

“contaminated earth, mill tailings, concrete rubble and other bulk debris * * *” Further, NRC believes that mill tailings will meet the proposed 10^{-6} A₂/g specific activity limit, and therefore has not increased the limit.

Two comments suggested that NRC include a definition of the term “closed transport vehicle” used in the definition of LSA-I. This term has been removed from the definition of LSA-I because NRC and DOT concluded the use of a vehicle-based term in the definition of a material was inappropriate. “Closed transport vehicle” is defined in DOT’s rule (49 CFR 173.403(c)).

One comment suggested that LSA-II material definition be expanded to include activated materials, consolidated wastes, and materials intrinsically contained in a relatively insoluble matrix. LSA-II is expected to include primarily unconsolidated material in which the radioactive material may or may not be uniformly distributed, including lesser activity resins and filter sludges, other similar materials from reactor operations, similar materials from other fuel cycle operations, scintillation vials, and hospital, biological, and decommissioning wastes. There is, however, no prohibition against activated materials, consolidated wastes, and materials intrinsically contained in a relatively insoluble matrix in group LSA-II, provided the specific activity limit is met. The IAEA established the LSA-III group principally for irradiated reactor parts and other activated, or activated and contaminated, equipment that exceed the limits for the other LSA groups. NRC does not believe it is necessary to expand the LSA-II group definition to include these materials. The NRC believes that to do so might cause confusion with the LSA-III definition.

One comment stated that dewatered material should be defined as a solid for LSA-II. NRC agrees that dewatered resins should be subject to the specific activity for solids under LSA-II and notes that there is no prohibition against dewatered resins in LSA-II.

One comment asked whether the specific activity limits for LSA-II and LSA-III materials were pre- or post-solidification. The specific activity limits apply to materials as prepared for shipment, i.e., post-solidification. However, licensees should note that packaging or shielding material may not be considered in determining either the specific activity or the radiation level at 3 m.

One comment recommended that NRC remove the criterion for leaching that is applicable to LSA-III solids. The

criterion limits the loss of radioactive material per package, when the package is placed in water for 7 days, to 0.1 A₂. Another comment stated that the criterion for leaching in the definition of LSA-III needed to be compatible with the leachability index requirements for solidified waste in 10 CFR Parts 60 and 61.

A control on the potential intake of these LSA-III materials is necessary because the radioactivity is not entirely insoluble. Because non-Type A packaging might be used in transporting these materials, a release of 10^{-2} A in an accident is assumed, with a possible bystander uptake of 10^{-3} A₂, under the standard model for determining A₂ values. Because the total body uptake must be limited to 10^{-6} A₂, the package’s dispersible radioactive contents (i.e., the leachate liquid), must not exceed 0.1 A₂. For purposes of compatibility with IAEA and DOT requirements, a new § 71.77, “Qualification of LSA-III Material,” has been added to Subpart F. This section prescribes testing requirements for assessment of LSA-III material leaching. The hazard from the transportation of these materials is different from that posed by their disposal; therefore, no attempt has been made to achieve compatibility between transportation and disposal leachability limits.

One comment found the proposed rule unclear on the need for three LSA categories and how to classify materials under the criteria, including compacted dry active waste. IAEA developed the three LSA groups to differentiate controls based on the activity, distribution, and form of LSA material. The LSA-I group accommodates very uniformly distributed materials, such as ores. LSA-III accommodates large activated parts or solidified materials. LSA-II accommodates less uniformly distributed materials, such as compacted dry active waste.

One comment described radioactive atoms in activated products as inherently non-dispersible and relatively non-leachable. The comment recommended that activated materials be authorized for shipment as LSA-I, provided other transportation requirements are met. Although activated materials do not pose a dispersibility hazard, these materials are subject to localized concentrations of non-uniformly distributed material. Consequently activated materials are included in groups LSA-III and LSA-II.

One comment suggested changing the definition of SCO from “* * * not itself radioactive * * *” to “* * * not classed as radioactive material under these rules * * *,” since nothing is free

of radioactive material. NRC and DOT have adopted this comment.

Several comments identified a typographical error in the limit for non-fixed contamination from beta and gamma emitters on the accessible surface of SCO-I objects. That value has been changed from 1.08×10^{-5} Ci/cm² to 10^{-4} microcurie/cm². These comments also noted inconsistencies in the NRC and DOT contamination limits e.g., (1.08×10^{-4} μ Ci/cm² and 10^{-4} microcurie/cm², respectively). NRC has adopted the DOT convention for these limits in the final rule.

One comment inquired as to whether it was consistent for NRC not to exempt SCO-I from transportation requirements when facilities with similar contamination levels may be released for unrestricted use according to NRC Regulatory Guide 1.86. Under the final rule, SCO-I group materials are exempt from NRC regulations, except for one § 71.5 requirement that licensees comply with DOT requirements. Further, the SCO-I non-fixed surface contamination limits are greater than, not similar to, the corresponding acceptable surface contamination levels in Table 1 of NRC Regulatory Guide 1.86.

Several comments noted that the term “inaccessible surface” used in the SCO-I definition is not defined and that it was not clear how to comply with a limit for surfaces that were inaccessible. This provision provides for the disposal of materials that have contaminated surfaces that are not readily accessible. Examples of inaccessible surfaces include: inner surfaces of pipes, inner surfaces of maintenance equipment for nuclear facilities, and inner surfaces of glove boxes. Compliance can be achieved by sampling a small area of the surface that may be accessible or by a documented estimate of the inaccessible surface contamination.

One comment stated a belief that the implementation of SCO groups would: (a) Further complicate the preparation and shipment process, without an increase in the safety and quality of waste shipments; (b) result in a significant increase in personnel exposure costs, and delays for preparation and disposal of radioactive waste; (c) require substantial initial personnel training; and (d) require extensive revisions of existing procedures and waste shipping computer programs. NRC acknowledges that the introduction of multiple LSA and SCO groups complicates the transportation of LSA materials. The IAEA consensus was that it was appropriate to regulate SCO separately from LSA materials. The purpose of