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DOCKET NUMBER

PROPOSED RULE PR-71(44FR48235) (16)

October 16, 1979

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

ATTENTION: Docketing & Service Branch

SUBJECT: Proposed Rule for 10CFR Part 71

Gentlemen:

Please find enclosed our comments on the proposed rules for 10CFR Part 71. In general, we feel that the proposed changes represent a significant increase in the structural requirements for packaging. These increased requirements will translate directly into escalated costs.

We would be happy to discuss any of our comments in greater detail, if required.

Sincerely yours,

NUCLEAR PACKAGING, INC.


John D. Simchuk

JDS/dmm

Enclosure



Acknowledged by card *10/29 da*

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Comments pertaining to the 10CFR71 Draft published in Federal Register, Volume 44, No. 61, Friday, August 17, 1979

Comments are as follows:

SECTION 71.8 - Exemption for Low Level Materials

This section should receive some additional clarification to explicitly state whether LSA quantities exceeding Type "A" levels will fall under the requirements of Part 71.

SECTION 71.32 - Standards for All Packages - Item (a)

Lifting attachments. The proposed regulation indicates that lifting attachments, when used in the intended manner with an appropriate safety factor to cover abrupt lifting, shall not impose unsafe stresses on the structure of the package.

Comment - The terms "abrupt lifting" and "unsafe stresses" are ambiguous. It would appear appropriate to state these criteria in terms of conventional lift and hoist design requirements such as a factor of safety of 3 on yield stresses and a factor of safety of 5 on ultimate stresses. Provisions should be provided to allow the reduction of these factors of safety with specified or dedicated handling equipments whose design features and failure modes assure that dynamic load factors of lesser magnitude can be guaranteed. If the regulations are not intended to control the strength of the lug itself, it should so state (i.e., similar to Paragraph e).

SECTION 71.32 - Tiedown Devices - Item (e)

The revised provision which eliminates the 2, 10 and 5 load factor components in the vertical, longitudinal and lateral directions implies that the package structure be designed to safely withstand a load which fails the tiedown device.

Comment -

1) References to applicable sections of DOT regulations wherein loads are specified would be desirable.

2) The design break away load provides an adequate basis for assessing accident related stresses. Normal condition loads remain undefined and ambiguous.

SECTION 71.32 - Item (h)

The provisions note a demonstrable leak rate per approved NRC test procedures.

Comment - A more definitive description of how to evaluate leakage of materials such as solids and particulate material is required. The allowed leakage rate may be impractical to meet.

This implies that all transport packages be testable. This will require the inclusion of test ports across each sealing device. The cost implications for design, fabrication and service are significant.

SECTION 71.34 - Additional Requirements for Type B (U) Packages
Sub-item (f)

The proposed regulation notes that the stress intensity sum of membrane and bending stresses caused by pressure, thermal gradient and differential thermal expansion shall not exceed the minimum yield strength of the material at maximum temperature.

Comment - This appears to be an excessively restrictive and conservative design requirement, at variance with current applicable criteria. Examples include:

- 1) Regulatory Guide 7.6, Regulatory Position C-6 - Under accident conditions (including the hypothetical fire) primary membrane stresses should be less than the lesser value of $2.4 S_m$ and $0.7 S_u$ and the stress intensity resulting from the sum of the primary membrane bending stresses and the primary bending stresses should be less than the value of a $3.6 S_m$ and S_u . For conventional materials, with S_m values equal to $2/3$ the yield stress value, this is essentially equivalent to a membrane stress requirement of $1.6 \times$ yield and a primary membrane plus bending stress limit of $2.4 \times$ yield. Thus, the proposed regulation reduces allowable stresses by a factor of 2.4.
- 2) ASME Boiler and Pressure Vessels Code Provisions NC-3324.1, Table NC3321-1 - Specify that the sum of membrane and bending stresses for Level D service (accident conditions) are not to exceed $2.4 S_m$. Notably, the ASME requirements are less restrictive than the above Regulatory Guide in that temperature induced stresses are not classified as either membrane or bending stress components but they bear the Q classification as indicated in Table NC3321-2.

APPENDIX A - Normal Conditions of Transport

The proposed temperature of -29°F is inconsistent with Regulatory Guide 7.8 which states that initial conditions should be -20°F .

The subject of brittle fracture may be indirectly introduced by way of establishing -29°F condition prior to drop testing. This topic is currently causing no end to problems related to receipt of Certificate of Compliance for pending cask designs. Current interpretation by the licensing branch is that carbon steel is not an acceptable for cask fabrication. If the intent is to exclude some types of steel used for fabrication purposes the regulations must explicitly state what the acceptance criteria is. Without some type of criteria it becomes impossible to do an intelligent design and analysis. The assessment of the design becomes totally dependent on the attitude of the particular reviewer assigned to the S.A.R. The resultant inconsistency will cause long delays and costs escalation that will be painful to all.

The incorporation of a 25 psig external pressure to Type "A" as part of the normal conditions of transport will have a significant impact on the acceptability of many containers such as radwaste liners and drums.

The revised regulations have also increased the reduced pressure from half atmosphere to a quarter atmosphere, which increases the internal pressure the package has to withstand. Both of these changes must be recognized as increased structural requirements that will result in escalated costs.

APPENDIX B - Thermal - Item (c)

The proposed regulation adds convective heat input on the basis of still ambient air at 800°C .

Comment - Free convection heat transfer coefficients depend, to some extent, upon whether or not a fully developed boundary layer exists. For reasons of clarity, the regulation should state one of the following basis:

- 1) Assuming a fully developed boundary layer surrounding the body.
- 2) Convective boundary layer predictions shall assume that the package rests upon a flat, horizontal surface.

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