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# United States Senate

COMMITTEE ON  
GOVERNMENTAL AFFAIRS

WASHINGTON, DC 20510-6250

October 3, 1990

The Honorable Kenneth M. Carr  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Chairman Carr:

I am writing regarding the recent action of the Nuclear Regulatory Commission (NRC) establishing a Below Regulatory Concern (BRC) policy. This policy is intended to simplify some aspects of dealing with radioactive wastes, consumer products, and other sources of ionizing radiation, and possibly to reduce some of the associated costs. I have studied the Commission's BRC Policy Statement with interest, and would be appreciative if you would elaborate or provide clarification on several issues.

Perhaps of greatest concern to me is the apparent absence of methods by which the NRC will ensure that during an exemption action, everything will take place according to plan. It is not clear to me that the NRC will be able to determine, for example, that a licensee is, in fact, dumping only the allowed amounts and types of radioactive waste at a municipal landfill. It would seem that the Commission is largely relying on a sort of 'honor system' of safeguards -- a system that has risks, given the history of human behavior. And how will the Commission determine that 10 years down the road, a decommissioned site is not beginning to contaminate ground water more than had been anticipated? Nature has a way of occasionally not following the schedules established by mathematical models.

In any case, NRC will clearly have to expend considerable manpower and financial resources to model and plan a BRC action before it is approved and, after the fact, to validate the assumptions upon which the action was made and to ensure compliance. I respectfully request that you provide me with your assessments of the NRC resources that must be committed for this purpose.

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PDR COMMS NRCC  
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Under the authority of the Safe Drinking Water Act, EPA has promulgated maximum contamination levels for water in community water systems. Among these is a 4 mrem annual limit on dose from the ingestion of man-made radionuclides. Would you please describe the system by which NRC will ensure that all exempt practices in a locality together will give rise to a concentration of radionuclides that satisfies this limit?

It is well known that some forms of micro-electronic, photographic, and nuclear counting equipment are highly sensitive even to trace amounts of radioactivity. By what criterion will the exemption policy ensure that virtually no waste radioactivity contaminates the stream of general industrial materials used in the production of such equipment? NRC has suggested that perhaps contaminated metals such as steel, copper, and nickel should be re-cycled only within the nuclear industry, or possibly in the construction of radiologically 'safe' structures, such as bridges. If so, the Commission would have to ensure that the furnaces, etc. employed in the re-processing, and the end-product re-cycled materials themselves, are used properly and as authorized -- for example, NRC would have to keep track of the steel from a bridge 50 years from now, or more, when the bridge itself is recycled.

The NRC has determined that in considering the exemption of consumer products, such as cooking utensils made out of contaminated steel, it should not consider whether or not the use of such steel is justified, because "making decisions outside the normal arena of its expertise" might leave the Commission open to criticism. Who is better qualified than the NRC to determine what sorts of practices involving the use of radioactive materials are justified?

It is my understanding that if either an Agreement State or a non-Agreement State decided to impose more stringent requirements for a BRC policy, or to do away with it altogether, the state would not be allowed to do so. Would you please explain the benefits of such an approach, in view of its inconsistency with environmental policy in other areas, and its obvious potential for generating significant ill will with the public.

Finally, several of the issues of interest to me have to do with the precise meanings of the criteria for upper bounds on individual and collective doses:

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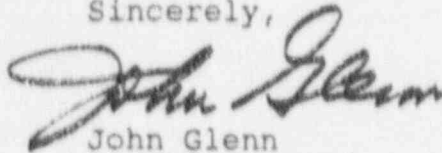
The individual dose criterion for a single exempted practice that does not involve a large number of members of the public is 10 millirem per year. The meaning of this is not clear to me for a relatively long-lived, environmentally stable radionuclide. Could one single practice in 1990 cause 9.9 mrem of effective dose equivalent in 1990, 9.8 mrem in 1991, and so on? If so, and if one new practice in a locality is exempted each year, then after only 11 years this policy could result in an accumulation of radioactive material that would exceed, possibly for a long time thereafter, the 100 mrem annual limit recommended for members of the public by the principal international and national advisory bodies. And several unrelated, one-time-only single practices of this sort per year would together lead to the same result in much less time.

Likewise, can a single practice give rise to 1000 person-rem of collective dose in a population every year (with the expectation of one death every other year), or does the 1000 person-rem refer to the cumulative (committed) collective dose added up throughout all time (which would be expected statistically to cause a total of 1/2 death)? My reading of the policy suggests the first interpretation. But one death every second year from a single practice would appear to be a very high price for Society to pay so that a manufacturer can dump radioactive waste less expensively in a municipal land-fill. Or so that a commercial utility can claim that its decommissioned nuclear power plant is "safe" enough to be released for unrestricted public use.

When calculating collective dose, NRC proposes to include in the total only contributions that are greater than 0.1 mrem per individual. I ask that NRC confirm that there are no known situations that might arise in which the sum of all individual doses below 0.1 mrem might be significant.

I look forward to your responses on these important matters.

Sincerely,



John Glenn  
Chairman