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GENERIC RULEMAKING TO IMPROVE NUCLEAR POWER PLANT LICENSING

Interim Policy Statement

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Interim Policy Statement.

SUMMARY: An interim policy is presented to govern the consideration of preliminary proposals and plans by the Nuclear Regulatory Commission to pursue rulemaking on generic licensing issues as one of several initiatives to improve the effectiveness and efficiency of licensing of nuclear power plants. Although planning for expanded rulemaking of this nature was initiated with an NRC study group recommendation of June 1977, the present interim statement fully supports Executive Order 12044 of March 23, 1978, requesting improvement of existing and future government regulations so as to be as simple and clear as possible and avoid imposing unnecessary burdens on the economy, on individuals, on public and private organizations, or on State and local governments. Comments received by February 12, 1979, will be considered before adopting and implementing the final policy and plan for such expanded rulemaking.

DATE: Comments due on or before February 12, 1979.

ADDRESS: Written comments or suggestions for consideration in connection with the proposed Interim Statement on Rulemaking Policy should be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC, 20555. Attention: Docketing and Service Branch.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: The Nuclear Regulatory Commission is proposing this interim policy statement as a means of receiving public and industry comment on the interim policy and plans for expanded rulemaking to improve and simplify the licensing process for nuclear power plants. Ten individual proposals for rulemaking are selected for presentation to illustrate the kinds of generic licensing issues the Commission feels might be treated more effectively by rulemaking. The purpose of announcing this interim policy is to obtain comments that will: Help the Commission decide which, if any, of these ten issues should be considered further for rulemaking; identify other issues suitable for rulemaking; develop a better perspective as to the likely scope or nature of any proposed rulemaking on any of the identified issues; and assist in the development of an overall plan for proceeding with generic rulemakings, especially public comment which would assist in determining relative priorities for each candidate issue for rulemaking.

The NRC recognizes that, in many instances, flexibility is required in the licensing process to accommodate changes in technology and analytical techniques as well as differences in specific design and site characteristics. However, the NRC also foresees a gain in licensing efficiency and simplification by placing, as appropriate, more of its analysis techniques and decision criteria into rules rather than Regulatory Guides and Standard Review Plans and relying on case-by-case analysis and litigation. By treating licensing issues generically, Federal, State, public, and applicant resources could be more effectively focused on site-specific and design-specific issues of importance and the NRC's licensing process would be more effective and better understood.

The brief description of the ten potential candidates for rulemaking appended to the following Interim Policy Statement provides only the general character of the intent of the proposed rule. Further information regarding these ten issues and procedures for their selection is presented in "Preliminary Statement on General Policy for Rulemaking to Improve Nuclear Power Plant Licensing," NUREG-0499. Single copies are available by writing to the Distribution Services Branch, Division of Technical Information and Document Control, U. S. Nuclear Regulatory Commission, Washington, D.C. 20555.

The NRC has no prejudgment and precommitment to the exact nature of any subsequent proposed rule and invites creative contributive inputs by parties with a desire to aid in improving the licensing process through rulemaking. To aid its decisions on which issues to take to rulemaking and the establishment of schedule priorities, the NRC invites quantitative estimates on cost savings (manpower and financial resources) anticipated to result from generic rulemaking rather than individual case treatment of the issue using examples, as appropriate, from licensing experience to provide hard data on avoidable costs. These cost estimates should give consideration to the various types of proceedings which may be followed for individual rulemaking actions, namely: Adjudicatory hearings; opportunity for comment; or hybrid hearings (e.g., S-3 table, GESMO, ACCESS rulemaking).

Interim Statement of Policy and Plans

A. STATEMENT OF PURPOSE

On April 20, 1977, the Commission directed that recently completed licensing actions be reviewed by the staff for the purpose of identifying ways to improve the effectiveness of NRC nuclear power plant licensing activities. The Study Group's report, *Nuclear Power Plant Licensing: Opportunities for Improvement* (NUREG-0292, June 1977) presented eleven recommended measures for improving licensing effectiveness. Recommendation No. 10 of this study (Increased Use of Rulemaking) provided the following statement suggesting certain basic purposes of rulemaking:

> The Study Group recommends that rulemaking should be considered to resolve, or to assist in the resolution of, major issues, which are routinely litigated in individual licensing proceedings. A system should be established for the continuing identification of major issues that are frequently raised in individual licensing cases, and for which, considering all relevant circumstances, the initiation of rulemaking would improve the overall licensing process.

The Commission, on October 28, 1977, requested the staff to prepare a paper defining the issues and the scope of the proposal to make increased use of rulemaking proceedings. Pursuant to this request, a Steering Committee on Reactor Licensing Rulemaking was established with the initial function of developing definitive criteria for identifying issues amenable to rulemaking and to recommend issues that should be considered further for rulemaking.

The Commission recognizes that there are potential advantages to the handling of certain safety and environmental issues by rulemaking, which depend on the specific issue being considered. These advantages are: (a) Enhance stability and predictability of the licensing process by providing regulatory criteria and requirements in discrete generic areas on matters which are significant in the review and approval of license applications; (b) enhance public understanding and confidence in the intergrity of the licensing process by bringing out for public participation important generic issues which are of concern to the agency and to the public; (c) enhance administrative efficiency in licensing by removing, in whole or in part, generic issues from staff review and adjudicatory resolution in individual licensing proceedings and/or by establishing the importance (or lack of importance) of various safety and environmental issues to the decision process; (d) assist the Commission in resolving complex methodology and policy issues involved in recurring issues in the review and approval of individual licensing applications; and (e) yield an overall savings in the utilization of resources in the licensing process by the utility industry, those of the public whose interest may be affected by the rulemaking, the NRC, and other Federal, State, and local governments with an expected improvement in the quality of the decision process.

Accordingly, rulemaking is perceived as an instrument for improving the effectiveness of the licensing process. Rulemaking would appear to serve the societal purposes reflected in the above advantages whenever this procedure would lead to a dispositive generic treatment of certain safety and environmental issues in a more cost-effective manner than the current approach which treats these issues repetitively for each individual licensing action.

B. CRITERIA FOR RULEMAKING ISSUES

Certain preliminary criteria were developed by the Steering Committee and utilized by the staff in identifying candidate environmental and safety issues and evaluating their suitability for rulemaking procedures. Each candidate issue will remain under consideration for rulemaking if it reasonably meets each of the following mandatory criteria:

1. *The issue must be generic.* This means that the topic must arise frequently in case review and/or at licensing hearings (not necessarily *all* hearings), with little added to the state-of-the-art and no significant differences in outcome in each instance. In other words, repetitive administrative litigation of the subject appears unproductive. Such issues might involve broad policy matters which are really not most efficiently addressed in specific plant licensing procedures, or might involve the establishment of criteria with which to measure the acceptability of an analytical or forecasting procedure or the importance of an issue in specific plant licensing procedures.

2. *There must be a likelihood of useful, definitive rule.* This means that the final rule should reasonably be expected to do one or more of the following:

a. Arrive at a dispositive finding regarding the generic issue so that the issue would not be addressed at all or in a simplified way in subsequent individual licensing cases where threshold or other generic criteria established by rulemaking are met.

b. Establish generic acceptance criteria which can then be applied to the issue in subsequent individual licensing cases.

c. Establish the relative importance of the generic issue to the decisional process for subsequent individual licensing cases; i.e., criteria to determine the relative significance of the issue.

d. Establish analytical criteria or methodology to be utilized in subsequent individual licensing cases. While many criteria and methodologies are already in Regulatory Guides and Standard Review Plans, in some instances it might be useful to incorporate these in NRC's rules in a more specific form.

If culmination of rulemaking would likely result in one or more of the above, then this would reduce subsequent controversy, strengthen the bases for NRC licensing decisions, and improve the quality and efficiency of staff review.

3. *There must be a likelihood of a stable rule.* This means that the information base and analytical or forecasting procedures should be sufficient to reach a reasonable generic conclusion and should be expected to remain relatively unchanged for some reasonable period of time after implementation of the rule.

Those candidates for rulemaking which meet the above criteria shall have the following value-impact criteria applied in their evaluation.[1]

Their beneficial values, on balance, should outweigh the additional impacts or costs of the licensing process in order to be considered further for rulemaking.

Near-term priorities for the scheduling of action for the accepted candidates for rulemaking will be made principally in accordance with the degree of favorability of benefits over costs and the level and availability of NRC resources including contractual services.

VALUE CRITERIA

a. Achievement of more effective public input and improved public understanding of NRC's analytical procedures and decision criteria in treating potential environmental and safety issues in the licensing process for nuclear power plants.

b. Improvement of the stability and predictability of the licensing process, including the provision of orderly and clear procedures for State-Federal cooperation in treating generic licensing issues.

c. Accomplishement of an overall savings of manpower and financial resources of the NRC, the public, the utility industry, and other local, State, and Federal agencies involved in the nuclear licensing process.

IMPACT CRITERIA

a. The short-term increase in dollar costs of the various participants in the rulemaking action, including contractual support.

b. The additional impacts (i.e., opportunity costs) of diverting manpower and other resources to the rulemaking process and away from other productive uses for a temporary period.

PLAN FOR THE DEVELOPMENT OF RULEMAKING ON SPECIFIC ISSUES

The plan for the development and implementation or rulemaking on specific generic issues involves the following steps:

1. Identification and description by the NRC staff of candidate issues for generic rulemaking. Brief descriptions of candidate issues for rulemaking as proposed by the staff are set forth in the Appendix.

2. Invitation and receipt of comments by the utility industry, the public, and other governmental agencies on staff-proposed rulemaking issues, including additional suggestions for rulemaking as well as information useful in assessing the scope, benefits, and costs of specific rulemaking issues.

3. Formalization of rulemaking plans upon receipt of comments and further development of implementation strategies and schedules.

4. Preparation of specific proposed rulemaking on the selected issues in accordance with the formalized plan.

PRELIMINARY APPROACHES FOR TREATING RULEMAKING DIFFICULTIES

There would appear to be three basic problems in achieving an effective implementation of rulemaking on generic issues: (i) Achieving effective input from public and industry sources; (ii) schedule conflicts with other NRC staff assignments; and (iii) developing rules for treating a number of the generic issues that will improve, rather than hinder, cooperative relations with those State agencies performing parallel functions.

In achieving effective input to rulemaking from public and industry sources, particularly on complex issues about which there are a diversity of views, the normal FEDERAL REGISTER Notice procedure of proposed rulemaking will be appropriately supplemented by the use of workshops or conferences. The preparation of staff papers before and after such workshops could serve as a useful basis for structuring the assimilation of comments and expertise in the development of generic methodological procedures and decision criteria.

In minimizing schedule conflicts with other staff assignments, it is contemplated that only a few of the more complex and difficult rulemaking actions would be scheduled in a given calendar year. The use of consultants to aid in the preparation of background studies for rulemaking would also be of assistance in easing schedule conflicts with staff efforts.

One of the greatest difficulties, however, is developing rules for treating a number of the generic issues that will improve, rather than hinder, cooperative relations with those State agencies performing parallel functions. Some States have been quite active in assessing the need for and siting of nuclear power plants, while other States are just beginning to get deeply involved. In addition to varying levels of experience among State agencies are problems arising from differences between States in the form of legal authorities, administrative structures, and policies and procedures affecting the treatment of licensing issues. These do not appear to be insurmountable difficulties, however, and the NRC has already begun to develop cooperative agreements in review and hearing efforts with several States in the areas of water-related impacts, and need-for-baseload facility methodology. Rules and guidelines can be de-

[1] In NRC usage, the meaning of "values" and "impacts" includes external and intangible effects as well as internal and quantifiable ones.

veloped that provide an appropriate blend of flexibility and specific procedural requirements. State officials can be involved in workshops and conferences to aid in formulating the rules. Indeed, this rulemaking process conducted at an early date could have a substantial impact on those States which are just beginning to formulate licensing review programs, thus making State-Federal cooperation easier to accomplish and more effective.

Appendix

Description of Candidate Issues for Generic Rulemaking

NRC staff efforts have produced the following preliminary identification of candidate issues for generic rulemaking upon which public comment is invited:[1]

● *Future availability and price of uranium*—Forecasting the availability and price of uranium is a complex, uncertain, and controversial issue that often arises in comparing the costs and benefits of proposed nuclear power plants with alternative energy sources. The subject is highly generic since the future outlook in the availability and price of uranium is both national and international in analytical content with insignificant variations for case-by-case treatment. The sources of information are outside the NRC. The principal output of rulemaking would be to accept the uncertainties as a given (i.e., not attempt to narrow them) and establish: (i) Criteria regarding availability and costs to be used in reactor facility licensing decisions, and (ii) thresholds for review of the rule at a later time to update the criteria for decision making, when warranted by substantial changes in the information base.

● *Alternative energy sources to the nuclear option*—Alternatives for central station electric power generation dealt with in hearings include coal, oil, geothermal, solar, wind, tidal, biomass, and municipal waste. Their administrative litigation in reactor licensing cases is largely generic with repetitive outcomes, making these suitable candidates for rulemaking. Many of these alternative energy sources have substantial uncertainty regarding their technology, future cost, and market acceptance. The DOE, NRC, EPRI and other institutions have prepared studies with additional research underway on alternative energy sources which collectively provide an adequate basis for NRC decisions. The rulemaking would seek to establish: (i) Criteria to determine when new energy sources should be considered as viable alternatives to a baseload nuclear power plant; (ii) criteria to judge when a viable alternative should be judged superior to the proposed nuclear power plant; and (iii) the criteria for any review of the rule at a later time.

● *Need for adding baseload generating capacity*—Power systems planning by utilities, including intra-pool sales, involves analysis of numerous factors to determine the optimal mix by fuel type and size as well as the timing of baseload generating additions to system capacity. A wide variety of demand forecasting methodologies are employed whose accuracy is impractical to demonstrate. A legion of conservation, cogeneration, and energy substitution options exist that are often highly speculative as to timing of implementation and their contributive importance. Experience has demonstrated that economic advantages and benefits of improved fuel mix, in some instances, can be even more persuasive criteria for justifying additional baseload capacity than need for power analysis which matches demand growth projections and planned unit additions and retirements against system reliability requirements. The possible asymmetry of cost penalties due to overforecasting or underforecasting demand appears a fruitful line of research being sponsored by the NRC that would aid in developing generic decision criteria and procedures for dealing with need for baseload facility analysis. Rulemaking would seek to establish: (i) Criteria by which the applicant's demonstration of need can be judged including criteria regarding demand forecasting methodologies, optimal fuel mix, and system economics; (ii) generic decision criteria regarding the extent to which the applicant's evaluation of need must agree with the NRC's evaluation of need, which inherently considers forecasting error and the asymmetry of cost penalties; (iii) the criteria, if any, which would determine the issues to be brought to NRC hearings relative to the adequacy of need for baseload addition analyses; and (iv) the degree to which the NRC could utilize previous reviews of State or Federal agencies.

● *Alternative siting methodology and information requirements*—Considerations important to the analysis of nuclear power plant siting alternatives vary between regions and even between certain site options within a region. Moreover, there are a variety of site screening and assessment methodologies in use among utilities which differ in their fundamental approach, the types of factors considered, and the level of information supplied to support the analyses. The cost of additional information for the siting analyses must be weighed against expected benefits. That is to say, a judgment needs to be made as to whether the cost of the extra information would likely be compensated for by its social value in significantly reducing the probability that a superior site will not have been identified in the screening process or ultimately rejected in the comparative analysis because of inadequate or inaccurate appraisal of adverse or beneficial impacts. The chief output of rulemaking would: (i) Clarify the rules regarding the concept of "obviously superior" as set forth by the Commission in the *Seabrook* case;[1] (ii) prescribe rules for establishing criteria regarding the implementation of the "obviously superior" concept and the kinds and extent of information required so as to achieve an appropriate blend of flexibility and specificity which would be cost-effective for different types of licensing/siting situations; and (iii) develop a record regarding variations and the relative merits of different site screening and evaluation methodologies and their associated costs, benefits, and uncertainties focusing on a spectrum of historical cases wherein controversial issues arose.

● *Criteria for assessment of nuclear plant impacts and mitigative measures*—Early Site Review (ESR) procedures have increased attention to site suitability concepts involving the acceptability of environmental and socioeconomic impacts of nuclear power plants. Regulatory Guides and Standard Review Plans developed by the NRC as they now exist are often too general in form to establish appropriate specific procedures and decision criteria to make a clear determination that a plant design/siting alternative is acceptable in regard to certain types of environmental and socio-economic impacts without additional mitigative measures, or that certain minor or major mitigative modifications are of reasonable cost when compared to the averted or reduced impacts. In the exploration of these concepts rulemaking would: (i) Provide a review of the types of issues encountered in the licensing process involving acceptability of impacts with and without mitigative measures in relation to their importance to the overall licensing decision process; (ii) develop acceptance criteria for various kinds of impacts in the construction and operation of nuclear power plants; and (iii) establish the acceptability of costs of mitigative measures to meet these or related criteria.

● *Generic procedural criteria to define more concretely NRC responsibility in assessments and decisions regarding certain water-related impacts in relation to the statutory authorities of EPA and permitting States*—NRC responsibility in assessments and decisions regarding water quality and resultant ecological impacts of nuclear power plant construction and operation derives principally from the NEPA of 1969 (Pub. L. 91-190) as modified by the Federal Water Pollution Control Act Amendments of 1972 (Pub. L. 92-500) and the Clean Water Act of 1977 (Pub. L. 95-217). The 1975 agreement between EPA and NRC entitled "Second Memorandum of Understanding Regarding Implementation of Certain Nuclear Regulatory Commission and Environmental Protection Agency Responsibilities under the Federal Water Pollution Control Act and the National Environmental Policy Act of 1969" serves to provide mechanisms for coordinating the respective responsibilities of the two agencies. Despite these efforts, substantial diversity in interpretation of these respective roles has been demonstrated among a number of EPA Regions and among NRC licensing boards in their initial decisions affecting certain water-related issues While NRC has no authority to establish in specific terms the roles of the EPA or permitting States in these cooperative licensing review efforts on certain water-related impacts, a greater specificity of NRC's procedures could lead to a substantial improvement in the effectiveness of nuclear power plant licensing actions. The output of rulemaking would: (i) Develop dispositive rules on procedural criteria for the NRC role in assessments and decisionmaking involving certain water-related impacts of nuclear power plants; and (ii) provide a record through a review of licensing problems in multiagency coordination in dealing with water-related impact issues to establish clearer NRC responsibilities and insights useful to other cooperating agencies to improve the effectiveness of their own regulatory procedures. NRC would need to maintain close coordination with the EPA in the development of any proposed rule.

● *NEPA decision criteria for operating license (OL) reviews*—Current NRC regulations regarding OL licensing review procedures (10 CFR 51.23-e) declare that "a draft environmental impact statement prepared in connection with the issuance of an operating license will cover only matters which differ from or which reflect new information in addition to those matters discussed in the final environmental impact statement prepared in connection with the issuance of the construction permit." This instruction makes no differentiation in the relevance of individual cost-benefit considerations to licensing decisions at the OL versus the Construction Permit (CP) stage. For example, the staff believes the need for constructing new baseload generating capacity, a factor considered in a CP decision, normally is no

[1]The Commission has not arrived at any final position as to the nature of any subsequent proposed rule(s) or even as to whether, after receipt of public comment and further staff development, any of the proposed candidates will be pursued further.

[1]*Memorandum and Order of the U.S. Nuclear Regulatory Commission in the Matter of Public Service Company of New Hampshire, et al. (Seabrook Station, Units 1 and 2)*, Docket Nos. 50-443 and 50-444, March 31, 1977.

longer a significant factor in the OL decision because the plant has already been constructed. The staff believes that in order to be forward-looking, the OL decision should ignore investment costs and the controlling cost-benefit criterion at this stage is whether the operation of a nuclear plant once constructed is a less expensive option for society in terms of incremental system and environmental costs than the use of any equivalent baseload capacity available within the system or the purchase of energy from other utilities in the power pool. Likewise, construction of new alternative energy sources and construction of the plant proposed in the application on an alternative site do not appear to be significant to an OL decision. Also, external and irretrievable impacts on the environment or community-level socioeconomic effects that have already occurred after having been found acceptable at the time of the CP decision do not appear to be relevant to an OL decision.

Rulemaking would improve licensing effectiveness at the OL stage through: (i) Establishing for some cases a clear differentiation between impact issues admissible for review at the CP and OL stages of licensing decision; and (ii) developing for others acceptance criteria as to whether new information on impacts germane to an OL decision are sufficiently significant to societal interests to require re-review at the OL stage.

Currently, there is under review a petition for rulemaking in this area (PRM-51-4). While the staff believes that rulemaking in this general area would be productive, this Interim Policy Statement should not be considered as impacting the Commission's decision relative to the legal and technical merits of the petition.

● *Occupational radiation exposure control*—Analysis of occupational radiation exposure data has identified activated corrosion products (crud) as the principal source of worker exposures at nuclear power plants. Man-rem exposure, plant down-time, and operating and maintenance costs may be substantially increased without appropriate exposure control of these depositional processes. The industry has been exploring methods of reducing occupational radiation exposures due to these sources. At such time in the future as information becomes sufficient to justify specific regulatory requirements in this area, rulemaking could achieve a specific annual radiation exposure design objective for control of occupational radiation exposures from crud buildup, analogous to 50.34a for effluent control. More immediately, it would appear desirable to conduct rulemaking surrounding the development of additional design criteria in Appendix A of Part 5 involving two separate considerations: (i) Crud formation, solution, and deposition, including design criteria for the primary coolant system for decontamination of crud; and (ii) aspects of plant layout and design to reduce occupational radiation exposure from this source in keeping with ALARA criteria in Regulatory Guide 8.8.

● *Generic radiological impact for normal LWR radionuclide releases*—Radiological impact estimates are currently prepared through an engineering evaluation of the radioactive waste treatment system that produces an inventory of radionuclides released to the environment, a calculation of the available atmospheric and hydrologic dilution, and a calculation of the dose to individual receptors in the immediate site environs and to the population within 50 miles of the site and the total United States. A generic treatment of these radiological impacts would be appropriate because: (1) There is a regulatory requirement that radioactive effluents result in calculated doses within 10 CFR Part 50, Appendix I, design objective values, and (2) technical specifications are imposed on nuclear plants which hold them to or below these values. This results in operating criteria that always limit the impact to a value below a specified value. The proposed rulemaking would be based, in part, on a survey of the calculated impacts in environmental statements to determine appropriate ranges of doses for categorizing radiological impacts from radionuclide releases. The upper end of this range of doses would be the Appendix I design objective values. An empirical study of the relation between observed and calculated impacts would establish a more reliable lower bound for radiological impacts than that presently calculated and would obviate the need for calculating radiological impacts of normal radionuclide releases for each individual licensing case.

● *Threshold limits for generic disposition of cooling tower effects*—The potential environmental and socioeconomic effects of cooling tower operation have raised contentions at a substantial number of case hearings. These issues include weather modification (increased rain, snow, fog, tornadoes and floods), deposition, interactions of cooling tower operation with other plant effluents (radiological and chemical), noise, and aesthetics. In a sizeable fraction of these cases a detailed examination of these issues in supplemental testimonies supports the conclusion that the impacts are of negligible societal importance. Accordingly, a useful objective of rulemaking would be to seek to establish threshold limits for each potential effect of cooling tower operation for a wide variety of designs and site-specific conditions which, if not exceeded, would be deemed to be inconsequential to societal interests. If these threshold limits were exceeded, then more detailed assessment would be required for the individual licensing action in lieu of generic disposition.