

RII-905-12

Secretary of the Commission  
U.S. Nuclear regulatory Commission  
Washington, D.C. 20555

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PROPOSED RULE PR-20 (22)  
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att.: Docketing & Service Branch

ref.: Rule-making procedure regarding standards for protection  
against radiation

(code 10-CFR, part 20)

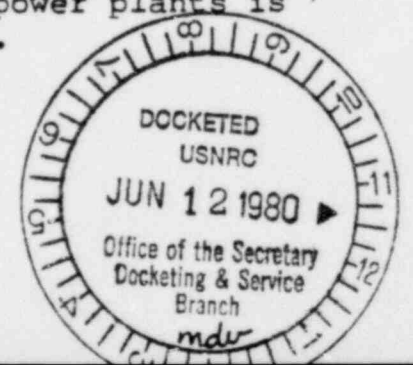
Dear sir:

In many years of building instruments and other devices, and working in industrial or technical settings, I have observed an indifference to safety precautions which has, in some cases, led to serious injury. The most common and dangerous form of such injury is the type that causes no visible harm, and does not require immediate medical attention -for example, exposure to loud sounds, and breathing of dust or poisonous fumes, as well as exposure to surface poisons and harmfully bright light. Some individuals are even proud of their ability to "stand" dangerous levels of such exposure.

Since nuclear radiation is not associated with any sensation in humans, the ability to "stand" exposure to it may provide an opportunity for pride in some individuals. These and other individuals exposed to "high" levels of radiation may later suffer impaired health resulting from radiation. High incidences of illness among radiation workers or former radiation workers could cause widespread public doubts concerning the safety of nuclear power, especially in an atmosphere following the Love Canal incident. These public doubts could cause the nuclear power industry considerable harm.

While human exposure to radiation could be reduced by the use of improved protective clothing, e.g., a protective suit that resembles the foul weather gear often used by sailors, the complete or near-complete removal of humans from radioactive areas would reduce human exposure to radiation to the true minimum possible. Thus substitution of machines (robots) for human workers in radioactive areas of nuclear power plants is highly desirable to the nuclear power industry.

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page 2 of two

The strictly finite number of objects and tasks found in a nuclear power plant makes such an environment especially suited to maintenance by robots. In addition, robots may have special advantages for working in nuclear power plants. For example they do not need periods of rest, and are not emotionally influenced by danger, so that they could work without fatigue or fear during emergencies as well as during routine work time.

Use of robots to carry out routine work at a nuclear power plant would free human employees to concentrate their attention on tasks that can not be carried out by a machine, i.e., those tasks requiring intelligence or judgement. Thus a human supervisor, or a group of human supervisors, could manage the activities of a larger number of robot workers, directing their activities and making decisions for them via remote control. Such humanly assisted robot work would maximize use of human resources by allowing routine actions to be carried out automatically, and taking the time of a human supervisor only when some decision needed to be made which required the exercise of judgement. Further, having direct control over a functioning, practical robot would enable a human operator to exercise direct control even in locations so dangerous (e.g., radioactive, or poisonous, or hot) as to be lethal to a human worker.

very sincerely yours,

  
William L. Abler, Ph.D.