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PROPOSED RULE PR 71 (65 FR 49360)

STATE OF ILLINOIS

DEPARTMENT OF NUCLEAR SAFETY

1035 OUTER PARK DRIVE • SPRINGFIELD, ILLINOIS 62704
217-785-9900 • 217-782-6133 (TDD)

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George H. Ryan
Governor

Thomas W. Ortciger
Director

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September 26, 2000

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

Attention: Rulemaking and Adjudication's Staff

SUBJECT: **COMMENTS ON 10 CFR 71 ISSUE PAPER**

The Illinois Department of Nuclear Safety submits the attached responses to the questions posed by NRC staff in its issues' paper published for public comment on July 11, 2000.

Our responses follow the order in which the issues were presented. If you have any questions regarding these responses, please contact Mr. Robert Lommler of my staff at (217) 786-7129.

Sincerely,

Richard Allen

Rich Allen, Manager
Office of Environmental Safety

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Attachment

Template =SECY-067

SECY-02

NUCLEAR REGULATORY COMMISSION
10 CFR Part 71
Comments

Issue 1. Changing Part 71 to SI Units Only

Factors for Consideration

- What changes would licensees and Certificate of Compliance holders have to make to relevant documents if NRC revised 10 CFR Part 71 to require SI units only?

  Comment
  Depending on the specific wording used by the NRC in 10 CFR 71, all NRC approved package construction documentation would have to be converted from English to metric, converting descriptions for use, maintenance, and Quality Assurance to metric and perhaps even relabling of English tools with metric measurements. The cost for this, when combined with Issue 8, could cause a shortage of approved packages and provides numerous opportunities for relabeling and conversion errors to affect safety.

- What risks and safety impacts might occur in shipments because of possible confusion or erroneous conversion between the currently utilized English units and SI units?

  Comment
  The safety concerns are primarily damage to containers by erroneous conversions of weight, torque, tool, and thread sizes rather than activity conversions. The tools and measurement devices used with these containers are in English units and converting English unit documents to metric makes no sense since the measurement would need conversion back to English units to be performed on the container, torque device, or lift capacity calculation. Metric construction and marking might be required after a certain date for new manufactured containers, but grandfathering or providing specific exceptions for domestic use of English unit containers should be allowed providing that they meet all testing and recertification requirements.

- What sort of transition period would be needed to allow for the conversion to exclusive use of SI units?

  Comment
  Four years.

- What other conforming changes would have to be made to Title 10?

  Comment
  We recommend that NRC either convert everything in Title 10 to metric and force everyone to change to metric or remain at dual unit use through all parts. Piecemeal

conversion, i.e., converting only Part 71, is unacceptable. Using dual units in Part 10, while requiring transportation documents in SI units, is not a problem since Part 49 has required SI units for years.

Issue 2. Radionuclide Exemption Values

Factors for Consideration

- In some cases, would shippers have to expend resources to: (1) Identify the radionuclides in a material; (2) measure the activity concentration of each radionuclide; and, (3) apply the method for mixtures of radionuclides when determining the basic radionuclide values for exempt material?

Comment

About once a year, IDNS has to identify radionuclides to ship radioactive materials because a gross field reading identifies concentration near 70 Bq/gm. Lowering the unknown alpha emitter limit to 0.1 Bq/gm (a factor of about 700) would require alpha spectroscopy analysis 10 to 20 times a year and would require routine use of laboratory quality measurements because field measurements at these levels would not determine activity accurately. It is currently relatively easy to determine with most isotopes of interest that the activity is below 70 Bq/gm. Changing to isotope specific levels and sum of fractions complicate things unnecessarily. Science based values may not increase safety enough to justify the added cost and system complexity.

Table I. BASIC RADIONUCLIDE VALUES

Comment

The basic Radionuclide Values chart has a column labeled *"Activity limit for an exempt consignment."* The use of that column is not defined anywhere in the issues paper. It would appear that even if a radionuclide is under the concentration limit, but exceeds the activity limit, it must be made as a radioactive material shipment. If this is the intent, then it will have a major affect on certain manufactured consumer items, perhaps even construction materials such as bricks.

- Should the exemption values apply to domestic as well as export shipments?

Comment

Applying exemption values to domestic shipments is an unnecessary complication that does not increase safety enough to justify the additional analysis, equipment, and training costs.

- If the exemption values only applied to export shipments, would the resulting standard be practical to implement?

  Comment
  Export shipments are already so complicated by trade and import restrictions that shippers have to use experts knowledgeable on specific country requirements. Any added requirement for exports should be practical for them to implement.

- If DOT specifies the exemption values in its regulations (49 CFR 173), should the NRC incorporate those same exemption values in Part 71, or simply make reference to the exemption values in the DOT regulations?

  No Comment

- There may be unintended consequences to adoption of specific exemption values as the current exemption value is used for non-transportation related activities. To what extent and in what manner would a change to specific exemption values affect entities whose non-transportation activities are linked to the current exemption value?

  No Comment

Impacts of Table I

Comment
In 10 CFR Part 30, there are tables on exempt concentrations (Schedule A) and quantities from licensing (Schedule B). Incorporating Table I in Part 71, which gives concentration and quantities exempt from transportation regulation as radioactive material, will cause confusion on what is exempt from what. If the NRC considers a concentration and quantity exempt from licensing thus allowed to be freely possessed by the public, why is it so dangerous that it has to be regulated in transportation to protect public transportation workers?

Issue 3. Revision of A_1 and A_2

No Comment

Issue 4. Uranium Hexafluoride Package Requirements

No Comment

Issue 5. Introduction of Criticality Safety Index (CSI) Requirements

Factors for Consideration

- Are any issues envisioned in the use of two TI values for shipments?

Comments

Issues envisioned in the use of two TI values include confusion on how to use the values to determine how many packages can be shipped together. Using the single most restrictive value makes it clear at a glance now many packages can be shipped together without retraining shippers, carriers, regulators, and emergency responders. Adding another label with another number is certain to confuse local emergency responders.

The label that carries the Criticality Safety Index (CSI) is not illustrated. Depending on its shape, color, package placement, etc., it may be difficult to read or place on the smaller packages with other required information.

Nothing is gained by having the CSI/TI combination for the cost involved.

Issue 6. Type C Packages and Low Dispersible Material

No Comment

Issue 7. Deep Immersion Test

No Comment

Issue 8. Grandfathering Previously Approved Packages

Comment

Grandfathering should be date-based so that the package user has a means through the manufacture date of the package to know if it is still approved for use. Fabrication under old standards should cease within one year of adoption of new USDOT standards by regulation.

Keeping US regulations compatible with ST-1, based on a two-year update, frequency is too much effort for the gain. Why try? Base grandfathering on serviceability, wear, life of components, and adequate safety based on use experience.

Issue 9. Changes to Various Definitions

Comment

The proposed table headings in Table 1 *"Activity concentration for exempt material" and "Activity limit for an exempt consignment"* need to be changed to more clearly state their purpose or they have to be defined in Part 71 so that they are not confused with concentration and activity limits elsewhere in 10 CFR for materials licensing.

Issue 10. Crush Test for Fissile Material Package Design

No Comment

Issue 11. Fissile Material Package Design for Transport by Aircraft

No Comment

Issue 12. Special Package Approvals

No Comment

Issue 13. Expansion of Part 71 Quality Assurance Requirements to Holders of, and Applicants for a Certificate of Compliance

Comment

Yes, there should be consistency between Part 71 and 72 in Quality Assurance provisions.

Issue 14. Adoption of ASME Code

No Comment

Issue 15. Adoption of Changes, Tests, and Experiments Authority

No Comment

Issue 16. Fissile Material Exemptions and General License Provisions

No Comment

Issue 17. Double Containment of Plutonium (PRM-71-12)

No Comment

Issue 18. Contamination Limits as Applied to Spent Fuel and High Level Waste (HWL) Packages

Comment

The 4 Bq/cm^2 limit for removable package contamination should continue to apply to spent fuel and HWL packages. Due to long transport times, adverse weather mobilizing, contamination on the spent fuel shipments going into GE Morris, was a definite problem. If higher initial contamination limits were allowed, more railcar and truck contamination would occur, which contaminates workers and the public more easily than contact with the cask.