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UNION CARBIDE NUCLEAR COMPANY
DIVISION OF UNION CARBIDE CORPORATION

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POST OFFICE BOX P
OAK RIDGE, TENNESSEE

June 19, 1959

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U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Attention: Mr. S. R. Sapirie

Gentlemen:

Subject: FEDERAL REGISTER, MAY 23, 1959, TITLE 10 CHAPTER I
NOTICE OF PROPOSED RULE MAKING

Because of the very great variety of reactor types which can be grouped under the heading "Power and Test Reactors," it appears very difficult to formulate a single set of rules which could be applied directly to the design and siting of each member of the group. For this reason it is suggested that, rather than a set of rules covering design and siting criteria, it would be more realistic to first supply a set of "safety performance standards." By this is meant a set of standards which set forth the upper limits of hazard to the health and safety of the public permitted as a result either of normal operation or the occurrence of any credible accident. Such limits could be expressed in terms of permissible radiation exposure for both normal and emergency situations. Limits on the permissible concentration of radioactive effluent in the various environmental media could also be established.

Once these standards are adopted it then becomes possible to examine a given reactor system in relation to its type, operating characteristics, power level, site, and configuration in order to determine what design features it is necessary to incorporate in order to meet the safety performance standards. It is clear that for many well recognized situations it will be possible to establish design and siting rules which, if followed, will ensure that safety performance standards are satisfied. The conditions under which such rules are valid must, however, be carefully defined. Moreover, it should be understood that methods other than those set up in the rules, but which can be shown to be adequate are not excluded.

It is felt that the matter of setting standards of public safety is independent of the type of reactor under consideration, and that these standards will be essentially identical for all such machines. On the other hand the methods devised to meet these standards depend strongly

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on the type and location of the reactor. Furthermore, there are often several ways in which a particular design problem can be handled. For these reasons we believe that the two problems should be kept essentially independent of one another, and that any design which can be demonstrated to satisfy the safety performance standards should be admitted to consideration.

In the light of the foregoing we include below a few comments on the proposed rules set forth in the subject notice. Paragraph a, which is a brief statement of the philosophy employed in site evaluation, points out qualitatively what must be considered, but provides no information concerning what the Commission considers an "undue hazard." Obviously this must be known before a design can be examined to determine whether it does or does not constitute an undue hazard. We cannot overemphasize the need for specific numbers in this field. We should like to see the paragraph revised to supply quantitative information in terms of permissible radiation dosages and radionuclide concentrations so that it could provide the "safety performance standards" previously mentioned.

The remaining paragraphs (b through g) deal with the factors which must be considered when analyzing the system to determine whether it does or does not constitute an undue hazard. These factors are also treated only in a qualitative fashion, and while it is felt that they have value in that they bring to the notice of the uninformed reader some of the more important considerations related to site selection, they do not contain sufficient information to permit critical evaluation. Moreover evaluation is not possible unless the term undue hazard has been defined. Because of the qualitative nature of these paragraphs, it is recommended that they be included, not as regulations, but rather as information concerning the factors which are to be considered when making a site evaluation.

In two cases, paragraphs b and c, quantitative information concerning exclusion area radii and distances from population centers are given. Since these distances are closely related to the nature of the terrain, and the type of containment among other things, it is felt that the inclusion of these numbers, without giving the basis on which they were obtained is quite misleading. We recommend therefore that they be deleted.

Finally we would like to state that we agree completely in principal with the publication of basic criteria to be used in site selection, however, we feel that this information should be presented in the form of rules only in those cases where sufficient quantitative data exist to permit unambiguous application of those rules. In order to ensure this we recommend that a period of at least 90 days be provided for responsible review prior to the publication of such rules. This last requirement is of particular interest to us since in the present case only three days were available to us for review.

Yours very truly,

UNION CARBIDE NUCLEAR COMPANY

Clark E. Center

Clark E. Center
Vice President

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