RETITION RULE PRM 20-19 (54 FR 5089)



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March 31, 1989

Secretary of the Commission U.S. Nuclear Regulatory Commission Washington, DC 20555

Attn: Docketing and Service Branch

Dear Sirs:

I wish to comment on the recent Petition for Rulemaking: Docket No. PRM-20-19 which was published on Wednesday, February 1,1989 in Volume 54, No. 20 of the Federal Register.

I am opposed to the petition for rulemaking for the following reasons:

- 1. Whereas the concentration of a chemical can quickly reach the threshold of detection rapidly in an enclosed space, it is virtually impossible for such a chemical to reach the threshold of detection in an unenclosed space due to the emission rate and dilution volume of the unenclosed environment.
 - A. With a threshold of detection of 1 ppb and a gas leak into an enclosed space of 20ft x 20ft x 10ft of 10 ppm at 2 1/min, the detection threshold will be achieved is just under 6 minutes

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B. With the same threshold of detection (1 ppb) and a response time of 60 minutes at a distance of 1 mile (radius) from a nuclear power plant the venting rate would have to be (limiting the vented plume to a height of 100 ft) over 4 million liters per minute with a concentration of 1 ppm.

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A one mile radius with a 100 ft ceiling is a very small volume to consider with respect to the populated regions near facilities that use radioactive materials. A more realistic area of concern would have to be on the order of 10 miles in radius with a 1000 ft ceiling which would put the venting rate at 4 billion liters per minute with a concentration of 1 ppm (neglecting diffusion of the gas out of this volume, and neglecting all external weather).

- 2. There is the possibility of false alarms whenever industrial pollution becomes detectable, or even when a skunk is involved in a traffic accident in the neighborhood.
- 3. The odor would also have to match the half-life of the radioactive material being released otherwise the odor or the radioactivity would linger long after the other had decayed or dispersed. This means that each possible radioactive compound would have to have its own unique odor.
- 4. Here in Illinois, the Illinois Department of Nuclear Safety has a network of radiation detectors in and around all the nuclear power plants in the state with real-time readings reported and monitored around the clock. These radiation detectors are much more sensitive than the human nose.
- 5. The ability to label radioactive gasses that are known to partially vented to unrestricted areas (such as xenon studies in nuclear medicine) would not pose to great a problem in labeling, it is the labeling of radioactive materials that are not supposed to be vented to unrestricted areas--such as how one would label fission products.

I have discussed this petition with several of my colleagues in the Medical Physics and Health Physics fields and we all agree that the above referenced petition would not increase the safety of the populace in the vicinity of the licensee, would be aconomically catastrophic to the licensee, and is impractical to implement in the extreme.

Sincerely Eric Zickgraf, M.S.

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