SIERRA CLUB ATLANTIC CHAPTER

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Attention: Docketing and Service Branch

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PROPOSED RULE PR 2, 51+54
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From: Dr. Marian H. Rose, Conservation Chair
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Date: December 5, 1994

Re: NUCLEAR REGULATORY COMMISSION
10 CFR Parts 2, 51, and 54
RIN 3150-AF05
Nuclear Power Plant License Renewal; Proposed Revisions

Reference: Federal Register/ Vol.59, No.174/ Friday, September 9, 1994/ Proposed Rules

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SIERRA CLUB ATLANTIC CHAPTER

On behalf of the Atlantic Chapter (New York State Chapter) of the national Sierra Club I am submitting the following comments regarding the Nuclear Regulatory Commission's (NRC) proposed revisions to its regulations pertaining to the application for renewal of a nuclear power plant operating license.

Our main concern, as environmentalists, is to ensure that any proposed rules to regulate renewal applications for aging nuclear power plants should also include measures for increased public protection. An argument can be made that the simplification of certain rules that are not critical for plant safety allows the licensee to concentrate more specifically on areas of plant management that are more pertinent to public safety. However, after a careful study of the proposed regulations, we are forced to the conclusion that, in this case, the focus of concern of the NRC is not the enhancement of public safety, but rather the convenience of the licensee. As an environmental group, dedicated to the protection of the public and the environment from the effects of nuclear contamination, we are strongly commited to opposing any such relaxation of safety measures.

The following considerations formed the basis for reaching this conclusion.

1. In seeking advice on the proposed new regulations, the NRC relied solely on the expertise of representatives of "nuclear utilities, industry organizations, architects and engineering firms, consultants and contractors, and Federal and State Governments." (page 46575, F.R.) The NRC also developed its draft regulatory guide and draft standard review by "interacting with lead plant licensees, and reviewing generic reports sponsored by the Nuclear Management and Resources Council.." (page 46575, F.R.) There is no mention of any environmental group nor any members of the general public

being consulted. Clearly, this is not for lack of expertise among members of the public or among environmental groups. For example, the Union of Concerned Scientists includes many distinguished scientists on its Board of Directors among whom are a significant number of Nobel Prize winners. Their expertise in the field of physics, applied to nuclear reactors, would have supplied a much needed and scientific balance to industry's point of view. Clearly, the NRC's primary aim was not the protection of the public; its purpose was to enhance the ease with which the industry could obtain license renewals for aging nuclear reactors.

2. As reactors age, the regulations governing their renewal licenses and their maintenance schedules should become more, not less stringent. For example, we strongly disagree with the NRC's premise that "aging is a continuing process" and, therefore, insofar as those structures that perform active functions are concerned, that "a specific focus on functionality is appropriate for performing the license renewal review" (page 46583, F.R.) is a sufficient safeguard. On the contrary, aging can become a discontinuous process as certain limits are reached, leading to catastrophic breakdowns (the "straw that breaks the camel's back" syndrome). Examples abound: one of the simplest, already known from high school physics, is Hooke's Law that demonstrates metal fatigue due to overstretching. Other well-known examples include the bending of beams; embrittlement; the sudden chaotic motion of regularly oscillating systems as the result of many incremental perturbations etc. In all these cases there is a common phenomenon, namely, a sudden, discontinuous, qualitative change in physical properties. Thus, active components should be included in an aging management review along with the "evaluation of the effects of aging on the passive functions of structures and components" (page 46584, F.R.).

3. The disposal of High-Level Radioactive Waste (HLRW) and Low-Level Radioactive Waste (LLRW) generated during reactor operation is not addressed. It appears that the NRC does not consider this issue to be an integral component of the operation of a nuclear reactor. At the present time, however, there is no known, safe technology for the permanent disposal of nuclear waste at a suitable centralized site. Furthermore, it does not appear likely that such a safe disposal method will be found during the lifetimes, whether extended or not, of the present generation of reactors. Clearly, the disposal of such waste must be a vital concern in managing a nuclear reactor; it should not, and cannot be dismissed as an extraneous issue. Prolonging the life of aging reactors entails the need for more on-site storage space. Management programs with conservative estimates for storage capacity, and with carefully engineered technology for the isolation of the wastes both from people and from the environment for the requisite numbers of years, must be made part of the licensing renewal process.

4. The economic feasibility of prolonging the life of aging nuclear reactors is not presented. Questions such as the expense involved in monitoring and /or replacing aging components; the increase in decommissioning costs as the reactor ages and the wastes accumulate; a comparison of the cost of energy from aging reactors versus the cost from other sources - none of these important issues is addressed in the proposed regulations. We strongly recommend that the NRC carry out a full economic analysis. The cost of operating uneconomical nuclear reactors, if such turns out to be the case, should not have to be borne by the ratepayers.

5. We disagree with the NRC assessment "that promulgation of the proposed rule would not significantly affect the environment and therefore a full environmental impact statement is not required and a finding of no significant

impact (FONSI), can be made." (page 46590, F.R.) If implemented, the proposed rule will have several significant environmental impacts. Most notably, by easing the rules for renewal of licenses, NRC creates incentives for operation of reactors for longer periods of time than proposed in original permit applications for these facilities. This factor will, in turn, result in the generation of more high-level and low-level radioactive waste than would otherwise be the case. NRC must, at least, estimate the increase in waste generation likely to occur under the proposed rule and evaluate the environmental impacts of disposing of this aditional burden of waste in a full environmental impact statement.

An additional significant environmental impact will result from the reductions in review called for in the proposed rule. By limiting the reactor functions that require review in an application for renewal, NRC limits the availability of information on how well the reactor functions, and potential impacts of its operation. This, in turn, will limit the ability of NRC and the general public to fully evaluate the environmental costs and impacts of continued operation of these reactors. NRC must identify the gaps in information created by the licensing process in the proposed rule and evaluate the potential environmental impacts of this information gap in a full environmental statement.

Finally, NRC fails to justify its conclusion that a license renewal review which focuses on functionality of structures that perform active functions (page 46583, F.R.) is protective of public health. To justify this conclusion NRC must, at minimum, carry out a survey and analysis of reactor types currently in operation, focusing on failures of structures that perform active functions and the conditions under which these structures failed. This analysis would appropriately be carried out in the context of a full environmental impact statement for the proposed rule.

6. Prolonging the life of an aging reactor will obviously increase the risk of a reactor accident unless the most careful mitigation measures are carried out.

Therefore, an applicant for renewal should be required to submit an EIS containing at the very least:

(a) A full description of the proposed mitigation measures to counteract reactor degradation due to aging.

(b) The cumulative effects of an added twenty years of discharge of radioactive cooling waters and/or steam.

(c) The environmental impacts of prolonged stockpiling of HLRW and LLRW.

(d) The economic impacts on the ratepayers due to prolonging the life of aging reactors.

(e) Plans for public involvement from the first scoping session, through subsequent public hearings.

6. Rules and regulations promulgated by government agencies are for the benefit the citizens of this country. As such, they should be written in language that the average, literate citizen can comprehend, i.e., in plain English. Technical terms, or specialized phraseology whose purpose is to express a precise meaning, legal or otherwise, can and should be fully explained. In many instances, we find the language of these proposed NRC regulations to be lacking in clarity. To give just two examples - sentences such as "An objective for the proposed amendment is to establish a more stable and predictable license renewal process that identifies certain systems, structures and components that require review to provide the necessary assurance that these systems, structures and components will continue to perform their intended function for the period of extended operation." (page 46575, F.R.) or "The Commission has concluded that, for certain plant systems, structures and components, the existing regulatory process will continue to mitigate the effects of aging to provide an acceptable level of safety in the period of extended operation." (page 46577, F.R.) do not make grammatical sense. Phrases such as "limiting conditions for operation in facility technical specifications within the scope of license renewal" (page 46576, F.R.);

"qualified life" (page 46577, F.R.); "specified time period" (page 46577, F.R.); "significant abnormal" (page 46579, F.R.); "A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient" (page 46579, F.R.); "primary success path" (page 46579, F.R.) should be explained in precise terms so that both public and licensees are clearly aware of the intent and purpose of the regulation. The meaning of these terms should not be left for the reader to guess from the context of the regulations.

7. The emphasis in the proposed regulations is on monitoring the structures, systems and components that have a direct bearing on public safety. This increases the risk of a breakdown in what might be considered a non-essential piece of equipment, going unnoticed for a long enough time to start a chain reaction of events that could have catastrophic results. In this connection, all "required" functions of structures, systems and components should be identified and monitored. Some built-in redundancy is an essential safety feature against inevitable human error; redundancy should, therefore, be enhanced with the increasing age of the reactor.

8. A plant renewal application should not be granted before the first twenty years of plant operation have been completed. Shorter time periods do not allow for the effects of deterioration due to aging to appear in sufficient diversity or intensity for plant management to acquire a full range of experience in dealing with these problems. Unless renewal times (such as twenty years) are strictly specified, licensees might be tempted to apply for renewal over a range of shorter time periods, before the full effects of reactor aging become apparent.

In Section V of the proposed regulations, the NRC solicits responses to three questions. Our answers to those questions are contained in the preceding comments.

In summary, the Sierra Club Atlantic Chapter takes the position that the issues of public safety, of environmental impact, of disposal of HLRW and LLRW, and of economic impact due to prolonging the life of aging nuclear reactors have not been properly or fully addressed in the proposed regulations. Prolonging the life of aging nuclear reactors without, at the same time, introducing measures to increase public safety, is unacceptable.

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