temporary measure pending a Commission decision regarding long range upgrading of reactor operator and senior reactor operator capabilities.

The qualifications of operators were also addressed in 1979 by NUREG-0585, "Lessons Learned Task Force;" in the 1980 Rogovin report, "Three Mile Island: A Report to the Commissioners and to the Public," (NUREG/CR-1240); and in SECY-82-162, "Report of the Peer Advisory Panel and the Nuclear Regulatory Commission on Operator Qualifications," Although the 1982 Peer Advisory Panel report recommended against imposition of a degree requirement, the consensus among these reports was that technical and academic knowledge among shift operating personnel greater than existed at that time would be beneficial to the safety of nuclear power plants.

1/ Copies of all NUREGs referenced may be purchased through the U.S. Government Printing Office by calling (202) 275-2060 or by writing to the U.S. Government Printing Office, P.O. Box 37082, Washington, D.C. 20013-7082. -Copies may also be purchased from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. A copy is available for inspection or copying for a fee in the NRC Public Document Room, 2120 L Street, Lower Level, NW., Washington, DC.

2/ The documents with SECY designators are available at the NRC Public Document Room at 2120 L Street, Lower Level, NW., Washington, DC.

On October 28, 1985, the NRC published in the Federal Register (50 FR 43621) a Final Policy Statement on Engineering Expertise on Shift,

which described two alternatives for providing the necessary technical and academic knowledge to the shift crew. option 1 of the policy statement permits an individual to serve in the combined senior operator/shift technical advisor (SO/STA) role if that individual holds either a bachelor's degree in engineering, engineering technology, or physical science from an accredited institution, or a professional engineer's licensee. Option 2 permits continuation of the separate STA, on each shift, who holds a bachelor's degree or equivalent, and meets the criteria as stated in NUREG-0737. The commission also encouraged the shift supervisor to serve in the dual-role position and the STA to take an active role in shift activities.

On May 30, 1986, the NRC published an Advance Notice of Proposed Rulemaking (ANPR) (51 FR 19561). The purpose of the ANPR was to solicit public comments on a Commission proposal to extend the current level of engineering expertise on shift and to ensure that senior operators have operating experience on a commercial nuclear reactor operating at greater than twenty percent power. Two hundred letters were received in response to the ANPR; most of them were opposed to a degree requirement for senior Operators.

Although comments received on the ANPR were generally opposed to a degree requirement, the Commission believed that it would be beneficial to obtain additional public comment on two alternative proposals. On December 29, 1988, (53 FR 52716) the Commission published a proposed rule for degree requirements for shift personnel, with two alternate approaches -- additional education and experience requirements for either

senior operators or shift supervisors. 3/ Approximately 95% of the comment letters received are opposed to any rule. As described elsewhere in this issue of the Federal Register, the Commission has decided to terminate the

rulemaking.

Development of Final Policy Statement

In deciding not to proceed with the rulemaking, the Commission carefully considered the comments received on the proposed rule and the status of industry initiatives to enhance the education level of its operating personnel. In particular, the Commission noted that many utilities have provided opportunities for members of their operating staff to further their education. Where programs are in place, they have included:

1. Financial assistance for taking college courses off-site;
2. Development of programs, in conjunction with universities and colleges, that provide college level courses and degrees -- including arrangements that provide appropriate credit for nuclear power plant training courses and work experience; and
3. On-site programs that provide college level courses and degrees for members of the operating staff.

3/ The term "shift supervisor" is being used to refer to that person holding a senior operator license for all fueled units at the site who is assigned responsibility for overall plant operation at all times there is fuel in any unit. Where a single senior operator does not hold a senior operator license on all fueled units at the site, a licensee must have at the site two or more senior operators, who in combination are licensed as senior operators on all fueled units. The Commission recognizes that person may have a different title than "shift supervisor" at different utilities.

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The Institute of Nuclear Power Operations (INPO), in cooperation with many nuclear utilities, has developed "Principles for Enhancing Professionalism of Nuclear Personnel," dated March 1, 1989. INPO encourages utilities to implement these principles. Among other important matters, these principles directly address developing management personnel and managing operations department personnel. In particular, they encourage that:

"Management development and selection practices reflect the fact that work in plant operation provides the broad, integrated-view of plant activities needed by nuclear managers. Individuals with experience in day-to-day plant operations are considered as an important source of management talent. The policies and practices that govern career development ensure that individuals are aware of the opportunity to develop into management positions and that selected individuals are encouraged and provided with opportunities to pursue this career path."

"Promotion and management development practices seek a balance between career operations individuals and others who obtain operations experience as part of their career development. Operations personnel with the potential to fill key management positions are provided an opportunity for acquiring experience in other groups. Also, other personnel with the potential to fill key management positions are provided an opportunity for obtaining an SRO [senior reactor operator license or certification and operations experience. Engineers who hold bachelors degrees in technical fields are considered a key source of such personnel

"While a college degree in a technical field is not a necessary requirement for operations positions, operators with bachelors degrees in technical subjects have a greater likelihood of promotion to and success in management positions. Management practices ensure that an appropriate number of personnel with such degrees, or the potential and desire for acquiring such degrees, are selected for operations positions. In addition, management assists and encourages selected operators who have the potential to acquire bachelors degrees; programs that lead to degrees in technical subjects are given preference. To assist in accomplishing this,

college credits may be sought for successful completion of utility training programs."

In addition, INPO has an effort underway to review the training and education requirements for shift supervisors, with the goal of ensuring that shift supervisors have the necessary knowledge, skills, understanding, and the education to supervise the safe operation of a nuclear power plant.

The NRC monitors the level of technical knowledge-of licensed operating personnel with its licensing and requalification examinations and inspection programs to ensure that personnel holding these important positions are receiving the training needed, and are otherwise qualified, to meet the requirements of the jobs. The Commission is convinced that the existing level of technical knowledge of licensed personnel is sufficient to safely operate nuclear power plants and ensure the protection of the health and safety of the public.

However, since the level of technical knowledge of the shift operating staff has a direct bearing on the safety of nuclear power plants, the Commission continues to look for measures that can further improve the capability of the shift operating staff. The following policy statement presents our views concerning education for senior operators and shift supervisors.

#### Policy Statement

The commission believes that the level of engineering and technical knowledge of shift operating personnel has a direct bearing on the safety of nuclear power plants. Accordingly, the Commission believes that the safety of commercial power reactors is enhanced by having on each shift a team of NRC-licensed professionals 4/ that combine technical and academic knowledge with plant-specific training and substantial hands-on operating experience.

The Commission's position is predicated on the fact that, even though reactor licensees try to anticipate and address in training programs a

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reactor operating procedures all conceivable situations which could arise during normal and off-normal operation, there will always be the potential for situations to arise which are not covered through training or operating procedures. The Commission is persuaded that there is a need for some individuals on each nuclear power plant operating shift who have an innate understanding of the systems-level performance of a nuclear power plant. The types of knowledge that are needed are scientific and engineering fundamentals and the basic scientific principles that govern the behavior of electrical, mechanical, and other engineered systems. This is precisely the type of knowledge that academic institutions develop and convey well and that forms the basis of an academic degree program in a technical discipline. A program of scientific and engineering studies should provide plant operating personnel an enhanced capacity for reasoning and judgment, as well as enhanced confidence, to perform better during both normal and off-normal operation, but particularly in the stressful and complex environment surrounding reactor transients and accidents which may arise in the course of reactor operations. Individuals with such education can

4/ The term "professionals" is being used to refer to persons who have demonstrated competence to operate a nuclear power plant and who adhere to the highest technical and ethical standards for reactor operations. These persons may or may not hold an academic degree.

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utilize their in-depth knowledge when called upon to assess the causes of a novel incident and determine the appropriate responses.

The Commission further believes that programs which encourage experienced nuclear professionals to obtain college degrees and personnel with degrees

to obtain a senior operator license and hands-on operating experience create an important source of management talent for the industry. Such individuals are more likely to be selected for management positions and, because of their understanding of the unique operational problems associated with nuclear power plant operation, are in a better position to enhance nuclear safety by fostering a strong safety culture within their organization.

For these reasons, the Commission endorses the INPO "Principles for Enhancing Professionalism of Nuclear Personnel" dated March 1, 1989, for implementation at each nuclear utility.

Specifically, the Commission encourages nuclear plant licensees to continue to develop and implement programs that permit operating personnel to obtain, college degrees from accredited institutions. Those persons with ability and desire should be given every opportunity to further their education in order to best serve the interest of nuclear safety.

Additionally, the Commission encourages nuclear plant licensees to hire college graduates for positions on the operating staff. Licensees should actively work to make operating staff positions, including the plant specific training and development programs, attractive to college graduates with technical or science degrees in relevant disciplines from accredited institutions. The Commission particularly encourages the recruitment of graduates with physical science, engineering, or engineering technology degrees from accredited institutions which have accredited programs. Utilities should continue to develop reactor operators and senior operators who have a significant amount of hands-on operational experience. It is desirable to have senior operators on shift who have progressed through the typical experience path, including the auxiliary operator and reactor operator positions.

The Commission recognizes the necessity for licensees to provide operators on shift with a strong background of plant-specific, hands-on experience, regardless of whether those individuals have obtained college degrees.

At the same time, the Commission believes that it is desirable for licensees to ensure that they have in the control room individuals with academic training as well. Ideally, licensees should strive to have in the control room individuals with a mix of education, training, and experience in plant operations. This should be the goal during the coming years.

The Commission encourages nuclear plant licensees to provide opportunities for licensed operators and others with nuclear power plant operating experience to assume positions of increased management responsibility.

In the same vein, policies and programs which provide principal facility and corporate nuclear managers with meaningful knowledge and experience in nuclear plant operations, including sufficient training and operational experience to qualify for and pass the NRC examination for a senior operator license, are valuable and should be encouraged.

The shift supervisor occupies a unique position. Besides interacting directly with the operating staff, the shift supervisor must also interact with upper management, and every effort should be made to ensure that the shift supervisor is an effective member of the facility management team.

The Commission believes that the highest priority should be given to assuring that shift supervisors, and other individuals with similar decision-making authority on each shift, have appropriate levels of education in technical fundamentals, training on the particular systems, and operating experience. The Commission encourages INPO to complete the effort to review the adequacy of training and education requirements for the shift supervisor position in a timely manner. The Commission understands that this effort is being coordinated with the industry accreditation program and the National Academy for Nuclear Training and

supports this concept. The Commission intends to follow this effort closely and will participate as appropriate to ensure successful closure of this issue.

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The Commission reaffirms its position, set forth in the Policy Statement on Engineering Expertise on Shift (50 FR 43621), that it is important to have engineering and accident assessment expertise available to the operating crew at all nuclear power plants. The STA has proven to be a worthwhile addition to the operating staff by providing an independent engineering and accident assessment capability, and we support continuation of this position. However, the Commission wishes to reemphasize its preference for the STA to have a senior operator license, in order to enhance the STA's operational knowledge and experience and to provide him or her greater credibility with the other members of the operating staff. It remains the Commission's preference that all licensees continue to move toward the dual role (SO/STA') position. For those licensees who continue to use the STA as a "stand-alone" position, the Commission reemphasizes its position that this individual should assume an active role in shift activities. The STA should maintain a continuing awareness of plant configuration and changes in plant status and be an integral part of the operating shift. The licensed reactor operator, senior operator, and shift supervisor positions are very important to the safe and reliable operation of nuclear power plants. Therefore, utilities should continue their efforts to sustain and increase, where appropriate, the professionalism of these positions. These positions should be filled with individuals of the highest caliber and should command respect and status both inside and outside the operational organization.

Dated at Rockville, Maryland this \_\_\_\_\_ day of \_\_\_\_\_ 1989

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For the Nuclear Regulatory Commission

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Samuel J. Chilk  
Secretary of the Commission.

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NUCLEAR REGULATORY COMMISSION  
10 CFR Parts 50 and 55

Education and Experience Requirements for Senior Reactor  
Operators and Supervisors at Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule: Withdrawal.

SUMMARY: The Nuclear Regulatory Commission (NRC) is withdrawing a notice of proposed rulemaking published in the Federal Register on December 29, 1988, in which it solicited comments on two proposed alternative amendments to its regulations. The alternatives proposed in the Federal Register notice would have imposed additional education and experience requirements for either senior operators or control room supervisors. In consideration of the comments received on the proposed rule and the status of industry initiatives to enhance the education level of its operating personnel, the Commission concludes that it should withdraw the proposed rule published December 29, 1988. The Commission is publishing a policy statement that presents its views concerning education for senior operators and shift supervisors at nuclear power plants.

FOR FURTHER INFORMATION CONTACT: M. R. Fleishman, Office of Nuclear Regulator)- Research , U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3794.

SUPPLEMENTARY INFORMATION:

On May 30, 1986, the NRC published an advance notice of proposed rulemaking (ANPR) (51 FR 19561). The purpose of the ANPR was to solicit public comments on a Commission proposal to increase the current level of

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engineering expertise on shift, and to ensure that senior operators have operating experience on a commercial nuclear reactor operating at greater than twenty percent power. Two hundred letters were received in response to the ANPR; most of them were opposed to a degree requirement for senior operators.

Although comments received on the ANPR were generally opposed to a degree requirement, the Commission believed that it would be beneficial to obtain additional public comment on two alternative amendments to its regulations. The proposed rule -- Education and Experience Requirements for Senior Reactor Operators and Supervisors at Nuclear Power Plants -- was published in the Federal Register on December 29, 1988 for a 60 day public comment period (53 FR 52716), which was later extended to March 29, 1989. The alternatives proposed in the Federal Register notice would have imposed additional education and experience requirements for either senior operators (Alternative 1) or control room shift supervisors (Alternative 2).

A total of 250 comment letters were received on the proposed rule. All of the comments have been reviewed and evaluated. (Copies of the comment letters are available for public inspection and copying for a fee at the NRC Public Document Room at 2120 L Street, NW., Lower Level, Washington, D C). Approximately 98 percent of the comments are from people who are part of or associated with the regulated industry. Of the remaining comments, five came from people associated with educational institutions and one came

from  
a citizen's group. Of the letters received, 237 letters, approximately 95 percent, were opposed to the proposed rule -- both Alternative 1 and Alternative 2. While no utilities favored the rule, about ten commenters, who either indicated that they were or appeared to be operators, were in favor of one or both alternatives. The educational groups generally offered

1/ The term "shift supervisor" is being used to refer to that person holding a senior operator license for all fueled units at the site who is assigned responsibility for overall plant operation at all times there is fuel in any unit. When a single operator does not hold a senior operator license on all fueled units at the site, a licensee must have at the site two or more senior operators, who in combination are licensed as senior operators on all fueled units.

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comments regarding implementation of the proposed alternatives and were divided on whether or not the rule should be made effective. The citizen's group preferred Alternative 2 to Alternative I and also felt that an NRC administered examination should be used to measure the qualifications of the shift supervisors and ensure uniform standards in the industry.

Because of the comments received on the proposed rule, the progress being made by utilities to voluntarily obtain engineering expertise on shift, and INPO initiatives both to increase professionalism of the operating staff and to review the adequacy of training and education requirements for shift supervisors, the Commission has concluded that it should withdraw the

proposed rule published December 29, 1988.

We have included below a summary of comments that provides a general description of the type and tone of comments received. This summary describes the most prevalent comments as well as some comments that present unusual insights. The comments and responses to them are as follows:

1. COMMENT: Every organization that has studied the issue has concluded that there is no valid reason for a degree requirement -- these include the NRC Advisory Committee on Reactor Safeguards (ACRS), the NRC Committee to Review Generic Requirements, the Reactor Operator Qualifications Peer Review Panel, the American Nuclear Society, the Institute of Nuclear Power Operations (INPO), the Nuclear Management and Resources Council, Inc., the Professional Reactor Operator Society and the National Research Council of the National Academy of Sciences.

There is no evidence to indicate that an operator with a degree would perform better than one without a degree during either normal or abnormal situations.

RESPONSE: While the Commission has concluded that it is unnecessary to mandate specific degree requirements for senior operators or shift supervisors, we continue to believe the presence of individuals with a

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degree in the control room is beneficial to safe operations. The question is not whether an operator with a degree performs better than one without a degree. Instead, the question is whether, under unanticipated circumstances, a group of operators, as a team, would perform better if some of them had technical and academic knowledge provided by a college degree. We are not aware of any relevant technical data that could answer this question. However, most organizations acknowledged a need for 'engineering knowledge on shift.

The Commission believes that the safety of commercial power reactors is enhanced by having on each shift a team of NRC licensed professionals that combine technical and academic knowledge with plant-specific training and substantial hands-on operating experience.

2. COMMENT: There have been many improvements in design, organization, procedures and operator training since TMI so that the rule is not needed.

RESPONSE: There have been many improvements in design, organization, and procedures since the TMI accident but these do not alleviate the need for high quality technical knowledge on the operating shift. However, we have withdrawn the rulemaking in favor of a policy statement.

3. COMMENTS: (A) The ability to deal with unanticipated situations requires site specific systems knowledge acquired through hands-on, site specific, experience and training.

(B) Operators are already getting training in basic engineering principles, detailed nuclear design and detailed knowledge of nuclear plant operations, as well as diagnostics and communications, and are generally well prepared to deal with unexpected situations.

RESPONSE: We agree that operators are getting required basic training and that site specific systems knowledge and hands-on operating experience are necessary to deal with unanticipated situations.

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However, a good operator must have the ability to assimilate and integrate knowledge of multiple systems to assess the causes of events not covered in training sessions and direct the appropriate response.

We believe education in a technical discipline can equip an operator with knowledge in scientific and engineering fundamentals and can better prepare him or her to handle situations not covered by training

4. COMMENT: If the Commission feels that more knowledge is needed, such as might be obtained from a bachelor's degree program, the knowledge should be identified, the material should be incorporated into operator training programs, and the NRC should test operators for that knowledge.

RESPONSE: The NRC staff is considering this comment with respect to

operator training programs. However, although some specific areas for improved training may be identified, education as discussed above, should also be emphasized.

5. COMMENT: The fundamentals exam, currently being considered for both BWRs and PWRs, could be used as an initial step in reactor operator licensing. This exam, which could be oriented to nuclear operations and engineering fundamentals, would be more suitable than would an engineer-in-training (EIT) exam, professional engineer (PE) license, or a bachelor's degree.

RESPONSE: The effectiveness of the fundamentals exam in improving the level of operator training is still being assessed. The development of this exam is underway and we will continue to monitor its effectiveness.

6. COMMENT: NUMARC commented that the results of a survey they performed indicated that seventy-two percent of the utilities report that they are already promoting operators without degrees into management positions above the shift supervisor position.

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RESPONSE: This is very encouraging, and is one of the reasons we have decided not to proceed with the rule. However, while utilities may be promoting some operators without degrees into management positions above the shift supervisor position, e.g., maintenance manager, it is not yet clear that these operators are getting into all phases of upper management. The Commission believes that programs which encourage experienced nuclear professionals to obtain college degrees and personnel with degrees to obtain a senior operator license and hands-on operating experience create an important source of management talent for the industry. Such individuals are more likely to be selected for management positions and, because of their understanding of the unique operational problems associated with nuclear power plant operation, are in a better position to enhance nuclear safety by fostering a strong safety culture within their organization.

7. COMMENT: It would be desirable to retain the independent assessment capability of the STA.- The STA provides a valuable contribution to the operating staff and is effective because the STA is not responsible for procedural matters during a transient.

RESPONSE: We agree, however, we believe that there is also a benefit to be derived from having operations expertise and engineering knowledge in the same individual. In its policy statement on education for senior operators and shift supervisors published elsewhere in this issue, the Commission reaffirms its position regarding the presence of an STA on shift and reemphasizes its desire that all licensees move toward a dual role senior operator/shift technical advisor (SO/STA' position.

8. COMMENTS: (A) It would be very difficult for a worker on a rotating shift to attend college on a part-time basis. Furthermore, programs accredited by the Accreditation Board for Engineering and Technology (ABET) are generally not very accessible to operating plant personnel.

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(B) Ongoing on-site programs leading to a bachelor's degree in Nuclear Science, that have been initiated by utilities in response to perceived Commission desires, will be jeopardized since they are not ABET accredited.

(C) The detailed requirements related to the ABET accredited degree are too prescriptive. A bachelor's degree in any scientific discipline from a regionally accredited program, plus a senior operator license with its associated site specific training in-accident diagnostics and engineering fundamentals, is equivalent to a bachelor's degree in engineering.

RESPONSE: We agree that it is very difficult to work full-time on shift as an operator and obtain a college degree. Several utilities

have been offering programs leading to a degree that accommodates shift work, but while many people have entered the programs, few have actually completed the programs and obtained degrees. We feel that these programs should be encouraged because the opportunity should be made available for highly motivated individuals to overcome institutional barriers and obtain a degree; furthermore, the demands of shift work are not the same at every utility. We continue to believe that it is important that the degrees obtained be from accredited institutions to provide confidence concerning the quality of the education and the value of the degree.

9. COMMENT: The bachelor's degree requirement should include the applied sciences along with engineering, engineering technology, and the physical sciences.

RESPONSE: Education is the important focus here. While many degrees may be acceptable, certain degrees are preferred as providing better preparation for operators. The policy statement indicates that degrees in physical science, engineering, or engineering technology are preferable.

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10. COMMENTS: (A) Negotiated labor agreements with unions do not have a requirement for a senior operator to have a bachelor's degree. The unions indicate that they would go to court to fight the requirement for a bachelor's degree since no need for the requirement has been demonstrated.

(B) It will be difficult for people with degrees to get the required reactor operator experience in some union plants since the reactor operator position is filled by union people and people with degrees are generally not in the union but are considered part of management.

RESPONSE: We do not believe labor agreements or practices should lead to actions which would inhibit the career development of union or non-union members or be a disincentive to continued safe operation of facilities.

11. COMMENTS: (A) The rule will reduce the career potential for opera

tors  
without degrees who now view the senior operator and shift supervisor

positions as a desirable, long term, career objective. The rule imposition will result in the hiring of people with degrees who generally view shift-work as an interim step in their career.

This will create a higher turnover rate and a resulting reduction in the overall experience level.

(B) Training, education, and experience are not enough for a good operator; it is essential that operators remain highly motivated. This

has been accomplished by incentives for operators to progress through the various steps in the operating organization. The proposed rule will disrupt this arrangement.

RESPONSE: The Commission has decided not to adopt a rule requiring a degree. We believe that it is desirable for licensees to have in the control room individuals with a mix of education, training and experience in plant operations. Therefore, utilities should continue to develop reactor operators and senior operators who have a significant amount of hands-on operational experience. It is desirable to have senior operators on shift who have progressed through the various steps in the operating organization.

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12. COMMENT: Alternative 2 overlooks the fact that the shift supervisor has many non-technical duties to perform during the early period following an accident that precludes him from getting involved in the technical aspects of the plant response.

RESPONSE: We agree that this is important and should not be overlooked. If the shift supervisor is the only person on shift with engineering expertise, then the licensee should take this into account in the assignment of his responsibilities. We expect that this issue will also be addressed by INPO in the effort it has underway to review the adequacy of training and education requirements for the shift supervisor position. The Commission intends to follow this effort

closely and will participate as appropriate to ensure successful closure of this issue.

13. COMMENT: The proposed requirement to serve as a reactor operator for one year would upset the common practice of having management personnel take the senior operator licensing exam. This practice is worthwhile since it brings operating expertise into management and engineering managers get to learn about the plant details.

RESPONSE: Because the Commission has decided not to adopt the proposed rule it will not impact the practice of allowing management personnel to become senior operators if such persons meet all NRC requirements for licensing.

The ACRS also considered the proposed requirement for degrees and discussed it at several meetings in 1986 and 1987. They again discussed the issue in 1989 in relation to the issuance of a policy statement as opposed to a rule.

The ACRS strongly supported the concept of having engineering expertise on each shift. However, they did not agree that requiring a degree for senior operators was the best approach, though they agreed that specific technical knowledge should be required. They believed that, because of the concern about adverse effects raised by many knowledgeable individuals, a proposed rule requiring degrees for senior operators should be reconsidered. The ACRS supported the issuance of a policy statement regarding education for senior operators and shift supervisors.

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Many utilities have provided opportunities for members of their operating staff to further their education. INPO has developed, in cooperation with

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many nuclear utilities, 'Principles for Enhancing Professionalism of Nuclear Personnel," dated March 1, 1989, which they encourage utilities to implement. These principles reflect much of the Commission philosophy and are endorsed by the Commission in the policy statement. In addition, INPO has an effort underway to review the adequacy of the training and education requirements for shift supervisors which the NRC is following with interest.

In view of all of these considerations, the Commission has concluded that it should not proceed with adoption of the rule. Therefore, the proposed rule is withdrawn.

Dated at Rockville, Maryland this \_\_\_\_\_ day of \_\_\_\_\_ 1989.

on. For the Nuclear Regulatory Commission.

Samuel J. Chilk,  
Secretary of the Commission.