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Secretary, USNRC

(67FR 21390)

August 9, 2002 (3:36PM)

Re: 10 CFR 71

Re: 30 April 2002 Federal Register (21390ff)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Having read the Commission's proposed changes to 10 CFR 71, as published in the 30 April 2002 Federal Register at 21390ff, I urge the Commission not to adopt the rule and to conduct re-examination (based on more complete and more accurate data than has apparently been used to date) of the existing regulations, to determine with greater certainty the actual impacts of the existing rule, both in terms of public radiation exposure and in terms of current costs (including health costs), as well as the public radiation exposures and costs that might be associated with any rule changes.

I. The Commission states at 21396 that accepted IAEA principles had established exemption criteria, including a principle that the effective dose to a member of the public was unlikely to exceed 1 mrem/yr from any practice or source and that the IAEA radionuclide-specific activity concentrations were intended to allow a dose to transportation workers of 1 mrem/yr per isotope. This citation suggests that the Commission supports the IAEA principles. But the terms "practice" and "source" are vague and suggest that the IAEA and Commission are willing to allow unlimited doses as the number of "practices" and "sources" increase with time. Further, the wording of the Federal Register announcement further suggests that the Commission intends to understand the IAEA principles as stating that the probability should be low, that any particular individual member of the public receive a dose exceeding 1 mrem/yr from any practice or source, rather than as stating that the probability should be high, that all members of the public receive doses below 1 mrem/yr from each practice or source. These issues need to be addressed in a manner that maximizes protection. In particular, the Commission should go beyond IAEA principles and should adopt rules which (1) limit total expected population dose from transport and (2) ensure with a high probability that no member of the public receive a dose above 1 mrem/yr from any practice or source (rather than attempting to ensure that the probability should be low that any particular individual member of the public receive a dose exceeding 1 mrem/yr). With respect to (1), note that probabilistic models might suggest limiting population dose should be important for the purpose of limiting total health costs. With respect to (2), note that (for example) a guarantee, that any individual member of the United States population has a probability (say) of 0.001% of receiving a dose exceeding 1 mrem/yr, would be consistent with much higher doses for thousands of citizens every year from that source or practice, whereas a guarantee, that with probability 99.999% no member of population receives a dose exceeding 1 mrem/yr, would lead to a single person receiving a higher annual dose from that source or practice, once in every ten-thousand years.

II. The Commission's further summary of the IAEA standards indicates that the IAEA has not established limits that would successfully enforce that principle. The Commission estimates (based on an examination of only 20 of the over 350 isotopes involved in the rule-making) that the proposed exemption values lead to an average annual individual transportation dose of 25 mrem per radionuclide. It is unclear why such calculations were

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performed for only 20 of the over 350 isotopes involved in the proposed regulation. If the estimated dose from each radionuclide is approximately the same, then the Commission ought at minimum to reduce all exemptions by a factor of at least. If the estimated doses vary significantly with radionuclide, then the Commission ought to withdraw the rule completely and begin anew, performing more accurate and complete calculations. Further review of the proposed rule suggests that withdrawal is the most appropriate course. First, the exact significance of "per radionuclide" here is unclear. By its use of this phrase, the Commission appears to allow annual individual doses somewhere between $(25)(20) = 500$ mrem and $(25)(350) = 8750$ mrem for the transportation scenario, and doses in this range may not be negligible. Second, it also seems likely that other exposure scenarios would lead to annual individual doses rather exceeding the estimated individual doses expected from transportation alone. Third, it is unclear whether the comparisons, based on only 20 isotopes, of the current 70 bq/g exemption limits with the proposed limits, are meaningful.

III. If the Commission has already collected the data necessary to model accurately the impacts of the proposed regulation, then modeling all affected isotopes should not have required substantially more time than modeling the rule for 20 isotopes, because initial programming generally represents the greater majority of the labor involved in repetitive or routine calculation, when using high speed computing devices. This suggests that the Commission has not collected the data necessary to model with all affected isotopes, hence that the Commission cannot have adequate basis for the proposed rule-making. Unless complete modeling were done, it is unclear how the Commission could obtain its precise "average" doses of 25 mrem/yr and 50 mrem/yr per radionuclide under the proposed and existing regulatory regimes for the 20 isotopes for which transportation calculations were performed. Expected exposures will vary, depending on the actual amounts of the individual isotopes actually shipped, and therefore a weighted average, based on the expected distribution of the isotopes shipped, would be more appropriate. Such weighted averages are needed for meaningful comparison of expected dose under the existing and proposed regulatory regimes. If the Commission simply studied the 20 isotopes individually and then calculated an unweighted average of the 20 resulting expected annual doses, then the calculation is meaningless and provides no adequate basis for regulatory change. Moreover, the Commission seems not to have obtained substantive distribution and quantity information for isotope shipments. The proposed rule-making should be postponed until the Commission obtains this information and accurately models the effect of the proposed rule, taking in account the amounts of all 350+ individual isotopes actually shipped.

IV. The Commission cites cost reduction as an incentive for the rule. However, the proposed rule is substantially more complicated than the existing rule and hence enforcement costs should rise, unless the Commission plans no enforcement. Moreover, although under standard economic theories, reducing economic costs of an activity should increase the frequency of the activity, the Commission simply states subjectively that it does not believe the activities affected by the rule will increase. It therefore appears that no substantive cost-benefit analysis has been performed.

V. The use of "or" in the proposed 71.14 (a)(2) at 21448 suggests that there is no consignment limit if the exempt activity concentration limits are not exceeded. The Commission ought to replace "or" by "and" to prevent deliberate dilution of radioactive material to obtain exemption from transport regulations.

VI. The double-containment requirement for Pu, in the existing 71.63(b), serves an important public confidence role, as shown by the objections to removal of the requirement cited at 21423. The requirement should be retained.

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