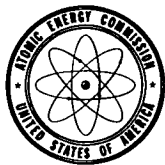


December 1967

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# AEC-NASA TECH BRIEF



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## Training Course for Radiation Safety Technicians

The task of setting exposure limits is both a vital and yet a very difficult undertaking. It is vital because workers must be protected from the harmful effects of ionizing radiation. It is difficult because of the many factors which enter into the effects which radiation produces. Even though a vast amount of data has been gathered and studied, there are still many areas where much work is needed before firm conclusions can be drawn. Nevertheless, in order to advance in the field of nuclear energy, men must work with radiation. Thus, certain levels must be set which will protect workers from undue exposure.

The philosophy inherent in any program of radiation safety is to reduce exposure, whether internal or external, to a minimum. If it is impossible or impractical to remove a source of radiation, other means must be considered for purposes of personnel protection.

Three factors which determine the total exposure one receives in a given radiation field are:

- (1) time of exposure;
- (2) distance from the source; and
- (3) amount of shielding present.

The time factor simply means that the longer one remains in a radiation field, the greater will be the exposure received. At times, especially during emergencies, work must be performed in a strong radiation field. In this case, the work procedure should be carefully planned outside the work area so that a minimum amount of time is used to complete the job. If the time required for one man to complete the job would result in an exposure beyond prescribed limits, then a team of workers should be employed. This would mean a small exposure for several people instead of a large exposure for one individual.

The above information is part of a detailed course of instruction for training radiation safety technicians which has been prepared and published in: "*Radiation Safety Technician Training Course—Part I*," by H. J. Moe and S. R. Lasuk, Report No. ANL-6991, Argonne National Laboratory, December 1964.

The report contains nine sections and a bibliography for each section:

1. Basic Information
2. Natural Radioactivity
3. Properties of Alpha, Beta, Gamma, X-Rays, and Neutrons
4. Concepts of Radiation Units and Dose Determinations
5. Shielding
6. Biological Effects of Radiation
7. Background Radiation
8. Radiation Protection Standards
9. Internal Dose Calculation

### Note:

The report is available from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151; price \$5.00. Inquiries may also be directed to:

Office of Industrial Cooperation  
Argonne National Laboratory  
9700 S. Cass Avenue  
Argonne, Illinois 60439  
Reference: B67-10477

Source: H. J. Moe and S. R. Lasuk  
Industrial Hygiene and Safety Division  
(ARG-216)

(continued overleaf)

**Patent status:**

Inquiries about obtaining rights for commercial use of this innovation may be made to:

Mr. George H. Lee, Chief  
Chicago Patent Group  
U.S. Atomic Energy Commission  
Chicago Operations Office  
9800 South Cass Avenue  
Argonne, Illinois 60439