radionuclides and differing radioactive emissions. Although a competent health physicist or nuclear engineer should not have too much difficulty determining an A value, NRC must assure that a system exists to protect against faulty determinations. Use of the conservative A values from Table A–2 does not require regulatory approval.

One commenter questioned the unlimited values, for  $A_1$  and  $A_2$  in Table A-1, for uranium-235 enriched less than 5 percent. The comment argued that U-235 is a fissile material and the unlimited values may not be appropriate. The  $A_1/A_2$  values are for radiological, not fissile, considerations. The  $A_1/A_2$  values set the maximum quantity of radioactive material that can be shipped in a Type A package (except for LSA); other package characteristics, such as heat generation, weight, criticality, external radiation, etc., can further limit the quantity of radioactive material in that Type A package. Limitations with respect to fissile characteristics, for example, are addressed in §§ 71.53, 71.55, and 71.59. NRC has decided to add a clarifying note, currently in the IAEA regulations, to the  $A_1/A_2$  Table in Appendix A of Part 71. The Appendix A note reads "Where values of A1 and A2 are unlimited, it is for radiation control purposes only. For nuclear criticality safety, some materials are subject to controls placed on fissile material.'

Finally, one comment suggested that we eliminate the specific activity column from Table A–1. The comment argues that "Specific activity information is not required or explained in the regulations, and it is difficult to keep the information accurate."

Although the NRC is in basic agreement with the comment and would have no problem in eliminating the specific activity data from Part 71 if there were a good source of comparable data available for the times it is needed to implement the transportation regulations. NRC is not familiar with any good substitute source. Though IAEA Safety Series No. 37, "Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (1985 Edition)," third edition, published in June 1987, includes a table of half-lives and specific-activities, there is no indication yet of a system of periodic reviews that would keep that information up to date.

## Comments on Draft Regulatory Analysis

Ten persons commented on the impacts associated with the proposed changes to limit the content of LSA/SCO packages to 2A<sub>1</sub>. The main thrust of

these comments is that the impacts are much greater than presented. In part in response to these comments, NRC has adopted in the final rule the IAEA LSA/ SCO package limit of 10 mSv/h (1 rem/ h) at 3 m, in lieu of the proposed 2A<sub>1</sub> limit.

Because the NRC data base for determining the additional shipments expected to be caused by the proposed rule dated back to 1980, and because a clear preference was developing in the public comments for the IAEA radiation level limit rather than the 2A<sub>1</sub> limit, NRC repeated its analysis using more recent data. An NRC contractor gathered 1989 data from the 3 shallow land burial facilities for all waste shipments of resins, evaporator bottoms, and filter media. The contractor analyzed the characteristics of those 4600 Type A cask shipments and found that approximately 150 of those shipments would have exceeded the IAEA limit. NRC assumes that each shipment exceeding the limit is split into 2 shipments due to the smaller capacity of Type B packaging. Thus 150 additional shipments are caused by the LSA limit.

The impacts of preparing additional packages of LSA waste for shipment and receiving those additional shipments at the burial ground were absent from the draft regulatory analysis. One comment advised the NRC of the results of an exposure study which concluded that the extent of the collective exposure for preparation and receipt of waste casks was approximately 0.5 person-rem per shipment. The NRC noted that half of the 0.5 person-rem per shipment factor multiplied by the 4600 waste cask shipments per year from the new data base corresponds fairly well to a large portion of the 1726 person-rem collective exposure reported for all light water reactors for 1986 under the category "waste processing" by Barbara G. Brooks, NRC, and D. Hagemeyer, SAIC in NUREG-0713, Vol. 8, dated August 1989 (this version was current at the time the contractor prepared the regulatory analysis). On the basis of this data, NRC has accepted the 0.5 man-rem per shipment number as a reasonable estimate. Multiplying that 0.5 man-rem per shipment conversion factor by the 150 additional shipments which the limit of 1 rem per hour at 3 meters would cause, the effect of the limit would be 75 person-rem per year.

Because the IAEA LSA provisions permit a greater quantity of LSA/SCO material to be shipped in a package, fewer packages and shipments are needed to transport a given quantity of material. The estimated burden on industry from the final rule is therefore less than that for the proposed rule. The

NRC draft regulatory analysis dated November, 1987 developed industry costs resulting from a 2A<sub>1</sub> limit on LSA shipments of \$1.7 million per year. These costs consist of package costs and shipment costs resulting from an estimated 311 additional cask shipments per year. Through the same simple modeling used in the older analysis, the new NRC regulatory analysis shows increased dollar costs associated with the 150 additional LSA/ SCO shipments of \$1.0 million per year. These estimates include differential package costs and differential shipping and handling costs, annualizing and summing each component. These estimates do not include cost components recognized but not quantified in the public comments as training, procedure revisions, computer program changes and upgrades, insurance premiums, and disposal costs.

There were no significant comments related to the projected number of nonradiological deaths and injuries associated with the increased shipments caused by the new standards.

## Agreement State Compatibility

Section 274d.(2) of the Atomic Energy Act of 1954, as amended, requires that before entering into an agreement with any State, the Commission shall make a determination that the State's program is compatible with the Commission's program. Section 274g authorizes and directs the Commission to cooperate with the States in the formulation of standards to assure that State and Commission programs will be coordinated and compatible. The basic objective of NRC's State Agreements Program has been to achieve uniformity among the various programs to the maximum extent practicable recognizing that the States must be allowed some flexibility to accommodate local conditions. Under this Program, procedures have established criteria for better defining compatibility, and for determining the degree to which States regulations must show uniformity with Commission regulations. In practice, the Commission's regulations are categorized as Division 1-4 Rules according to the degree of State regulation uniformity required, as summarized in the following table:

Division	Agreement State regulation uni- formity
1	Agreement States are expected to adopt, essentially verbatim, the regulation to provide con- sistency between Federal and State requirements.