TS

NOT MEASUREMENT SENSITIVE

DOE-HDBK-1141-2001
April 2001

DOE HANDBOOK

Radiological Assessor Training

U.S. Department of Energy
Washington, D.C. 20585

AREA TRNG

Foreword

This Handbook describes an implementation process for training as recommended in Implementation Guide G441.1-12, *Radiation Safety Training Guide,* and as outlined in DOE STD- 1098-99 *DOE Radiological Control* (the Radiological Control Standard - RCS). The Handbook is meant to assist those individuals within the Department of Energy, Managing and Operating contractors, and Managing and Integrating contractors identified as having responsibility for implementing training required by Title 10 Code of Federal Regulations Part 835 *Occupational Radiation Protection* (10 CFR 835) and training recommended by the RCS. This training is intended for auditors and assessors to assist in meeting the training requirements of 10 CFR 835 for the conduct of audits and assessments of occupational radiation protection programs. While this Handbook addresses many requirements of 10 CFR 835 Subpart B, it must be supplemented with facility-specific information to achieve full compliance.

This Handbook contains recommended training materials consistent with other DOE radiological safety training materials. The training material consists of the following five parts:

Program Management Guide - This part contains detailed information on how to use the Handbook material.

Instructor's Guide - This part contains lesson plans for instructor use, including notation of key points for inclusion of facility-specific information.

Overheads - This part contains overheads instructor use corresponding to the Instructor's Guide.

Student's Guide - This part contains student handout material and also should be augmented by facility-specific information.

Handouts - This part contains several student handouts that provide supporting information for various modules.

This training material is targeted for individuals with a basic knowledge of radiological protection concepts and provides material on how to conduct a radiological assessment.

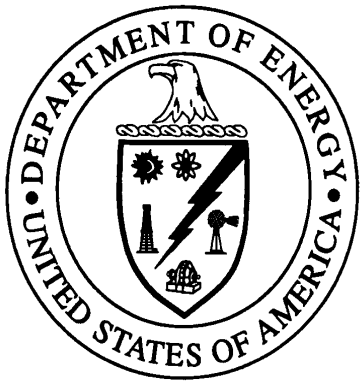
This Handbook was produced in Microsoft Word 97 and has been formatted for printing on a HP 4M (or higher) LaserJet printer. Overheads were produced in Powerpoint. Copies of this Handbook may be obtained from either the DOE Radiation Safety Training Home Page Internet site (http://tis.eh.doe.gov/whs/rhmwp/rst/rst.htm) or in PDF format from the DOE Technical Standards Program Internet site (http://tis.eh.doe.gov/techstds/standard/standfrm.html). Documents downloaded from the DOE Radiation Safety Training Home Page Internet site may be manipulated using the software noted above.

This page intentionally left blank

Part 1 of 5

Radiological Assessor Training
DOE-HDBK-1141-2001

Program Management Guide



Office of Environment, Safety & Health
U.S. Department of Energy

This page intentionally left blank.

Radiological Assessor Training
DOE-HDBK-1141-2001
Program Management Guide

Table of Contents

Page

This page intentionally left blank.

Introduction

Purpose and Scope

This handbook describes a Radiological Assessor Training program. It includes standards and policies as well as recommendations for material development and program administration. It is intended for use by DOE and DOE contractors for the development of facility-specific radiological assessor training. This material is intended for assessment of occupational radiation protection programs. This material does not address environmental radiation protection programs.

Compliance with 10 CFR 835-Subpart B

The DOE training materials for Radiological Assessor Training reflect the requirements identified in 10 CFR 835-Subpart B*, Management and Administrative Requirement*s, and recommendations identified in the DOE Implementation Guide G441.12, *Radiation Safety Training,* and in the *DOE Radiological Control Standard.* When implemented in its entirety and supplemented as noted with appropriate facility-specific information, this handbook provides an acceptable method to meet the requirements of 10 CFR 835-Subpart B for training of individuals (auditors and assessors) responsible for developing and implementing measures necessary for ensuring compliance with 10 CFR 835 (10 CFR 835.103).

However, it is incumbent on management of each facility to review the content of this handbook against the radiological hazards present to ensure that the training content is appropriate to each individual's prior training, work assignments, and degree of exposure to potential radiological hazards.

Training described in this handbook does not eliminate the need for additional training on facility-specific hazards. Notations throughout the program documents indicate the need for facility-specific information. If the noted section is not applicable to the facility, no information need be presented. The site Radiological Control Manager or designee should concur in facility-generated radiological training material.

Goal of Training Program

The goal of the training program is to provide a sufficient level of knowledge and skills in radiological assessment fundamentals commensurate with the assigned duties and potential radiological hazards encountered at DOE facilities using or possessing radioactive materials and/or radiation-producing devices.

Organizational Relationships and Reporting Structure

DOE Office of Worker Protection Policy and Programs (DOE EH-52) is responsible for approving and maintaining the training materials.

The establishment of a comprehensive and effective contractor site radiological control training program is the

responsibility of line management and their subordinates. The training function may be performed by a separate training organization, but the responsibility for quality and effectiveness rests with line management.

Training Program Descriptions

Overview of Training Program

Radiological Assessor Training may be provided to individuals (auditors and assessors) responsible for developing and implementing measures necessary for ensuring compliance with 10 CFR 835 at a DOE site or facility. The terminal objective is that, upon completion of this training, individuals with appropriate education and experience may conduct audits, assessments, appraisals and surveillances of occupational radiation protection programs at a DOE site or facility in accordance with 10 CFR 835.103 and in meeting other quality assurance requirements.

Prerequisites

The material is targeted for individuals with a baseline knowledge of radiological protection concepts and provides material on how to conduct a radiological assessment. DOE has developed training materials for radiation protection concepts as part of the Department's Technical Qualification Program. Students participating in the Radiological Assessors Training should be able to demonstrate competence of radiation protection concepts equivalent to the DOE Technical Qualification Program Topic Area *Radiation Protection.* The student Manual for the *Radiation Protection* Topic Area provides a good review of the competency topical expectations.

DOE has also provided guidance on qualifications of radiological assessors in DOE STD-1107-97 *Knowledge, Skills, and Abilities for Key Radiation Protection Positions at DOE Facilities*. Students should be capable of meeting

	this standard prior to conducting independent technical evaluations/assessments of radiation protection programs (i.e. evaluations beyond simple surveillances of radiation protection program implementation). In accordance with 10 CFR 835-Subpart B, each individual shall have appropriate education, training and skills to discharge their responsibilities for ensuring compliance with 10 CFR 835. Refer to DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, for qualification requirements for technical staff (this category frequently includes radiological assessors).
Proficiency Requirements	An examination or performance demonstration is recommended.
Retraining	Sites are encouraged to develop periodic training and retraining for radiological assessors and auditors. Retraining should focus on lessons learned and site specific events as necessary. Materials developed in support of training should be documented in accordance with 10 CFR 835.704, *Administrative Records*.
Instructor Training and Qualifications	All classroom instruction should be provided by instructors qualified in accordance with the contractor's site instructor qualification program. Training staff (contractor and subcontractor, if used) should possess both technical

knowledge and experience, and the developmental and instructional skills required to fulfill their assigned duties.

1.Training staff responsible for program management, supervision, and development should have and maintain the education, experience, and technical qualifications required for their jobs.

2.Instructors should have the technical qualifications, including adequate theory, practical knowledge, and experience, for the subject matter that they are assigned to teach.

3.Methods should be in place at each contractor site to ensure that individual instructors meet and maintain position qualification requirements.

4.Subject matter experts without instructor qualification may provide training in their area of expertise. However, if these subject matter experts are to be permanent instructors, they should be trained as instructors in the next practical training cycle.

DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, discusses qualification requirements for instructors.

DOE has also provided guidance on qualifications of radiological instructors in DOE STD-1107-*97 Knowledge, Skills, and Abilities for Key Radiation Protection Positions at DOE Facilities.*

Training Material Presentation

Training materials consist of lesson plans, overheads, student guides, and handouts. To ensure appropriate training, facility-specific materials must be added to the materials when necessary to adequately train individuals for facility-specific radiological hazards.

For example, facility-specific modules may be added to cover such topical areas as: reactors, breeder reactors, spent fuel storage, radwaste burial, radwaste storage, high level waste storage, tank farms, reprocessing plants, and vitrification plants.

Conversely, modules with no applicability to a facility or site may be omitted (e.g., a tritium facility may want to omit modules on uranium and plutonium).

It is estimated that this material could be presented in 44 hours. The Table of Contents in the Instructor's Guide provides a recommended breakdown of time per module.

Training Certificates

A training certificate that identifies the individual's current training status may be provided to qualified personnel. Each facility is responsible for determining the training status of employees. Facilities have the option of utilizing a certificate as proof of training.

Training Aids, References	Facility-specific training aids should be developed at the facility to suit individual training styles. Each facility may add information, activities, and/or view graphs to enhance the program.

Lectures, Seminars, Training Exercises, etc.	Radiological assessor training is designed to be delivered in a classroom setting. An alternate delivery method may be implemented with computer-based training (CBT) equipment or web-based training (WBT) equipment. The presentation of training should include DOE developed materials and facility-specific information.
Delinquent Training/Failure	Employees who are delinquent on initial training or retraining should lose their status of being qualified assessors or auditors until successful completion of the delinquent training requirement.
Exceptions and Waivers	Successful completion of the Radiological Assessor Training at one DOE site may be recognized by other DOE sites. However, the determination as to the adequacy of training as required by 10 CFR 835-Subpart B is the responsibility of the facility in which the individual will be conducting assessments.

Training Records	Training records and course documentation shall meet the requirements of 10 CFR 835.704 *Administrative Records*.
Training Program Development/Change Requests	All requests for program changes and revisions that are generic in nature may be submitted using DOE F 1300.3 *Document Improvement Proposal*. A copy of DOE F 1300.3 and instructions are included at the end of this document.
Audits (internal and external)	Internal verification of training effectiveness may be accomplished through senior instructor or supervisor observation of practical applications and discussions of course material. Results should be documented and maintained by the organization responsible for Radiological Control Training.

Evaluating Training Program Effectiveness

Verification of the effectiveness of Radiological Assessor Training should be accomplished by surveying a limited subset of former students in the workplace. This evaluation should include observation of practical applications and discussion of the course material. DOE/EH has issued guidelines for evaluating the effectiveness of radiological training through the DOE Operations Offices and DOE Field Offices. These guidelines are available from the DOE Radiation Safety Training Home Page. (See the Foreword of this document.)

For additional guidance, refer to DOE STD 1070-94, *Guide for Evaluation of Nuclear Facility Training Programs*. The guidelines contained in these documents are relevant for the establishment and implementation of post-training evaluation programs.

References and Supporting Documents

U.S. Department of Energy, DOE G 441.1-12, Radiation Safety Training Guide, March, 1999.

U.S. Department of Energy, DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities, November, 1994.

U.S. Department of Energy, DOE STD-1098-99, Radiological Control, July, 1999.

U.S. Department of Energy, DOE STD-1107-97, Knowledge, Skills, and Abilities for Key Radiation Protection Positions at DOE Facilities, January, 1997.

U.S. Department of Energy, 10 CFR 835, Occupational Radiation Protection, November, 1998.