ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
December 10, 1975

Mr. Lee V. Gossick
Executive Director of Operations
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: REPORT ON REVIEW OF SITING POLICIES FOR LICENSING NUCLEAR FACILITIES

Dear Mr. Gossick:

In response to a request from the NRC Staff, the Siting Evaluation Subcommittee of the ACRS met with members of the Division of Siting, Health and Safeguards Standards on December 2, 1975, to discuss siting policies. This matter was the subject of further deliberations by members of the Siting Evaluation Subcommittee on December 3, 1975, and was discussed during the 187th and 188th Meetings of the full Committee, November 6-8, 1975 and December 4-6, 1975.

The Committee understands that the primary objective of the current review by the NRC Staff is to determine if changes in current siting policies are desirable.

In reviewing existing criteria for possible improvements, the Committee recommends that the following items be considered:

1. Extension of current siting criteria to include reactor types other than LWRs (for example HTGRs and LMFBRs), as well as floating nuclear power plants.

2. The impacts of major accidental radionuclide releases on water resources, such as underground aquifers and nearby lakes.

3. Reevaluation of the bases used for setting dose limits for the Design Basis Accidents.

4. Development of suitable criteria for acceptable risks to people (both individually and collectively) living in the vicinity of a site. This effort will also require consideration of associated benefits.

5. Desirability of specifying a minimum size for the exclusion area, a minimum radius for the LPZ, and a maximum population distribution in the area surrounding a site. A potentially valuable input might be the siting policies and experiences developed in densely populated countries where a substantial level of nuclear power is in place or planned (Germany, United Kingdom, Japan, and France).

6. A "figure-of-merit" for population distribution, and perhaps for meteorological characteristics, for use in site selection. Application of the consequence methodology of WASH-1400 to a range of sites may prove to be useful in obtaining an improved basis for choice of a figure-of-merit.

7. Inclusion of seismic considerations.

8. Assessment of interactions between approved sites and changes in the surrounding environment. Population increases and changes in the characteristics of industrial, commercial, or recreational activities in the neighborhood of an operating nuclear facility can have significant impacts on the continuing acceptability of the site. Means for predicting and dealing with such changes should be investigated. The development of memoranda of understanding between the NRC and other governmental agencies, both federal and local, might be an effective approach.

9. Extent to which requirements for end-of-life decommissioning and potential plant replacements affect siting policies.

10. Short and long term consequences of a major accident in a nuclear installation on other operations at a multi-unit site such as a nuclear power park.

11. The number of sites required within a given region over a specified period of time as a factor in deciding on the type of sites that might have to be accounted for in the siting criteria.

12. Considerations of national defense and industrial security.

13. Evaluation of the potential impact of any newly developed siting policies on existing nuclear installations. A particular subject to be considered is the effect of any changes on sites already approved.

In conjunction with such a review, there appears to be a need for supporting studies. For example, the Committee suggests that:

(a) Population doses be estimated for a broad range of site characterisitics and for a broad spectrum of accidents, including Class 9, using probabilistic data and methods of the types applied in the Reactor Safety Study (WASH-1400) including sensitivity studies and allowances for uncertainties. An important objective of this effort should be to determine the relative importance of specific site characteristics in terms of their impact on population doses and risks under accident conditions.

(b) Studies be conducted on the degree to which engineered safety features or alterations in plant design should be used to compensate for specific site deficiencies. In particular, it would be useful to determine whether there are characteristics for which compensating engineering changes should not be applied.

The Committee recommends that an early effort be undertaken to develop criteria for other portions of the fuel cycle such as fuel fabrication and spent fuel processing facilities. Attention should also be given to the development of additional criteria for sites containing more than one reactor or nuclear facility.

Sincerely yours,

W. Kerr
Chairman