



# ATOMICS INTERNATIONAL

*A Division of North American Aviation, Inc.*

June 3, 1963

*In reply refer—*

63AT3833



Secretary  
U. S. Atomic Energy Commission  
Washington 25, D. C.

Subject: Proposed Revisions to Title 10, Code of Federal Regulations Parts 40, 70, and 71 entitled "Licensing of Source Material", "Licensing of Special Nuclear Material", and "Shipment of Special Nuclear Material", respectively, as published in the Federal Register on March 5, 1963.

Gentlemen:

We have reviewed the subject proposed regulations and agree that it is desirable to have a more definitive statement of the criteria by which the Atomic Energy Commission determines the adequacy of the procedures, facilities, and equipment of applicants for Special Nuclear and Source Material licenses to protect against accidental criticality. However, as suggested by the statement of considerations to the proposed revision to 10 CFR Part 70, we believe it would be highly desirable to set out such criteria not only for Part 70 but also those for Part 71 in a separate guide. As recognized by the Atomic Energy Commission, prevention of accidental criticality is an area in which knowledge is still rapidly being developed. If the technical criteria are set forth in a separate guide rather than in the regulations themselves, it will be easier for the Commission to keep the guide up to date with the latest and best criteria which has been developed, and it will also permit more flexibility by the Commission in considering license applications based on alternative criteria developed by the applicants for specific operations and conditions existing in their particular plants. We believe it would be preferable and more effective to have the regulations establish a set of "performance" criteria rather than detailed rigidly fixed specifications as has been done in the proposed regulations. The technical data and methods of treatment by which both the applicant and the AEC would assure that the

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performance criteria were being adequately met would be in the separate guide suggested above. We also believe that such an approach is not only more conducive to safe operations but also will avoid possible excessive and unnecessary controls not needed for safety but which could seriously inhibit expansion in the use of nuclear materials.

In our review we have found a number of inconsistencies and requirements which we believe do not contribute effectively to the assurance of safety in the operations covered in the proposed regulations. The following comments are directed to examples of these.

Part 71.

1. In Section 71.42 cadmium is specifically required to be used as neutron poison. It would appear that other appropriate poison materials, e.g., boral, would be adequate substitutes and could be used.
2. In Sections 71.52 and 71.65, packages of the type referenced in each section are required to withstand exposure to the first ten minutes of a standard one-hour fire, while other packages as cited in 71.42 must withstand exposure to the full one-hour fire.
3. It appears that the maximum safe masses as indicated in the table in Section 71.52 are unduly restrictive in that they are smaller than those allowable in Section 71.62 and in Section 70.46 of 10 CFR 70.
4. Section 71.64 appears to restrict the evaluation of interaction of packages to the solid angle criteria. In some cases, data may be available to permit a better evaluation of safety and result in the shipment of more packages at closer spacing than that allowable by the solid angle criteria.
5. It is not believed that a specification on leak-tightness, as indicated in Section 71.65, is required for all containers, since the nuclear safety of the packages is based on optimum water moderation. It is recognized that some containers may be required to be leak-tight for other reasons.

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Part 70.

1. Section 70.35 requires that evacuation drills be conducted at least once every three months. It is believed that semi-annual drills will be adequate for maintaining personnel familiarization with emergency procedures.
2. The use of Figure 15 in Section 70.43 for all uranium compounds or solutions does not appear to be adequately conservative for all parameters; e.g., volumes, slabs and cylinders. This same comment is also appropriate to the criteria in Section 70.45, when the criteria are applied to volume, slab and cylinder geometry limits.
3. The values of the neutron multiplication factor given in Section 70.52 (c) (2) appear to be not sufficiently conservative, particularly when low enrichment materials are handled.

The above represent individual examples of a number of items throughout the proposed regulations which we believe merit detailed review and reconsideration before the regulations are adopted, particularly when the integrated effects of such items are evaluated in light of the difficulties of interpretation and the consequent difficulties of administration.

We believe that the proposed regulations should be redrafted and the technical criteria on which procedures, facilities and equipment are to be based to avoid accidental criticality should be set forth in a separate guide rather than made a part of the regulations. Even if the Commission decides that the regulations should be adopted in their present format, a considerable number of changes and clarifications appear to be in order. In either event we recommend that the Atomic Energy Commission reconsider its intention to adopt the proposed regulations in their present form and accept the offer made by the Atomic Industrial Forum, Inc., in Mr. Edwin A. Wiggin's letter, dated May 14, 1963, to assist in revising the proposed regulations.

Very truly yours,



C. Starr  
President  
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**VIA AIR MAIL**

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U. S. Atomic Energy Commission

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