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REGULATIONS AND  
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Docket Number RSPA-99-6283; Rulemaking Effort for Compatibility with IAEA ST-1

**Subject: UF6 Packages Relying on Moderator Exclusion for Criticality Safety**

The transition from Safety Series 6 to ST-1 includes a regulatory burden reduction for uranium hexafluoride packages. This relaxation is in the definition of special features in Paragraph 677.

Further, the industry has long relied on the "self-healing" of a containment breach through the formation of a  $UO_2F_2$  plug to prevent further ingress of a moderator (such as water, or water vapor in the atmosphere). Moderator ingress will lead to criticality. There is no reasonable assurance that this plug will exist to prevent an uncontrolled criticality. In fact, information contained in LA-11896-MS, entitled, "A literature review on the chemical and physical properties of uranyl fluoride ( $UO_2F_2$ )" by W.L. Myers suggests that this plug is highly soluble, and it can be slow to form. These packages are being shipped in an unanalyzed condition. The removal of the requirement for multiple high standard water barriers through the definition of special features for uranium hexafluoride packages only, in Paragraph 677, is also unsupported.

The concern is that the potential exists for an inadvertent criticality. The risks associated with such an event have not been quantified. Without such supporting documentation, it is not clear if adoption of such a regulation is in the interest of protecting public health, safety and the environment.

IAEA ST-1 will be adopted by the various international modal organizations, resulting in the same concerns world-wide. I am also making this information available for consideration in the parallel effort of the USNRC in the Part 71 Rulemaking.

Sincerely,

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