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American National Standard

Ionizing Radiation Safety Training for Workers

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Abstract

This standard establishes minimum requirements and provides recommendations and guidelines for the analysis, design, development, implementation, and evaluation of ionizing radiation safety training for workers. Target audience, responsibilities, training topics, and instructor qualifications are presented. Training program performance requirements are provided, as well as guidance, to assure that the objectives of this standard are met.

Foreword

This standard specifies the process for developing and implementing radiation safety training using performance-based concepts. Radiation safety training includes radiological safety policies, fundamental radiological controls, and the technical functions of specific facilities, but may vary significantly from site to site depending on the requirements and potential risks associated with the work involved.

Who will benefit

All individuals who may be occupationally exposed to radioactive materials or other radiation sources shall have radiation safety training prior to or concurrent with their work assignment. Individuals who do not have radiation safety training shall work under the supervision of a qualified worker.

About this version

The emphasis in this version of the standard is on the development of radiation safety training using the performance-based concepts outlined in Section 7.0. Performance-based training focuses on the instruction and practices required to develop job-related knowledge, skills, and abilities, rather than on the prescriptive content of training. The Health Physics Society Standards Committee (HPSSC) Working Group recommends this type of training, as opposed to a broad training program with specific performance objectives, because of the diversity of radiological workers and concern that knowledge-based training may be misapplied. The group also prefers that the scope and depth of training be based on the hazards and magnitude of the risk that the hazard poses and that passing scores be based on goals and the characteristics of test questions. Where passing scores are established (e.g., multiple choice exams), these should be based on an analysis of the test questions.

Important: This standard does not replace regulatory or contractual requirements for training that may establish minimum objectives, topics, class duration, and passing scores. It also does not address any radiation safety training received as part of an academic program of study. Such individuals will still require site-specific training and on-the job training for certain tasks.

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This standard was consensus balloted and approved by the ANSI-Accredited HPS N13 Committee on August 19, 1999. At the time of balloting, the HPS N13 Committee had the following membership:

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American Industrial Hygiene Association
American Iron and Steel Institute

American Mining Congress
American Nuclear Insurers
American Nuclear Society
Conference of Radiation Control Program Directors
Council on Ionizing Radiation Measurements and Standards

Health Physics Society
Institute of Electrical and Electronic Engineers
Institute of Nuclear Materials Management
International Brotherhood of Electrical Workers

National Council on Radiation Protection and Measurements
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Oil, Chemical and Atomic Workers International Union

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Table of Contents

1.	Purpose and Scope.....	1
1.1	Purpose	1
1.2	Scope.....	1
1.2.1	Workers	1
1.2.2	Management and Supervisory Personnel	1
1.2.3	Short-Term Workers	1
1.2.4	Students	1
1.2.5	Emergency Personnel	1
1.2.6.	Visitors.....	2
1.2.7.	Casual Visitors.....	2
2.	Definitions	2
2.1	Specific Terms	2
2.2	Shall, Should, May.....	5
3.	Responsibility for Training.....	5
3.1	Management.....	5
3.2	Radiation Safety Organization.....	5
3.3	Training Organization	5
3.4	Trainee.....	6
4.	Training Program Elements	6
4.1	Basic Training	6
4.2	Continuing Training.....	6
4.2.1	Refresher Training.....	6
4.2.2.	Requalification	6
4.3	Deferments/Exemptions	7
4.3.1	Deferment.....	7
4.3.2	Exemption.....	7
5.	Radiation Safety Training Topics	7
5.1	Basic Radiation Theory and Fundamentals	7
5.2	Sources of Ionizing Radiation.....	8
5.3	Biological Effects and Risks of Exposure to Ionizing Radiation	8
5.4	Radiation Protection Standards.....	8
5.5	Controlling Radiation Dose.....	8
5.6	Radiation/Contamination Monitoring	8
5.7	Responsibilities for Radiation Protection	9
5.8	Recent Experiences and Lessons Learned.....	9
5.9	Emergency Response	9
6.	Non-Radiological Hazards/Risks	9
7.	Performance-Based Training	9
7.1	Goal	9
7.1.1	Cost Effectiveness.....	9
7.1.2.	Training Effectiveness	10
7.2	Training System Development	10
7.2.2.	Analysis Phase	10

8.	Instructor Qualifications.....	13
8.1	Instructional Qualifications	13
8.2	Technical Qualifications.....	14
8.3	Exemptions for Instructors	14
8.3.1.	Incumbents	14
8.3.2.	Instructor Qualification in Progress	14
8.3.3.	Guest Lecturers.....	14
8.4	Continuing Training for Instructors	14
9.	Training Records.....	15
9.1	Course Documentation	15
9.2	Trainee Records	15
9.3	Record Retention.....	15
10.	Supporting References	15
A. 1	Instructor Qualification and Educational Equivalents.....	17

Ionizing Radiation Safety Training for Workers

1. Purpose and Scope

1.1 Purpose

This standard specifies a process and criteria for developing and implementing radiation safety training. It does not address training for non-radiological hazards. For the purpose of this document, the term "radiation" refers to ionizing radiation.

1.2 Scope

This standard is intended to be used by personnel who develop, revise, implement, or provide oversight of radiation safety training for the individuals described below. It does not apply to radiation safety specialists, professionals, or technicians who are covered by other existing regulations or standards.

1.2.1 Workers

1.2.1.1 Radiological Worker (>100 mrem/y) -

This standard shall apply to radiological workers who receive in one year an occupational effective dose equivalent in excess of 100 mrem (1 mSv). Additionally, this standard shall apply to workers whose dose would likely exceed the values specified above if they have not had the proper training ("likely to receive" is considered to include normal and abnormal situations; it does not include accidents or emergencies).

1.2.1.2 Radiological Worker (<100 mrem/y) -

This standard should apply to radiological workers who in one year are not likely to receive an occupational effective dose equivalent in excess of 100 mrem (1 mSv). (NOTE: The Training Program for these workers may be less formal.)

1.2.1.3 Non-Radiological Worker - This standard may apply to clerks, secretaries, janitors, nurses, and other workers who do not routinely work with or in the proximity of radiation-generating devices or radioactive materials, but

whose duties occasionally may require them to enter areas where an occupational dose is possible. These workers, as a minimum, should receive radiation safety training that familiarizes them with radiation sources, radiation warning signs and alarms, risks in perspective to potential dose, and the appropriate methods for minimizing radiation dose.

1.2.2 Management and Supervisory

Personnel - In some cases, managers, staff members, technical support personnel, and supervisors are classified as radiological workers and should complete, as a minimum, radiation safety training. Supervisors should receive, as a minimum, the same level of training as the workers they supervise in order to assess their performance.

1.2.3 Short-Term Workers Persons such as contractors, laborers, maintenance workers, craftsmen, technicians, security personnel, etc. who work in facilities for only a short time (e.g., less than one month), may perform tasks involving significant radiological risks. These workers shall receive training commensurate with the risks identified for the job similar to the training provided to regular workers. (NOTE: A review of a contract worker's prior training records may be helpful in determining training needs. On the other hand, continuous and direct supervision of these workers by a qualified escort should permit a reduction in training requirements.)

1.2.4 Students - Students engaged in activities where an occupational dose is possible shall be provided the same training as regular, full-time employees working under similar conditions.

1.2.5 Emergency Personnel - Fire, police, security, and medical personnel may be regular employees, contractor personnel, or visitors from a nearby location. These individuals shall receive sufficient radiation safety training to permit informed judgments in emergency situations. Training for emergency response personnel should be developed based on an analysis of the tasks involved, as described in Section 7.2.2 (Analysis Phase).