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STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Harold L. Price, Director, Division of Licensing and Regulations, Headquarters

DATE: July 7, 1959

FROM : S. R. Sapirie, Manager
Oak Ridge Operations

SUBJECT: NOTICE OF PROPOSED RULE MAKING

SYMBOL: OE:JFD

Reference is made to your memorandum dated May 26, 1959, no symbol, subject as above, which asked for our comments and those of our operating contractors on the enclosed Notice of Proposed Rule Making published in the Federal Register on May 23, 1959. We have solicited the comments and suggestions of our operating contractor and have incorporated them with ours in the following.

It is our opinion that an amendment to the regulations to state site criteria for evaluation of proposed reactor sites is a desirable undertaking and could serve a worthy objective. However, because of the great variety of reactor types which can be grouped under the heading of 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 reactor that might be proposed. Rather than a set of rules covering design and siting criteria, we suggest that it would be more realistic to first supply a set of "minimum safety performance standards". By this we mean, a set of standards which establish the upper limits of the acceptable hazards to health and safety of the public as a result either of normal operation or the occurrence of any credible accident. Such limits should 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 should also be established. These standards should define as completely as possible the phrase "will not create undue hazard to the health and safety of the public".

Once these standards are adopted, a criteria will be available against which it would be possible to examine a proposed reactor system in relation to its type, operating characteristics, power level, site, and configuration in order to determine what design features will be necessary to meet the safety performance standards. The onus should be on the proposer to show that his system will meet the minimum safety performance standards.

We feel that the matter of setting "minimum safety performance" to ensure the public safety is independent of the type of reactor under

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consideration and that these standards will be essentially identical for all such machines. On the other hand, the methods devised to ensure that a given reactor system meets these standards is a design problem, strongly dependent upon the type and location of the reactor, which may have several acceptable solutions. For these reasons we believe that the Commission should concern itself primarily with the establishment of "minimum safety performance standards" and that any design which can reasonably be expected to comply with these standards should be admitted for consideration.

In light of the foregoing suggestions, we would like to set forth a few specific comments on the notice of proposed rule making forwarded with your referenced memorandum.

1. Because of the quantitative nature of the factors considered in site evaluation, we believe they should not be listed in any rule or regulation issued by the Commission but should be furnished licensees in the form of guidance information. This list of factors should be expanded to include all the specific parameters to be considered in an hazard analysis. An effort should be made to exclude any preconceived notions which might prejudice a proposer's demonstration that his system will meet the "minimum safety performance standards".

2. Paragraph a., General, states that construction of a proposed reactor facility at a proposed site will be approved if reasonable assurance exists that it will not create "undue hazard to the health and safety of the public". No information is provided, however, as to what constitutes an undue hazard. Obviously, some criteria must be established before a given design can be analyzed in relation to the associated hazards. This emphasizes our suggestion that the first step should be the establishment of "minimum safety performance standards".

3. Also in paragraph a., it is stated that the issuance of a construction permit does not imply that the issuance of an operating license will be granted later. We feel that this is a highly undesirable situation for the following reasons:

   a. Any organization would be most unwise to make a capital outlay for a power reactor installation on the basis of a construction permit if there was any reasonable doubt that an operating permit would be issued.

   b. The Commission would find itself in an almost untenable position in refusing to permit an organization to operate

a plant for which a construction permit has been issued. At the time the action is taken for an operating permit, the fact that a plant has already been constructed must necessarily become a large factor, which makes a decision on the technical matter most difficult.

We realize that, at the present status of the art, separate permits must be issued initially covering construction at a particular site and later actual operation. However, it is our hope and recommendation that the ultimate situation will be that a single permit be issued covering both construction and operation. This should be the Commission's aim for realization in the not too distant future.

4. In paragraph b., Exclusion Distances Around Power and Test Reactors, minimum exclusion radii under the complete control of the licensee are quoted which we feel will cause unnecessary concern on the part of the licensees over land requirements for their proposed projects. We feel that it should be left to the proposer to show that he has established a minimum exclusion area around his proposed facility adequate to meet the requirements of the "minimum safety performance standards". As an example of the impact of specified exclusion areas, we observe that most power reactors will be located adjacent to navigable waterways because of cooling water requirements. The exclusion areas suggested would necessitate inland location of the reactor thereby adding a continuing economic penalty due to coolant water pumping losses.

5. Paragraph c., Population Density in Surrounding Areas, states that reactors should be located in areas of small population density, 10-20 miles distance from large cities, and that the location of reactors near to air fields, arterial highways and factories should be discouraged. We feel that such a requirement is unrealistic in view of the lack of control which the licensee would have over the inevitable population shifts likely during the economic lifetime of the reactor. Likewise, there are no guarantees under the law that air fields, arterial highways and factories would not be erected in proximity to an existing reactor sometime in the future. We suggest that over-emphasis of this factor in site evaluations should be avoided.

In summary, we believe that there is a great need at the present time for the Commission to establish a detailed set of "minimum safety performance standards" to serve as criteria for the evaluation of proposed power and test reactors.

After the establishment of these standards, the factors to be considered in site evaluation should be provided, in as great a detail as possible, as information to guide the licensee in his design. The onus, however, should always be on the licensee to demonstrate to the satisfaction of the Commission that his proposed reactor system will meet the "minimum safety performance standards".

for S. R. Sapirie

Enclosures:
1. Mo HMR to DFC dtd 6/24/59
2. Mo LHJ to DFC dtd 6/23/59
3. Mo JWO to DFC dtd 6/19/69
4. Lt CEC to SRS dtd 6/19/59

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