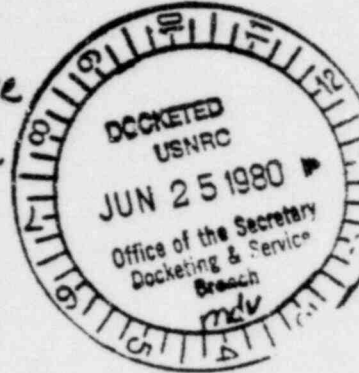




DEFENSE NUCLEAR AGENCY  
 ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE  
 BETHESDA, MARYLAND 20014

OS OH 902-4

SAF DOCKET NUMBER  
 PROPOSED RULE PR-Misc Notice  
Reg Guide



00048E  
 JUN 17

Secretary of the Commission  
 U. S. Nuclear Regulatory Commission  
 ATTN: Docketing and Service Branch  
 Washington, DC 20555

Dear Sir:

The following comments are provided on the draft regulatory guide "Instruction Concerning Risk from Occupational Radiation Exposure (Task OH 902-1). Overall, the question and answer format is very unsatisfactory. A more complete presentation could be made in a much shorter text while avoiding what, in many cases, are very leading or slanted questions. A number of good, short, general publications (e.g., HEW Publication 77-8004) already exist which would require only minor supplementary material to fit this application.

It is also requested that a copy of the information that would be provided an employee contacting the NRC, as per question 32, be sent to me at the above address. Specific comments follow:

(1) Page 1, paragraph A: The requirement to provide this depth of training for all those who frequent or work in "any portion of a restricted area" irrespective of potential or actual exposures is clearly excessive. This education program should in some fashion be related to expected or potential radiation exposure. There are many individuals (e.g., janitors) who frequent restricted areas for which this level of training is unnecessary. In fact several different levels or orientations on this subject are probably necessary, depending on the background and particular jobs of the target audience.

(2) Page 1, paragraph B: The parenthetical example "25 rems or more in a few hours" is a very poor example of an exposure giving a "prompt effect". Any effects observable at that dose would require several days of careful clinical testing and certainly would not result in effects observable by the exposed individual which is what most workers would perceive as a prompt effect. Further, such a value would create an unnecessary and very inappropriate perspective with regard to current regulatory limits (e.g., only a factor of two more than the annual limit of 12 rem which theoretically can be achieved by some individuals).

Acknowledged by card. 6/26/80. mdu

8007150342

SAF  
Secretary of the Commission

(3) Page 2, paragraph B: While the statement that licensee activities result in a significant fraction of occupational radiation exposure in the U. S. may be true, it could also be said that for the vast majority of the workers occupational exposure is a small (some might say insignificant) fraction of their total radiation exposure. Care must be taken to maintain proper perspectives in justifying new programs or in even microregulating existing requirements where additional effort will be required to show compliance, as in this case.

(4) Page 3, paragraph C: The onerous requirement to maintain records demonstrating each worker's acknowledgement of the receipt of instruction is a waste of limited manpower resources and a misdirection of the regulatory effort. Of far more importance is the availability of qualified personnel to present this program, the proper organization of the program, and the active participation of the workers. This written acknowledgement requirement will in fact undercut the program since such an acknowledgement will be taken a prima facie evidence that the requirement has been met, thereby negating efforts to continually improve the program.

(5) Page 3, paragraph D: Since this guide primarily just presents information, to what does the statement about acceptable alternative methods refer? An comprehensive education program is not presented here. Is it intended that if the licensee cares to present a different version of some of these 'facts' or data that such must be approved by the NRC?

(6) Page 5, question 1: The concept of severity should also be introduced along with probability in discussing risk. I suggest that the following be added as a second sentence in this answer. "However, the perception of risk includes not only its probability but also its severity, that is the nature of the injury".

(7) Page 5, question 2: The word 'demonstrated', (as in demonstrating a car) might be misunderstood by a portion of the worker population. Those with less scientific background might read this to mean preplanned or purposeful exposures to determine the risks of radiation. The word "observed" is suggested as an alternative.

(8) Page 6, question 2: The last sentence in the answer to question 2 raises a number of other questions, of which some should be addressed.

(9) Page 6, question 5: 'Acute' is only a temporal qualifier and does not necessarily imply a 'large dose of radiation'.

SAF

Secretary of the Commission

(10) Page 7, question 6 (next to last sentence): Based on currently accepted epidemiological statistics, the lack of observation of cancer at low radiation levels is not due to the incompleteness of current human studies. Rather the failing is more due to an inadequate population size related to fundamental limitations in cancer statistics.

(11) Page 7, question 7: This requires substantial revision and reorganization or elimination. Everyone's radiation dose is not necessarily similar to that of an occupational worker. The fact that most people do not get cancer glosses over the fact that a substantial minority do. The statement that most individuals do not experience delayed consequences from doses "far above legal limits" (how far?) is certain to create a credibility problem as is the comparison to smoking, without much more discussion to support these points. The discussion presented is not sufficient. Also it is suggested that unless you wish to designate some other card for the analogy, calling the ace of spades the "right card" is not the best choice of words in view of the superstitious meaning associated with this card.

(12) Page 9, question 8: ICRP 27 states that about one-half of the cancer cases are fatal (paragraph 41) as opposed to the statement here of one-third. This question is also a good example of the extremes of technical understanding demanded of the readers. It is suggested that this sort of material will dissuade even the interested non-technical reader in pursuing the subject any further.

(13) Page 11, question 8: A few sentences on the difficulty of a truly informed, free-choice decision by a worker might be appropriate to stress the importance of this concept.

(14) Page 12, question 9: The 1972 UNSCEAR report might also be mentioned.

(15) Page 12, question 10: Suggest that the next to last sentence be modified to read ". . . to make someone physiologically impotent . . .". As stated it is probably incorrect with regard to psychological effects, which are quite important in this area.

(16) Page 13, question 11: The comparison of 5rem/yr should be made to the high accident rate individuals (i.e., 95 or 99 percentile) of each industry rather than comparing what, in the radiation industry, is an extreme to the average risks of other industries. In that regard, table 3 should have two sets of data, one for the average and one for some high risk percentile of the industry.

SAF  
Secretary of the Commission

(17) Page 15, question 12: Eliminate. Does not belong in this document. Further, the discussion of 5 (N-18) is inappropriate based on proposed regulatory changes.

(18) Page 17, question 16: The statement that the risk of cancer depends on the total amount of radiation energy absorbed is certainly a departure from normally accepted precepts. This means that a 100 kg person has twice the chance for cancer as a 50 kg person who receives the same dose (i.e., energy per unit mass). The implications of this hypothesis are certainly significant. It is suggested that something other than this statement is really intended.

(19) Page 17, question 17: This question seems somewhat far afield from the topic of understanding radiation exposure risks. This, and a number of the other questions, would seem to be better collected under a title such as "Implementation of Regulations and Radiation Protection Philosophy".

(20) Page 19, question 20: Good analogy. It might be pointed out that the comparison does not extend to severity. The severity the results of radiation exposure are independent of dose whereas the same is certainly not true of speed in auto accidents.

(21) Page 20, question 21: Drop. See comment 18.

(22) Page 20, question 22: Material after the first five sentences in this answer should be rewritten. In the area being discussed nothing can be demonstrated "without question". You also cannot pick and choose among opinions. You choose to accept the BEIR consensus opinion and then highlight one minority view without similarly mentioning other such views, some of which are diametrically opposite.

(23) Page 21, question 23: This answer leaves one hanging. Based on the last paragraph, why not lower the limits.

(24) Page 23, question 26: It is suggested that the first sentence in this answer is likely to be greatly misunderstood unless it is qualified by the phrase "when the distribution of exposure over and through the body is the same". I would submit that a 50 mrem chest x-ray is not the same as a 50 mrem whole body exposure. Care must be taken to avoid over simplification.

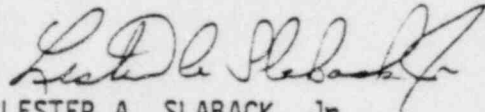
(25) As an additional note to the above partial body exposures and the corresponding rationale for the limits are not discussed. Some discussion on this and related points such as "critical organs" would be worthwhile.

SAF  
Secretary of the Commission

(26) Page 25, question 29: Suggest that the next to last sentence be modified to read " . . . should be jointly compared to an appropriate limit" or ". . . should be appropriately summed" (or some other modification). The implication of a simple sum is certainly misleading.

Your consideration of the above comments is appreciated.

Sincerely,



LESTER A. SLABACK, Jr.  
Head, Radiation Safety Department