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

March 14, 1989

The Honorable E. Thomas Coleman
United States House of Representatives
Washington, DC 20515

Dear Congressman Coleman:

Your constituent, Mr. Wes Baruth, inquired about an amendment that we have recently proposed to the Nuclear Regulatory Commission's regulations. This proposed amendment is entitled, "Education and Experience Requirements for Senior Reactor Operators and Supervisors at Nuclear Power Plants" and it contains two alternatives. Both alternatives are intended to upgrade the operating, engineering, and accident management expertise provided on-shift at nuclear power plants. This upgrade is expected to enhance the capability of the operating staff to respond to potential accident situations and to effectively restore the reactor to a safe and stable condition. These alternatives are explained in a bit more detail below and a copy of the Federal Register Notice on this proposal is enclosed for additional information.

The first alternative would apply to senior reactor operators. It would require that each applicant for a senior reactor operator license have a bachelor's degree in engineering, engineering technology, or the physical sciences from an accredited college or university. The first alternative would achieve our objective of upgrading by combining engineering expertise and operating experience in the senior reactor operator position.

The second alternative would apply to persons who have supervisory responsibilities, such as shift supervisors or senior managers. It would require that they have enhanced educational credentials and experience over that which is normally required for senior reactor operators. The desired educational credentials are: a bachelor's degree from a program accredited by the Accreditation Board for Engineering and Technology; a professional engineer license issued by a state government; or a bachelor's degree and an Engineer-in-Training certificate that indicates one has passed a state administered examination. The second alternative would achieve our objective of upgrading by combining engineering expertise and operating experience in the shift supervisor position.

The second alternative does not currently apply to the position held by your constituent, Mr. Baruth. Even if the first alternative were selected for final promulgation, your constituent would be exempt (grandfathered) from the degree requirement if he maintains his senior reactor operator license. The first alternative would become effective four years after final rule promulgation. The exemption applies to persons who hold a senior reactor operator license on the date four years after final rule promulgation. This exemption would ensure that the experience of the current senior reactor operators is retained. Delaying the implementation of the first alternative by four years allows time for those reactor operators who want to become senior reactor operators to take the necessary examination and complete all requirements for the senior reactor operator license.

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Concurrently with the amended final rule on this matter, the Commission intends to publish a policy statement which encourages nuclear power plant licensees to: 1) implement personnel policies that emphasize the opportunities for licensed senior reactor operators to assume positions of increased management responsibility; 2) develop programs that would enable currently licensed senior reactor operators, reactor operators, and shift supervisors to obtain college degrees; and 3) obtain college credit for appropriate nuclear power plant training and work experience through arrangements with the academic sector.

Finally, I would emphasize that the concerns of your constituent, Mr. Baruth, will be considered during our analysis of the public comments received on this matter. I trust that the above information is responsive to your request.

Sincerely,

Victor Stello, Jr.
Executive Director
for Operations

Enclosure:
Federal Register notice

or 4 importers would be involved. These importations are insignificant when compared with the 300,000 or more swine that were imported into the United States in 1987.

In addition, Great Britain has no pork processing plants that are approved by the USDA's Food Safety and Inspection Service. Therefore, even if Great Britain were to be recognized as being free of hog cholera, commerical shipments of pork products from that country to the United States would still be prohibited. Thus, while individuals would be allowed to import small quantities of pork and pork products for personal consumption, commercial shipments would continue to be ineligible for importation.

For these reasons, the amount of pork and pork products imported into the United States from Great Britain would remain very small, and would have no significant impact on U.S. swine producers.

Under these circumstances, the Administrator of the Animal and Plant Health Inpsection Service has determined that this action would not have a significant economic impact on a substantial number of small entities.

Paperwork Reduction Act

The regulations in this proposal contain no information collection or recordkeeping requirements under the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

Executive Order 12372

This program/activity is listed in the Catalog of Federal Domestic Assistance under No. 10.025 and is subject to Executive Order 12372, which requires intergovernmental consultation with state and local officials. (See 7 CFR Part 3015, Subpart V.)

List of Subjects in 9 CFR Part 94

Animal diseases, Hog cholera, Import, Livestock and livestock products, Meat and meat products, Milk, Poultry and poultry products.

Accordingly, 9 CFR Part 94 would be amended as follows:

PART 94—RINDERPEST, FOOT-AND-MOUTH DISEASE, FOWL PEST (FOWL PLAGUE), NEWCASTLE DISEASE (AVIAN PNEUMOENCEPHALITIS), AFRICAN SWINE FEVER, AND HOG CHOLERA; PROHIBITED AND RESTRICTED IMPORTATIONS

1. The authority citation for Part 94 would continue to read as follows:

Authority: 7 U.S.C. 147a, 150ee, 161, 162, 450, 19 U.S.C. 1306, 21 U.S.C. 111, 114a, 134a, 134b, 134c, and 134f; 31 U.S.C. 9701; 42 U.S.C. 4331, 4332; 7 CFR 2.17, 2.51, and 371.2(d).

2. Paragraph (a) of § 94.9 would be revised to read as follows:

§ 94.9 Pork and pork products from countries where hog cholera exists.

(a) Hog cholera is known to exist in all countries of the world except Australia, Canada, Denmark, Dominican Republic, Finland, Great Britain (England, Scotland, Wales, and Isle of Man), Iceland, New Zealand, Northern Ireland, Norway, the Republic of Ireland, Sweden, and Trust Territory of the Pacific Islands.[1]

* * * * *

§ 94.10 [Amended.]

3. Section 94.10 would be amended by adding "Great Britain (England, Scotland, Wales, and Isle of Man)," immediately after "Finland,".

Done in Washington, DC, this 22 day of December 1988.

James W. Glosser,

Administrator, Animal and Plant Health Inspection Service.

[FR Doc. 88-29912 Filed 12-28-88, 8:45 am]

BILLING CODE 3410-34-M

[1] See also other provisions of this part and Parts 92, 95, 96, and 327 of this chapter for other prohibitions and restrictions upon importation of swine and their products.

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

Ensuring the Effectiveness of Maintenance Programs for Nuclear Power Plants; Extension of Comment Period

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule: Extension of comment period.

SUMMARY: On November 28, 1988 (53 FR 47822) the Commission published for public comment a rule that would require commercial nuclear power plant licensees to strengthen their maintenance activities in order to reduce the likelihood of failures and events caused by the lack of effective maintenance. The comment period for this proposed rule was to have expired on January 27, 1989. The Nuclear Management and Resources Council (NUMARC) has requested a sixty-day extension of the comment period. In view of the importance of the proposed rule, the amount of time that the NUMARC suggests is required in order to provide meaningful comments on behalf of its member utilities, and the desirability of developing a final rule as soon as practicable, the Commission has decided to extend the comment period for an additional thirty days. The extended comment period now expires on February 27, 1989.

DATE: The comment period has been extended and now expires February 27, 1989. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments received on or before this date.

ADDRESSES: Mail written comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch. Copies of comments received may be examined at the NRC Public Document Room, 2120 L Street NW., Washington, DC.

Deliver comments to: 11155 Rockville Pike, Rockville, MD between 7:30 a.m. and 4:15 p.m. weekdays.

FOR FURTHER INFORMATION CONTACT: Moni Dey, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-3730.

Dated at Rockville, Maryland this 22nd day of December, 1988.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Acting Secretary for the Commission.

[FR Doc. 88-29992 Filed 12-28-88, 8:45 am]

BILLING CODE 7590-01-M

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.

SUMMARY: The Nuclear Regulatory Commission is proposing to amend its regulations regarding educational requirements for operating personnel at nuclear power plants. The proposed amendments would require additional education and experience requirements for senior operators and supervisors. In promulgating the proposed amendments, the Commission has identified two alternatives.

Under the first alternative, the proposed amendment would apply to senior operators. It would require that each applicant for a senior operator license to operate a nuclear power reactor have a bachelor's degree in engineering, engineering technology, or the physical sciences from an accredited

university or college. The proposed amendment would upgrade the operating, engineering, and accident management expertise provided on shift by combining engineering expertise and operating experience in the senior operator position.

Under the second alternative, the proposed amendment would apply to persons who have supervisory responsibilities, such as shift supervisors or senior managers. It would require that they have enhanced educational credentials and experience over that which is normally required for senior reactor operators. The proposed amendment would upgrade the operating, engineering, and accident management expertise provided on shift by combining engineering expertise and operating experience in the shift supervisor position.

The Commission believes that adoption of either of the alternatives, for senior operators or shift supervisors, would further ensure the protection of the health and safety of the public by enhancing the capability of the operating staff to respond to accidents and restore the reactor to a safe and stable condition.

DATES: Comment period expires February 27, 1989. Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before this date.

ADDRESSES: Mail comments to: The Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch.

Deliver comments to: One White Flint North, 11555 Rockville Pike, Rockville, Maryland, between 7:30 a.m. and 4:15 p.m. Comments may also be delivered to the NRC Public Document Room, 2120 L Street, Lower Level, NW., Washington, DC between 7:30 a.m. and 4:15 p.m.

Examine comments received, the environmental assessment and finding of no significant impact, and the regulatory analysis at the NRC Public Document Room, 2120 L Street, Lower Level, NW., Washington, DC.

Obtain single copies of the environmental assessment and finding of no significant impact and the regulatory analysis from M.R. Fleishman, Office of Nuclear Regulatory Research, Washington, DC 20555, telephone (301) 492-3794.

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 (TMI-2) accident on March 28, 1979, in which human error, among other factors, contributed to the consequences of the accident, the issue of academic requirements for reactor operators has been a major concern of the Nuclear Regulatory Commission (NRC). In July 1979, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations," (NUREG-0578)[1] made 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 licensees of the short-term STA requirements, i.e., that STAs should be on shift by January 1980, and that they should be fully trained by January 1981. In November 1980, "Clarification of TMI Action Plan Requirements," (NUREG-0737), provided further details to licensees regarding implementation of the STA position. It identified the STA as a temporary position pending a Commission decision regarding long range upgrading of reactor operator and senior operator capabilities.

The qualifications of operators were also addressed by the 1979, "Lessons Learned Task Force," (NUREG-0585), the 1980 Rogovin report, "Three Mile Island: A Report to the Commissioners and to the Public," (NUREG/CR-1240), and the 1982, "Report of the Peer Advisory Panel and the Nuclear Regulatory Commission on Operator Qualifications," (SECY 82-162).[2] Although the 1982 report recommended against imposition of a degree requirement, the consensus among these reports was that greater technical and academic knowledge among shift operating personnel would be beneficial to the safety of nuclear power plants.

On October 28, 1985, the NRC published in the Federal Register (50 FR 43621) a final policy statement on engineering expertise on shift to allow an alternate means of 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, physical science, or a professional engineer's license. Option 2 permits continuation of the separate STA who rotates with the shift and holds a bachelor's degree or equivalent and meets the criteria as stated in, "Clarification of TMI Action Plan Requirements," (NUREG-0737). The Commission also encourages 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 (ANPRM) (51 FR 19561). The purpose of the ANPRM was to extend the current level of engineering expertise on shift, as described in the Commission's Policy Statement on Engineering Expertise on Shift (50 FR 43621) and to ensure that senior operators have operating experience on a commercial nuclear reactor operating at greater than twenty percent power, e.g., "hot" operating experience (Generic Letter 84-16). The ANPRM was the result of a Commission decision to consider an amendment to its regulations (Parts 50 and 55) and to obtain comments on the contemplated action to upgrade the levels of operating, engineering, and accident management expertise on shift.

In addition to describing the proposed rule in general, the ANPRM presented a list of twenty questions concerning various aspects and implications of the proposed rule. Two hundred letters were received in response to the ANPRM. A summary and analysis of the comments are included in SECY-87-101 dated April 16, 1987. The NRC has reviewed, in detail, all the comments made on the ANPRM as well as comments received since that time. In general, the commenters were opposed to a degree requirement for senior operators. The proposed amendments in this notice reflect in detail many of the comments and responses to the questions posed. Apart from the detailed comments on the proposed contents of the rule, a number of general comments were provided regarding the possible adverse effects of requiring degrees for senior operators. The public comments as well as those raised during NRC staff review, can be categorized as follows:

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[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, DC 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 and the Generic Letter discussed in this rule are available at the NRC Public Document Room at 2120 L Street, Lower Level, NW., Washington, DC.

1. The proposed rule is not necessary.
2. Experience is more important than a bachelor's degree.
3. The proposed rule will have a negative impact on safety.
4. The proposed rule result in a greater operator turnover rate.
5. The proposed rule will basically block the career path of reactor operators, resulting in lower morale.
6. There will be less overall experience on shift due to the promotion of SOs into management positions.

The Advisory Committee on Reactor Safeguards (ACRS) also considered the proposed requirement and discussed it at several meetings in 1986 and 1987. 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, the proposed rule should be reconsidered.

The Commission has carefully considered the numerous comments received on the ANPRM as well as the recommendations of the ACRS. During its deliberations subsequent to the ANPRM, the Commission considered the following three options regarding improving engineering expertise on shift:

1. Proceed with the contemplated degree rule and concurrent policy statement as proposed in the ANPRM. This option would in the long-term result in at least two Senior Operators on shift who have bachelor's degrees.
2. Propose a rule to require a degreed individual on shift similar to a Senior Manager, as described in SECY-84-106, "Proposed Rulemaking Concerning Requirements for Senior Managers."
3. Amend the Policy Statement on Engineering Expertise on Shift (50 FR 43621) to explicitly encourage licensees to develop programs leading to degrees, to utilize the combined SO/STA option and to phase out use of separate STA.

The Commission has decided to proposed two alternative amendments for consideration and public comment with the understanding that, following the public comment period, only one alternative would be selected for final promulgation. The alternatives proposed are similar to Options 1 and 2 but with significant differences based on comments and further considerations by the Commission following the ANPRM. Although comments received on the ANPRM were generally unfavorable, the Commission believes that it would be beneficial to have a full public airing of views on these two proposals.

Concurrent Policy Statement

The Commission will publish concurrently with the final rule a policy statement which encourages nuclear power plant licensees, working with the nuclear industry, to:

1. Implement personnel policies that emphasize the opportunities for licensed operators to assume positions of increased management responsibility;
2. Develop programs that would enable currently licensed senior operators, reactor operators and shift supervisors to obtain college degrees; and
3. Obtain college credit for appropriate nuclear power plant training and work experience through arrangements with the academic sector.

Discussion

The NRC is concerned that operator qualifications to deal with accidents beyond design basis conditions warrant improvement. Operator training programs and related emergency operating procedures generally do not consider accident conditions beyond inadequate core cooling. There is a general consensus that well qualified operators can substantially mitigate the effects of severe accidents. The industry Degraded Core Rulemaking Program (IDCOR) industry group, for example, has developed arguments that operators could substantially reduce the risk posed by these conditions. The NRC is considering the need for more extensive severe accident training and emergency operating procedures as well as engineering qualifications for senior operators.

There are numerous approaches that may be taken regarding the issue of improved operator capabilities; the Commission has decided to request comments on two approaches. The proposed amendments would only affect persons associated with nuclear power reactors. They would not affect persons associated with non-power nuclear reactors such as research and test reactors. Each alternative approach will be considered in parallel. Each approach is discussed separately. Much of the discussion of Alternative 2 duplicates that of Alternative 1 so that each may be viewed on its own merits.

Alternative 1—Requirements for Senior Operators

The purpose of this proposed alternative is to upgrade the operating, engineering, and accident management expertise provided 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.

The policy statement on engineering expertise on shift published in the Federal Register on October 28, 1985 (50 FR 43621) provided an interim method of achieving more engineering capability on shift. Essentially, with Alternative 1 the NRC is moving from interim requirements which provide engineering capability for accident conditions (the STA), to requiring engineering capability, and nuclear power plant operating experience, in the same individual (the SO).

In Alternative 1, the proposed amendment would require each applicant for a senior operator (SO) license to operate a nuclear reactor, after [4 years following the effective date of the rule], to have a bachelor's degree in engineering, engineering technology, or the physical sciences from an accredited university or college. Applicants with other bachelor's degrees from an accredited institution, or from a foreign college or university, would be considered on a case-by-case basis if the utility (licensee) certifies that the applicant has demonstrated engineering expertise and high potential for the SO position. The Commission does not want to prevent individuals with excellent engineering experience, but with nontechnical degrees, from becoming SOs; however, degree equivalency will no longer be accepted. An accredited university or college is defined as an educational institution in the United States which has been approved by a regional accrediting body.

The proposed amendment would apply to applicants for a SO to operate a nuclear power reactor. People who held SO licenses on [4 years following the effective date of the rule] would be exempt from the degree requirement. Thus, those persons who hold a senior operator license on [4 years following the effective date of the rule], would be "grandfathered" (i.e., a lifetime exemption) by the proposed amendment. Even if they were to lose their SO license in the future, e.g. due to a change in jobs or plants, they could still reapply for a new SO license without satisfying the degree requirement. It is recognized that "grandfathering" current SOs could result in SOs without degrees for an extended period of time. Since the Commission's intent is to maintain at least the same degree of engineering expertise on shift as currently exists, the STA policy described under options 1

and 2 of the October 28, 1985 policy statement (50 FR 43621) would continue in effect. Thus, if two "grandfathered" SOs are used on shift, the facility licensee would be required to have a separate individual on shift who has the STA education and experience described in NUREG–0737. If one of the SOs has a degree and one is "grandfathered," Option 1 of the policy statement would be satisfied. When all SOs have degrees, the policy statement would no longer be needed.

The concurrent policy statement will encourage previously licensed SOs to obtain degrees. In the past the NRC has accepted "equivalents" to the bachelor's degree for a separate STA. The equivalents were based upon specialized utility training or other work experiences. For the proposed amendment, however, equivalency would not be acceptable to the NRC in lieu of a degree. Because the Commission is not in a position to evaluate the academic equivalency of utility training, it encourages utilities to seek out academic institutions who will evaluate the training programs and grant course credit for such equivalency based upon work experience or specialized training. Thus the concurrent policy statement will encourage efforts to have the training accepted by the colleges for partial credit toward fulfilling the requirements of an accredited degree.

The degree requirement would not apply to licensed reactor operators (ROs). However, the concurrent policy statement will encourage ROs to obtain degrees so that they can progress to the SO position and to other utility positions. The Commission believes a degree requirement for SOs on shift, along with the concurrent policy statement, will not only enhance public health and safety, but will also enhance promotion opportunities for SOs.

The cutoff date of four years following the effective date of the rule for application for a SO license by individuals who do not have degrees is chosen for three reasons. First, it will allow operators now in training sufficient time and notice to complete a degree before application. Second, it should not cause undue hardship on operators who are now in the process of preparing and training for the senior operator license, and third, licensees have been encouraged by the Policy Statement on Engineering Expertise on Shift (Option 1) to move toward a dual-role SO/STA position. Furthermore, those operators who are licensed as SOs on the cutoff date would be "grandfathered."

In Alternative 1, the proposed amendment would also require one year of "hot" and at least 3 years total operating experience for each applicant for a SO license. A RO license is required in order to get "hot" control room operating experience; thus, the proposed amendment expands the current NRC policy, described in Regulatory Guide 1.8, Revision 2, dated April 1987, "Qualification and Training of Personnel for Nuclear Power Plants," to ensure that SOs with degrees have sufficient operating experience. Regulatory Guide 1.8, in position C.1.e., allows an applicant for a SO license with a degree to have only 2 years of responsible power plant experience, none of which needs to be as a reactor operator. Thus, Regulatory Guide 1.8 will be revised if the proposed amendment is adopted. The proposed amendment would require the SO applicant with a degree to serve as a RO at greater than 20 percent power for at least 1 year. This does not mean that the reactor must be at power 100 percent of the time during the year, however, the 1 year time period should not include periods of significant downtime for maintenance or refueling (i.e., periods that exceed 6 weeks duration). Special provisions are proposed in order to accommodate those applicants from facilities that are unable to operate above twenty percent power due either to (a) the facilities not having completed their initial startup program and being licensed to run at power, or (b) the facilities being in an extended shutdown mode. In the case of the facilities not yet licensed to run at power, alternative approaches to meet the twenty percent power requirement may be approved by the Commission. In the case of facilities in extended shutdown, the Commission may process the application and administer the written and operating tests but would defer issuance of the senior operating license until the twenty percent power requirement is fulfilled.

This proposed requirement for a SO applicant with a degree also implies that an applicant for a RO license with a degree must only have 2 years of related nuclear power plant experience. This is a change to the guidance in Regulatory Guide 1.8 which endorses the American National Standard, ANSI/ANS–3.1–1981, "Selection, Qualification and Training of Personnel for Nuclear Power Plants." The standard indicates that a RO applicant must have a minimum of 3 years of power plant experience of which at least 1 year shall be nuclear power experience. If the proposed amendment is adopted, it would supersede the guidance in Regulatory Guide 1.8 and necessitate its revision in accord with the amendment. Also, position C.1.d of Regulatory Guide 1.8, on educational criteria, would have to be revised to reflect this amendment.

The concurrent policy statement is intended to encourage licensees (utilities) and the nuclear industry to provide incentives and management opportunities for SOs as well as to improve the engineering capabilities of the on shift crew. The SO with a degree and shift operating experience can become a valuable personnel resource for the utility, one who combines shift operational management experience with the potential for greater management responsibility. The policy statement, among other things, will encourage licensees to provide that career path.

The Commission believes that requiring a degree will contribute to the goal of having SOs who have operational experience, technical and academic knowledge, and educational credentials that should improve their performance as operators and possibly open career paths from which they may have been excluded in the past. The SOs with degrees should be able to respond better to off normal incidents. While there will be increased training to cover accident conditions, training alone is not sufficient. It is impossible to cover every eventuality during training. The operators must have sufficient understanding of basic engineering principles, and detailed knowledge of nuclear design and operation to appropriately respond to situations that have not been previously covered in training sessions. In addition, SOs with degrees will have greater opportunity for professional growth since they will have the qualifications needed to advance to managerial positions. With the chance for personal growth should come greater job satisfaction. The validity of these beliefs has been reenforced by the experiences of licensed operators participating in an ongoing utility sponsored program similar to what is being proposed herein. The Commission also believes that migration of SOs upward into plant management will contribute to improved plant safety.

Alternative 2—Requirements for Supervisors

The purpose of this proposed alternative is to upgrade the operating, engineering, and accident management expertise provided on shift by combining both engineering expertise and operating experience in the shift supervisor or senior manger function described in § 50.54(m)(2)(ii) of the regulations. The NRC believes this 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.

The policy statement on engineering expertise on shift published in the Federal Register on October 28, 1985 (50 FR 43621) provided an interim method of achieving more engineering capability on shift. Essentially, with Alternative 2, the NRC is moving from interim requirements which provide engineering capability for accident conditions (the STA), to requiring engineering capability, and nuclear power plant operating experience, in the shift supervisor or senior manager.

In Alternative 2, the proposed amendment would revise § 50.54, Conditions of licenses, regarding the requirements for a shift supervisor or senior manager. It makes a distinction between power plant sites with one control room and those with two or more control rooms. The intent of the proposed amendment is to ensure that there is a separate shift supervisor for each control room who is responsible for overall operation of all fueled units operated by the control room at all times there is fuel in any of the units. The Commission may permit exemptions to the one supervisor per control room amendment, on a case-by-case basis, for those situations where control rooms may be close to each other. The proposed amendment would require each shift supervisor, after [4 years following the effective date of the rule], to have one or more of the following enhanced educational credentials: A bachelor's degree from a program accredited by the Accreditation Board for Engineering and Technology (ABET); a professional engineer license issued by a state government; or, a bachelor's degree and an Engineer-in-Training (EIT) certificate that indicates one has passed an examination administered by a state or other recognized authority. This requirement will ensure a minimum level of engineering expertise for each shift supervisor. The bachelor's degree with the EIT would not necessarily have to be in a technical discipline, provided the person meets the state education and experience criteria for administration of the EIT. The NRC recognizes that in some states it may not be possible to be registered as a professional engineer or receive an EIT certificate without having received either a bachelor's degree from an ABET accredited program or a bachelor's degree in a technical discipline. For individuals in those states, the NRC is considering other options available for administering an EIT equivalant examination. The STA policy described under options 1 and 2 in the October 28, 1985 policy statement (50 FR 43621) would be eliminated since the shift supervisor would be providing the engineering expertise on shift and there would be no need for the STA.

In the past the NRC has accepted "equivalents" to the bachelor's degree for a separate STA. The equivalents were based upon specialized utility training or other work experiences. For the proposed amendment, however, equivalency would not be acceptable to the NRC in lieu of one of the educational credentials. Because the Commission is not in a position to evaluate the academic equivalency of utility training, it encourages utilities to seek out academic institutions who will evaluate the training programs and grant course credit for such equivalency based upon work experience or specialized training. Thus, the concurrent policy statement will encourage efforts to have the training accepted by the colleges for partial credit toward fulfilling the educational requirements for the shift supervisors.

The educational credential requirement would not apply to licensed reactor operators (ROs) or senior operators (SOs). The concurrent policy statement will encourage all ROs and SOs to obtain the enhanced educational credentials so that they can progress to the shift supervisor position and to other utility positions. The Commission believes that the educational requirement for shift supervisors, along with the current policy statement, will not only enhance public health and safety, but will also provide a route for promoting ROs and SOs. By restricting the requirement to shift supervisors, the Commission believes that the normal progression from RO to SO can be retained for those ROs and SOs who do not wish to obtain the enhanced educational credentials and who have no desire to enter management.

The date of four years following the effective date of the rule for implementation of the educational credentials requirement for shift supervisors is chosen for two reasons. First, it will allow shift supervisors sufficient time and notice to complete a degree. Second, it should not cause undue hardship on shift supervisors since licensees have been encouraged by the Policy Statement on Engineering Expertise on Shift (Option 1) to move toward a dual-role SO/STA position; which has frequently been assumed by the shift supervisor.

In Alternative 2, the proposed amendment would also require one year of "hot" and at least 3 years total operating experience for each shift supervisor or senior manager. The proposed amendment changes the current NRC policy, described in Regulatory Guide 1.8, Revision 2, dated April 1987, "Qualification and Training of Personnel for Nuclear Power Plants." Regulatory Guide 1.8, in position C.1.d., states that a shift supervisor only needs a high school diploma. Thus, Regulatory Guide 1.8 will be revised, if the proposed amendment is adopted, to reflect the new educational credentials and experience required to become a shift supervisor (i.e., 3 years experience with 1 year as a RO). The proposed amendment would require the shift supervisor to serve as a RO at greater than 20 percent power for at least 1 year. This does not mean that the reactor must be at power 100 percent of the time during the year; however, the 1 year time period should not include periods of significant downtime for maintenance or refueling (i.e., periods that exceed 6 weeks duration). Special provisions are proposed in order to accommodate shift supervisors from facilities that are unable to operate above twenty percent power due to the facilities not having completed their initial startup program and being licensed to run at power. For such facilities, alternative approaches to meet the twenty percent power requirement may be approved by the Commission.

The concurrent policy statement is intended to encourage licensees (utilities) and the nuclear industry to provide incentives and management opportunities for shift supervisors as well as to improve the engineering capabilities of the on shift crew. The shift supervisor with enhanced educational credentials and shift operating experience can become a valuable personnel resource for the utility, one who combines shift operational management experience with the potential for greater management responsibility. The policy statement, among other things, will encourage licensees to provide that career path; both for shift supervisors and other operating personnel who obtain enhanced educational credentials.

The Commission believes that requiring enhanced educational credentials will contribute to the goal of having shift supervisors who have operational experience, and technical and academic knowledge, that should improve their performance as supervisors and possibly open career paths from which they may have been excluded in the past. The shift supervisors should be able to respond

better to off normal incidents. While there will be increased training to cover accident conditions, training alone is not sufficient. It is impossible to cover every eventuality during training. The shift supervisors must have sufficient understanding of basic engineering principles, and detailed knowledge of nuclear design and operation to appropriately respond to situations that have not been previously covered in training sessions. In addition, shift supervisors with enhanced educational credentials will have greater opportunity for professional growth since they will have the qualifications needed to advance to managerial positions. The Commission believes that migration of shift supervisors upward into plant management will contribute to improved overall plant safety.

Conclusion

Although the Commission believes there is a net benefit of the proposed amendments in enhancing public health and safety, it acknowledges that this judgment is based on a qualitative assessment of the relative contributions of various factors, some with potential positive impacts and others with potential negative impacts. The most significant positive factor is the enhanced capability of the shift operating staff to effectively manage accidents. Increased operating experience of plant management is also an anticipated longer term benefit. However, there are possible disadvantages. For Alternative 1, they include (1) the potential for lower morale among reactor operators without degrees whose natural career path, promotion to the SO level, is blocked, and (2) the potential reduction of overall operating experience on shift as SOs with degrees move to other work. For Alternative 2, the disadvantages include the potential for lower morale among senior operators without degrees whose promotion to the shift supervisor level is blocked.

Upon consideration of these and other factors, such as those identified by the public comment process on the ANPRM, the Commission concludes, at this time, that the overall effect of the proposed amendments would be beneficial and would result in greater plant safety. This benefit will be achieved over time by improved quality of the operational personnel and by plant management that has a better understanding of the unique operational problems associated with nuclear power reactor operations. The Commission believes that increasing the educational level of the operating staff will increase professionalism both in the control room and throughout the utility with a resultant improvement in plant safety.

Invitation to Comment

In view of the unusual nature of this notice of proposed rulemaking, in which two alternatives are proposed, the Commission specifically encourages comments regarding comparison of the alternatives. Comments are particularly solicited in regard to:

1. Which alternative is preferable assuming one will be selected?
2. What are the potential impacts of each of the alternatives on licensee staffing?
3. Regarding implementation of the alternatives, would there be a more appropriate transition period for each alternative than the one proposed?
4. Alternative 2 provides for three different methods for demonstrating technical expertise with educational credentials. Would some other method be desirable for this purpose? Are there other alternative ways to demonstrate knowledge of appropriate engineering fundamentals for people who may be ineligible to take the EIT examination?
5. Should a requirement be imposed requiring all senior operators to pass an Engineering in Training (EIT) or equivalent examination as a measure of basic technical expertise in addition to, or instead of, the two proposals in this notice? If such a requirement were in place, would it be necessary to require enhanced educational credentials for shift supervisors?
6. Independent of a degree requirement, is there a need for the experience requirements to be increased for the shift supervisor position? Are the proposed requirements called for in the two alternatives sufficient?

Additional Views of Commissioner Roberts

In this proposed rulemaking the Commission is considering two alternatives regarding educational requirements for operating personnel. The first alternative, which is an old proposal, would impose a degree requirement in senior operators. The second alternative would require enhanced educational credentials for supervisory personnel. Although I have not reached a judgment on the need for supervisory personnel to have enhanced educational credentials, I am supporting the publishing of the second alternative in order to obtain the benefit of the public's comments. In the case of the degreed operator proposal, I cannot do so.

Since I have been a member of the Commission, there have been numerous proposals dealing with the size, qualifications and organization of the operating crew at nuclear power plants. Several of these proposals were adopted by the Commission because it was determined that they would enhance safety; others were discussed and dropped because no basis was found to support them. The proposal for degreed operators was an example of the latter.

It is unfortunate that this issue continues to surface. As reflected in the earlier public comments on this issue, the mere potential for imposition of this requirement is having a negative impact on operator morale. 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. To once again publish this proposal will only continue the negative impact this issue is having on operator morale.

In 1981, the Commission formed a peer review panel to consider specifically reactor operator qualifications including whether a BS level degree should be required for senior operators. This peer review panel concluded (ref. -SECY-82-162) that not only was there no evidence that a formal degree was necessary for job performance but 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*" (emphasis added). In spite of numerous studies conducted by the staff since 1982, there is still no evidence that a BS degree is needed to perform the job of senior operator. In fact, in the recent report entitled "Human Factors Research and Nuclear Safety", the National Research Council Panel on Human Factors Research Needs in Nuclear Regulatory Research recommended research in this area prior to making a degree mandatory. The panel considered this research a high priority as "(a)n injudicious regulation could lead to problems with both morale and recruiting without necessarily improving safety."

Although I agree that it is valuable to have personnel with operating experience in utility management, it is inappropriate to attempt to accomplish this objective by so severely penalizing reactor operators and senior operators. I do not believe that one obtains the motivation and abilities that makes an individual a good manager merely by obtaining a degree. Those individuals with motivation and ability will pursue a degree to improve their qualifications. There are currently a significant number of senior operators who have degrees. This should provide a sufficient pool of individuals resulting in an infusion of operating exerience into utility management.

I believe that the Commission and the industry have put in place a number of programs which have upgraded and will continue to upgrade the qualifications of reactor operators. In addition, the increased recognition of the importance of well qualified operators will continue to pay dividends in the future. A number of utilities are providing opportunities for their operators to further their education. I fully support and encourage these initiatives. These programs will allow those with ability and desire to progress up the management chain. I am confident that these initiatives will enhance the safe operation of our nuclear power plants. However, one can not expect immediate results. These initiatives take time to show improvements.

When commenting on Alternative 2 of the proposed rulemaking I will be particularly interested in comments concerning the viability of this proposal. To be viable, this proposal must allow for the orderly progression of operating personnel through the ranks from auxiliary operator to shift supervisor so as to ensure experienced personnel on shift. Specifically, I would like to know, from the perspective of current operating personnel, how accessible are ABET accredited engineering programs? If the PE or EIT options are selected, which states allow registration and/or classification as an EIT without an ABET accredited degree? In light of the fact that states require work experience to be registered as a PE and, with a non-accredited engineering or related degree, often require work experience to be classified as an EIT, will state registration boards grant credit for operating experience as "acceptable professional experience . . . of a grade and character indicating that the applicant may be competent to practice engineering"? If credit is granted for operating experience, does this experience have to be acquired after receiving a degree?

I will also be interested in comments in response to Questions 4, 5 and 6 of the Invitation to Comment.

Environmental Impact—Categorical Exclusion

The NRC has determined that this proposed regulation is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this proposed regulation.

Paperwork Reduction Act Statement

This proposed rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget approval numbers 3150-0011, 3150-0018, and 3150-0090.

Regulatory Analysis

The Commission has prepared a draft regulatory analysis for this proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The draft regulatory analysis is available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street, Lower Level, NW., Washington, DC. Single copies of the analysis may be obtained from M. R. Fleishman, Office of Nuclear Regulatory Research, Washington, DC 20555, telephone (301) 492-3794.

The Commission requests public comment on the draft analysis. Comments on the draft analysis may be submitted to the NRC as indicated under the **ADDRESSES** heading.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule, if promulgated, will not have a significant economic impact upon a substantial number of small entities. This proposed rule affects only the licensing and operation of nuclear power plants. It also affects individuals licensed as operators at these plants. The companies that own these plants and the individual plant employees licensed to operate them do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR Part 121. Since these companies are dominant in their service areas, this proposed rule does not fall within the purview of the Act.

However, because there may be now or in the future small entities which will provide licensed operators to nuclear power plants on a contractual basis, the NRC is specifically seeking comment as to how the regulations will affect them and how the regulations may be tiered or otherwise modified to impose less stringent requirements on them while still adequately protecting the public health and safety. Those small entities which offer comments on how the regulations could be modified to take into account the differing needs of small entities should specifically discuss the following items:

1. The size of their business and how the proposed regulations would result in a significant economic burden upon them as compared to larger organizations in the same business community.

2. How the proposed regulations could be modified to take into account their differing needs or capabilities.

3. The benefits that would accrue, or the detriments that would be avoided, if the proposed regulations were modified as suggested by the commenter.

4. How the proposed regulations, as modified, would more closely equalize the impact of NRC regulations or create more equal access to the benefits of Federal programs as opposed to providing special advantages to any individuals or groups.

5. How the proposed regulations, as modified, would still adequately protect the public health and safety.

The comments should be sent to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch.

Backfit Analysis

As required by 10 CFR 50.109, the Commission has completed a backfit analysis for the proposed rule. The Commission has determined, based on this analysis, that backfitting to comply with the requirements of this proposed rule will provide a substantial increase in protection to public health and safety or the common defense and security at a cost which is justified by the substantial increase. The backfit analysis on which this determination is based reads as follows:

1. *Statement of the specific objectives that the proposed backfit is designed to achieve.*

The objective of the proposed rule is to upgrade the operating, engineering, and accident management expertise provided on shift by combining both engineering expertise and operating experience in the senior operator or shift supervisor functions.

2. *General description of the activity that would be required by the licensee or applicant in order to complete the backfit.*

The proposed rule, under Alternative 1, would require each applicant for a senior operator (SO) license to operate a nuclear power reactor, after [4 years following the effective date of the rule], to have a bachelor's degree in engineering, engineering technology, or the physical sciences from an accredited university or college. Applicants with other bachelor's degrees from an accredited institution, or from a foreign college or university, would be considered on a case-by-case basis if the utility (licensee) certifies that the applicant has demonstrated engineering expertise and high potential for the SO position. The Commission does not want

to prevent individuals with excellent engineering experience, but with nontechnical degrees, from becoming SOs; however, degree equivalency will no longer be accepted. An accredited university or college is defined as an educational institution in the United States which has been approved by a regional accrediting body.

The proposed amendment would apply only to applicants for a SO license to operate a nuclear power reactor. People who hold SO licenses on [4 years following the effective date of the rule] would be exempt from the degree requirement. Those persons who hold a senior operator license on [4 years following the effective date of the rule] would be "grandfathered" by the proposed rule. The proposed amendment would not apply to SO applicants for non-power nuclear reactors such as research and test reactors. Licensed reactor operator (ROs) would not be required to have a degree. The proposed rule would also require one year of "hot" (i.e. as an RO at greater than 20 percent power) and at least 3 years total operating experience for each applicant for a SO license. Special provisions would be proposed to accommodate those applicants from facilities that are unable to operate above 20 percent power.

The proposed requirements of Alternative 1 would only apply to power reactor licensees indirectly. There would be no modification of or addition to the organization, i.e. administrative and functional structure, required to operate a nuclear power reactor as a result of this proposed amendment because:

1. the person to whom the SOs report would not change;
2. the number of SOs per shift would not change;
3. the total number of operators per shift would not change;
4. the training requirements, written examinations and operating tests for a SO would not change; and
5. the tasks performed by a SO would not change.

However, the power reactor licensees would have to get new SOs from a group of individuals who already have appropriate degrees or else provide the educational oppportunity for their own employees to obtain a degree.

The proposed rule, under Alternative 2, would require a separate shift supervisor for each control room who is responsible for overall operation of all fueled units operated by the control room at all times there is fuel in any of the units. The requirement would only apply to power reactor licensees; it would not apply to licensees for non-power nuclear reactors such as research and test reactors. Exemptions to the one supervisor per control room requirement, may be permitted, on a case-by-case basis, for those situations where control rooms may be close to each other. Each shift supervisor, after [4 years following the effective date of the rule], would need to have one or more of the following enhanced educational credentials: A bachelor's degree from a program accredited by the Accreditation Board of Engineering and Technology (ABET); a professional engineer license issued by a state government; or, a bachelor's degree and an Engineer-in-Training (EIT) certificate that indicates one has passed an examination administered by a state or other recognized authority. This requirement will ensure a minimum level of engineering expertise for each shift supervisor. The bachelor's degree with the EIT would not necessarily have to be in a technical discipline provided the person meets the state education and experience criteria for administration of the EIT. The proposed rule would also require one year of "hot" and at least 3 years total operating experience for each shift supervisor or senior manager. Special provisions would be proposed to accommodate those applicants from facilities that are unable to operate above 20 percent power.

3. *Potential change in the risk to the public from the accidental off-site release of radioactive material.*

It is not feasible to quantitatively evaluate the change in risk to the public as a result of the proposed rule. That is, the effect of the SO or shift supervisor on the probability and consequences of an accident, and the change in the probability and consequences of an accident as a result of requiring either the SO to have a bachelor's degree or the shift supervisor to have enhanced educational credentials is not known. The Commission believes that requiring degrees for SOs or enhanced educational credentials for shift supervisors will contribute to the goal of having SOs or shift supervisors who have operational experience and technical and academic knowledge that should improve their performance as operators and possibly open career paths from which they may have been excluded in the past. The SOs with degrees or shift supervisors with enhanced educational credentials should be able to respond better to off normal incidents. While there will be increased training to cover accident conditions, training alone is not sufficient. It is impossible to cover every eventuality during training. The operators must have sufficient understanding of basic engineering principles, and detailed knowledge of nuclear design and operation to appropriately respond to situations that have not been previously covered in training sessions. In addition, SOs with degrees or shift supervisors with enhanced educational credentials will have greater opportunity for professional growth since they will have the qualifications needed to advance to managerial positions. The Commission believes that there will also be an improvement in plant safety as SOs or shift supervisors migrate upward into plant management although this improvement could be counter balanced, in part, by a potential reduction in overall operating experience on shift as SOs with degrees move to other work.

4. *Potential impact on radiological exposure of facility employees.*

There is not expected to be any significant change in the radiological exposure of facility employees due to the proposed rule except for the unquantifiable reduction in the probability and consequences of an accident and the subsequent reduction in exposure.

5. *Installation and continuing costs associated with the backfit, including the cost of facility downtime or the cost of construction delay.*

One of the questions posed in the May 30, 1986 ANPRM, relative to Alternative 1, concerned what the implementation and operation costs of the proposed amendment would be to the utilities. The cost estimates received ranged from negligible to prohibitive. Various scenarios for achieving the desired staffing level of SOs with degrees were assumed. These varied from hiring individuals with degrees and passing them through the normal utility training programs to taking ROs and sending them to college while either paying them at overtime rates or hiring replacement ROs. A utility could also implement an onsite college degree program for its operators, for example, a program currently being run for an operating plant costs $250,000 per year to educate 60 people. The range of costs of such an onsite program are estimated to vary from $250,000 to $480,000 per year. The cost to the utilities of Alternative 2 would be less since there would be fewer shift supervisors to train.

It is clear that there are numerous methods that can be used to implement the proposed rule with an extreme range of costs depending on the method adopted. It would be a utility's choice as to which method to adopt, taking into

account the various cost and personnel considerations.

6. *The potential safety impact of changes in plant or operational complexity, including the effect on other proposed and existing regulatory requirements.*

There would be no changes in the plant or operational complexity and hence, no potential safety impact related to them. However, there would be an effect on the guidance provided in Regulatory Guide 1.8. Relative to Alternative 1, the guidance in Regulatory Guide 1.8 allows an applicant for a SO license with a degree to have only 2 years of responsible power plant experience, none of which needs to be as a reactor operator. This would have to be revised if Alternative 1 is adopted since the proposed amendment would require a SO applicant with a degree to serve as a RO at greater than 20 percent power for at least 1 year. Furthermore, the guidance indicates that a RO applicant must have a minimum of 3 years of power plant experence of which at least 1 year shall be nuclear power experience. This would have to be revised since it is inconsistent with the proposed amendment which implies that an applicant for a RO license with a degree must have 2 years of related nuclear power plant experience. Finally, position C.1.d of the Regulatory Guide would have to be revised to indicate that a bachelor's degree is the minimum educational requirement for a SO candidate rather than a high school diploma. Relative to Alternative 2, current guidance in Regulatory Guide 1.8, Revision 2, April 1987, "Qualification and Training of Personnel for Nuclear Power Plants," states that a shift supervisor only needs a high school diploma. This would have to be revised, if Alternative 2 is adopted, to reflect the new educational credentials and experience required to become a shift supervisor (i.e., 3 years experience with 1 year as a RO).

7. *The estimated resource burden in the NRC associated with the proposed backfit and the availability of such resources.*

It is anticipated that there will be relatively minor impact on NRC staff resources as a result of implementing the proposed rule. For Alternative 1, there may be some increase in the number of applications to process and tests to administer, because of the attempts of current ROs to become SOs prior to the cut-off date, but this should not cause a significant impact on the NRC staff. No new resource requirements are expected.

8. *The potential impact of differences in facility type, design or age on the relevancy and practicality of the proposed backfit.*

The proposed rule only applies to SO applicants for operation of a nuclear power reactor or to shift supervisors. It does not apply to SO applicants or shift supervisors for non-power nuclear reactors such as research and test reactors.

The facility type, design or age should have no relevancy to the impact or practicality of the proposed backfit. For Alternative 1, the degree to which each utility licensee has already implemented an educational program would be most important. Those facilities which have implemented such a program will clearly be less affected by the proposed backfit than would those facilities that have not. For Alternative 2, the number of reactors and control rooms on a site would have greater significance. Those facilities which have only one control room on their site would be least affected by the proposed rule.

9. *Whether the proposed backfit is interim or final and, if interim, the justification for imposing the proposed backfit on an interim basis.*

The proposed rule, when made effective, would be in final form and not on an interim basis.

Alternative 1—Requirements for Senior Operators

List of Subjects in 10 CFR Part 55

Manpower training programs, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is proposing to adopt the following amendments to 10 CFR Part 55.

PART 55—OPERATORS' LICENSES

1. The authority citation for Part 55 continues to read as follows:

Authority: Secs. 107, 161, 182, 68 Stat. 939, 948, 953, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2137, 2201, 2232, 2282); secs. 201, as amended, 202, 88 Stat. 1242, as amended, 1244 (42 U.S.C. 5841, 5842).

Sections 55.41, 55.43, 55.45, and 55.59 also issued under sec. 306, Pub. L. 97-425, 96 Stat. 2262 (42 U.S.C. 10226). Section 55.61 also issued under secs. 186, 187, 68 Stat. 955 (42 U.S.C. 2236, 2237).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); §§ 55.3, 55.21, 55.49, and 55.53 are issued under sec. 1611, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and §§ 55.9, 55.23, 55.25, and 55.53(f) are issued under sec. 1610, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

2. In § 55.4, a new definition is added in alphabetical order to read as follows:

§ 55.4 Definitions.

* * * * *

"Accredited university or college" means an educational institution in the United States which has been approved by a regional accrediting body.

* * * * *

3. In § 55.31, a new paragraph (e) is added to read as follows:

§ 55.31 How to apply.

* * * * *

(e) Each applicant for a senior operator license to operate a nuclear power reactor, after [4 years following the effective date of the rule], must have a bachelor's degree in engineering, engineering technology, or the physical sciences from an accredited university or college. Applicants with other bachelor's degrees from an accredited institution, or from a foreign college or university, will be considered on a case-by-case basis if the reactor plant licensee certifies that the applicant has demonstrated engineering expertise and high potential for the senior operator position. In addition, except as noted in paragraphs (e)(1) and (e)(2) of this section, after [4 years following the effective date of the rule], each applicant for a senior operator license must have at least three years of operating experience at a nuclear power plant, of which one year's experience must be as a licensed control room operator for a nuclear power reactor operating at greater than twenty percent power. At least six months of the nuclear power plant experience must be at the plant for which the applicant seeks the license. An authorized representative of the facility licensee will verify that the requirements of this paragraph have been met as a part of certifying the applicant's qualifications pursuant to paragraph (a)(4) of this section. Any person holding a senior operator license on [4 years following the effective date of the rule] is exempt from the requirement to have a bachelor's degree.

(1) For each applicant from a facility that has not completed preoperational testing and an initial startup test program as described in its Final Safety Analysis Report, as amended and approved by the Commission, and has not yet been licensed to operate at power, the Commission may approve alternatives that provide experience equivalent to operation at twenty percent power.

(2) For each applicant from a facility that has (i) completed preoperational testing as described in its Final Safety Analysis Report, as amended and approved by the Commission, and (ii) is in an extended shutdown which precludes operation at greater than twenty percent power, the Commission may process the application and may administer the written examination and operating tests required by §§ 55.43 and 55.45 of this part, but may not issue the license until the required evidence of operation at greater than twenty percent power is supplied.

Alternative 2—Requirements for Supervisors

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is proposing to adopt the following amendments to 10 CFR Part 50.

PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

1. The authority citation for Part 50 continues to read as follows:

Authority: Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 1244, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 50.10 also issued under secs. 101, 185, 68 Stat. 936, 955, as amended (42 U.S.C. 2131, 2235); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80-50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); §§ 50.10(a), (b), and (c), 50.44, 50.46, 50.48, 50.54, and 50.80(a) are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); §§ 50.10(b) and (c), and 50.54 are issued under sec. 161i, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and §§ 50.9, 50.55(e), 50.59(b), 50.70, 50.71, 50.72, 50.73, and 50.78 are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

2. In § 50.54, paragraph (m)(3) is removed and the introductory text to paragraph (m)(2) and paragraph (m)(2)(ii) are revised, to read as follows:

§ 50.54 Conditions of licenses.

* * * * *

(m) * * *

(2) Notwithstanding any other provisions of this section, licensees of nuclear power units shall meet the following requirements:

(i) * * *

(ii)(A) For single unit sites or multiple unit sites with one control room, the licensee shall have at its site a 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.

(B) For multiple unit sites with two or more control rooms, the licensee shall have at its site a person for each control room who: holds a senior operator license for all fueled units operated by the control room; and is responsible for overall operation of these units at all times there is fuel in any of them. Exemptions may be considered on a case-by-case basis taking into account the physical location of the control rooms.

(C) After [4 years following the effective date of the rule], each person described in paragraphs (m)(2)(ii)(A) and (m)(2)(ii)(B) of this section must have one or more of the following educational credentials: A bachelor's degree from a program accredited by the Accreditation Board for Engineering and Technology (ABET); a professional engineer license issued by a state government; or, a bachelor's degree and an Engineer-in-Training (EIT) certificate that indicates one has passed an examination administered by a state or other recognized authority.

(D) Except as noted below, after [4 years following the effective date of the rule], each person described in paragraphs (m)(2)(ii)(A) and (m)(2)(ii)(B) of this section must have at least three years of operating experience at a nuclear power plant, of which one year's experience must be as a licensed control room operator for a nuclear power reactor operating at greater than twenty percent power. At least six months of the nuclear power plant experience must be at the plant for which the person has responsibility. For each person at a plant that has not completed preoperational testing and an initial startup test program as described in its Final Safety Analysis Report, as amended and approved by the Commission, and has not yet been licensed to operate at power, the Commission may approve alternatives that provide experience equivalent to operation at twenty percent power.

* * * * *

Dated at Rockville, Maryland this 23rd day of December, 1988.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Acting Secretary for the Commission.

[FR Doc. 29993 Filed 12-28-88; 8:45 am]

BILLING CODE 7590-01-M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 73

[Airspace Docket No. 88-AEA-4]

Proposed Alteration of Restricted Area R-6601 Fort A.P. Hill, VA

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: This notice proposes to alter the boundaries and change the controlling agency for Restricted Area R-6601 Fort A.P. Hill, VA. The Department of the Army has requested an enlargement of R-6601 to accommodate additional training requirements. In addition, the proposed action would revise the assigned controlling agency.

DATES: Comments must be received on or before February 13, 1989.

ADDRESSES: Send comments on the proposal in triplicate to: Director, FAA, Eastern Region, Attention: Manager, Air Traffic Division, Docket No. 88-AEA-4, Federal Aviation Administration, JFK International Airport, The Fitzgerald Federal Building, Jamaica, NY 11430.

The official docket may be examined in the Rules Docket, weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m. The FAA Rules Docket is located in the Office of the Chief Counsel, Room 916, 800 Independence Avenue, SW., Washington, DC.

An informal docket may also be examined during normal business hours at the office of the Regional Air Traffic Division.

FOR FURTHER INFORMATION CONTACT: Paul Gallant, Airspace Branch (ATO-240), Airspace-Rules and Aeronautical

March 14, 1989

The Honorable E. Thomas Coleman
United States House of Representatives
Washington, DC 20515

Dear Congressman Coleman:

Your constituent, Mr. Wes Baruth, inquired about an amendment that we have recently proposed to the Nuclear Regulatory Commission's regulations. This proposed amendment is entitled, "Education and Experience Requirements for Senior Reactor Operators and Supervisors at Nuclear Power Plants" and it contains two alternatives. Both alternatives are intended to upgrade the operating, engineering, and accident management expertise provided on-shift at nuclear power plants. This upgrade is expected to enhance the capability of the operating staff to respond to potential accident situations and to effectively restore the reactor to a safe and stable condition. These alternatives are explained in a bit more detail below and a copy of the Federal Register Notice on this proposal is enclosed for additional information.

The first alternative would apply to senior reactor operators. It would require that each applicant for a senior reactor operator license have a bachelor's degree in engineering, engineering technology, or the physical sciences from an accredited college or university. The first alternative would achieve our objective of upgrading by combining engineering expertise and operating experience in the senior reactor operator position.

The second alternative would apply to persons who have supervisory responsibilities, such as shift supervisors or senior managers. It would require that they have enhanced educational credentials and experience over that which is normally required for senior reactor operators. The desired educational credentials are: a bachelor's degree from a program accredited by the Accreditation Board for Engineering and Technology; a professional engineer license issued by a state government; or a bachelor's degree and an Engineer-In-Training certificate that indicates one has passed a state administered examination. The second

JTelford
MFleishman
EDO Rdg.
SECY (CRC-89-0120)
MBridges (EDO #4264)
PDorm
DFRoss
CA

*See Attached for Previous Concurrence

Offc:	RDB:DRA:RES	RDB:DRA:RES	RDB:DRA:RES	DRA:RES	DD/R:RES	D:RES
Name:	Telford*:jp	WLahs*	Rosztoczy*	Morris*	TPSpeis*	ESBeckjord*
Date:	2/24/89	2/24/89	2/24/89	2/27/89	2/27/89	2/27/89

EDO	OCA
VStello	JBradburn
3/14/89	3/14/89

OFFICIAL RECORD COPY