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40 Mallards Cove
Duxbury, MA 02332
February 1, 1991

Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

Dear Sir:

In a Federal Register notice of December 27, 1990 the NRC invited comments on SECY 90-347 concerning the "Regulatory Impact Survey Report". My comments follow.

The technology of the light water cooled reactor for nuclear power has matured since the original regulations were written. However, regulation has not developed in parallel. The evolution of regulations was toward increased detail and toward control of short-term, ongoing processes. As the NRC increased their detailed process control, the regulatory environment became regulation by bickering.

The legitimate reasons for the Federal government to regulate nuclear power continue to be to control fissile material and to protect the public from the hazards of radiation and radioactivity. Regulations should use the knowledge of a matured technology to change from a process base to a performance base. This would eliminate causes of bickering, reduce the administrative costs of regulation for the industry and the NRC, and increase the effectiveness of regulation.

One of the least effective regulations addresses the quintessential difference between fossil fueled and nuclear powered electric generating plants - the effects of radiation and radioactivity. The original ALARA requirements for control of radiation and radioactivity had no credible quantitative bases because technology had not yet evolved. The qualitative regulation imposed (ALARA) has been given lip service both by the industry and the NRC. It is mainly in this area that new NRC regulations should forcefully and quantitatively address the performance of the licensee. Such regulation should directly address the impact of power reactors on the environment and on the public and provide the mechanism for reducing these impacts to deminimus as further evolution of technology will enable.

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I suggest that the NRC, working with industry develop a plan for simplified, performance based regulation of nuclear power. Elements of the plan that would be essential are illustrated in the following specimen statement of performance based regulation:

"The licenses of all power reactors owned by a licensee shall be subject to termination at any time during the term of a license that any one of the following conditions occur at the owner's licensed power reactor:

1. Release of fission products from the reactor fuel greater than 1/10 of 1% of the total fission product inventory of the fuel.

2. Industrial radiation exposure exceeds 40 person-Sieverts (4000 person-Rem).

3. Radiation exposure to the public exceeds 40 persons-Sieverts (4000 person-Rem).

4. Low level radioactive waste, exclusive of that resulting from decommissioning of a licensed power reactor, exceeds 5000 cubic meters disposal volume or 1000 Curies of radioactivity.

5. Low level radioactive waste from decommissioning a licensed power reactor, including consequences of accidents, exceeds 2000 cubic meters disposal volume or 1 million Curies.

6. Loss of physical control of 1 kilogram of fissile material.

The termination conditions (1 through 6 above) are reviewed every ten years for application to new and renewal licenses by the NRC and published under the proceedings for Rule changes."

In the above proposal the numerical quantities are based on years of experience but are exemplary; they are not final recommendations. They are also based on a 40 year initial license duration. Development of proposed regulations should determine termination conditions that can be accomplished within today's technology and applied to the license of a new power reactor. They should also address the applicability to renewal of licenses for existing power reactors as proposed under 10CFR52. The termination conditions are obviously only operative during the Operating License but should apply to both the Construction and Operating License if both continue to exist.

Inclusion of linkage among all licensed power reactors owned by the licensee is based upon the experience to date with variation in performance among plants of the same licensee. Performance variation is usually attributed to the variation in management of the individual plants of the licensee. The same argument obtains that if the common management of the licensee were performing acceptably, acceptable performance would be obtained in all of its licensed plants. Linking failure at any one licensed power reactor to the continuance of licenses at the other owned power reactors provides maximum incentive for the licensee's whole corporation to achieve adequate performance.

A review period of ten years for the termination conditions is proposed to provide a vehicle for recognition of the continuing development of technology and its application to regulation. It is not intended to change the termination conditions of any issued license.

The plan should identify major bodies of current process oriented regulation that should be eliminated consistent with performance based regulation. The state of technology varies among the six termination conditions. A time-phased plan of implementation of license termination conditions may be appropriate to recognize the difference in technological basis. It is expected that inclusion of termination conditions for new or renewal licenses can be accommodated with Rule changes vice legislation.

I am commenting as an individual who has spent his lifetime in work associated with the lifetime of the nuclear power industry. I make no representation whether these comments reflect views of my current employer.

If I can be of any further assistance, feel free to call.

Very truly yours,

E. J. Wagner