



**NOT MEASUREMENT
SENSITIVE**

**DOE-HDBK-1118-99
October 1999**

**Superseding
DOE-STD-1060-93
February 1993**

DOE HANDBOOK

GUIDE TO GOOD PRACTICES FOR CONTINUING TRAINING



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

AREA TRNG

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

This document has been reproduced from the best available copy.

Available to DOE and DOE contractors from ES&H Technical Information Services, U.S. Department of Energy, (800) 473-4375, fax: (301) 903-9823.

Available to the public from the U.S. Department of Commerce, Technology Administration, National Technical Information Service, Springfield, VA 22161; (703) 605-6000.

DOE-HDBK-1118-99

FOREWORD

1. This Department of Energy (DOE) Handbook is approved for use by all DOE Components and their contractors. The Handbook incorporates editorial changes to DOE-STD-1060-93, *Guide to Good Practices for Continuing Training*, and supersedes and replaces DOE-STD-1060-93. Technical content of this Handbook has not changed from the original technical standard. Changes are primarily editorial improvements, redesignation of the standard to a Handbook, and format changes to conform with current Technical Standards Program procedures.

2. This handbook provides guidance to DOE staff and contractors that can be used to modify existing continuing training programs or to develop new programs. DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities* Chapter I, Paragraph 7.d, requires each facility to design and implement a continuing training program for all operating organization personnel who perform functions associated with engineered safety features. Continuing training is necessary to ensure that operating organization personnel continually improve their ability to operate, maintain, and provide support to their nuclear facility(ies) in a safe and reliable manner. Continuing training should also enhance the professionalism of these individuals and should make them aware of the possible consequences of misoperation. DOE contractors should not feel obligated to adopt all parts of this guide. Rather, they can use the information in this guide to develop programs that apply to their facility. This guide can be used as an aid in the design, development, and evaluation of the facility's continuing training program.

3. Beneficial comments (recommendations, additions, deletions) and any pertinent data that may improve this document should be sent to the Office of Nuclear Safety Policy and Standards (EH-31), U.S. Department of Energy, Washington, DC 20585, by letter or by using the self-addressed Document Improvement Proposal (DOE F 1300.3) appearing at the end of this document.

4. DOE Technical Standards, such as this Handbook, do not establish requirements. However, all or part of the provisions in a technical standard can become requirements under the following circumstances:

(1) they are explicitly stated to be requirements in a DOE requirements document; or

DOE-HDBK-1118-99

(2) the organization makes a commitment to meet a technical standard in a contract or in a plan or program required by a DOE requirements document.

DOE-HDBK-1118-99

CONTENTS

FOREWORD	iii
1. INTRODUCTION	1
1.1 Purpose	1
1.2 Discussion	1
2. CONTENT	3
2.1 Fixed Continuing Training	3
2.2 Flexible Continuing Training	6
3. METHODS	9
3.1 Skills training	9
3.2 Lecture Series	14
4. TESTING	17
5. REMEDIAL TRAINING	19
5.1 Attendance	19
5.2 Content	19
5.3 Remedial Training Methods	20
5.4 Performance Standards	20
6. EVALUATION	21
7. RECORDS	23

DOE-HDBK-1118-99

INTENTIONALLY BLANK

DOE-HDBK-1118-99

1. INTRODUCTION

1.1 Purpose

This guide provides contractor training organizations with information and methods useful in the development and implementation of continuing training programs using a Systematic Approach to Training (SAT) process. It can be used with DOE orders, standards, and handbooks to aid in the development of continuing training programs. It should be used in conjunction with the *DOE Training Program Handbook: A Systematic Approach to Training* and the DOE Handbook for *Alternative Systematic Approaches to Training*.

This guide is based on good practices used at DOE and commercial facilities. Contractors may use these guidelines as they develop or modify their program.

1.2 Discussion

The goals of continuing training are to maintain and enhance the ability of personnel to perform job assignments and to ensure facility safety and reliability. To achieve these goals, a continuing training program should cover the knowledge and skills required for safe operations. The program should also be flexible enough to cover industry operating experiences, performance problems, facility modifications, and procedure changes. A facility can meet these needs by ensuring that the continuing training program satisfies the following broad objectives (as applicable to the facility):

- Maintain and upgrade the skills and knowledge necessary for personnel to accomplish routine and emergency duties
- Maintain the employees' awareness and understanding of the need for the safe operation of the facility
- Emphasize the importance to personnel of lessons learned from operating experience to prevent repetition of errors
- Correct personnel performance deficiencies
- Evaluate individual and team performance to identify areas for improvement
- Train on facility modifications and procedure changes in a timely manner
- Maintain teamwork and diagnostic skills
- Maintain the level of understanding of applied fundamentals presented in initial training

DOE-HDBK-1118-99

- Maintain the professionalism of personnel
- Maintain excellence in operating practices, procedures, and facility design.

The continuing training program material and content should be periodically reviewed and approved by line and training management. Additional training should be considered for an individual or group, depending on the following:

- Individual or team performance on the job
- Individual or team performance in training
- Qualification/Certification requirement changes
- Requests for additional training from facility personnel
- Discretionary training identified by line management.

Continuing training should be a priority effort for every facility. Activities that require major rescheduling or deferral of training should require senior management approval.

The continuing training program should address the following:

- The knowledge, skills, and abilities that support important or difficult tasks
- Team training that should include scenarios that involve the entire operating staff (this includes maintenance and technical support)
- Training cycles designed around a cluster of related tasks, including associated theory, procedures, systems, and integrated operations
- Evaluations of each employee and team for comprehension of the training delivered during each training cycle. Before returning the employees or team to their effected duties, correct any identified weaknesses that could impact facility safety or reliability.
- Evaluate individual and/or team performance on a periodic basis prior to conducting additional training to accurately assess understanding of subject matter presented.

Each facility should use a formal process to evaluate and provide feedback on the effectiveness of its continuing training program. Evaluation and resultant improvements should be implemented on an ongoing basis. Line management should review and approve revisions to the continuing training program.

DOE-HDBK-1118-99

2. CONTENT

This guide provides a framework around which facility-specific continuing training programs can be tailored. It does not specify the content of continuing training programs that would apply to any specific facility. Determination of program content should be an ongoing effort at each facility.

The long-term goal of a continuing training program should be to maintain and improve employee job performance. A short-term goal of continuing training should be to identify and correct weaknesses in their performance. To help in accomplishing these goals, the objectives and priorities of continuing training should be determined by using needs analyses, job analyses, feedback from facility managers, supervisors, and trainees, periodic evaluation of performance during facility operation, operating experience, compliance training, and the results of examinations. Whenever continuing training is conducted using material originally developed for initial training purposes, the specific objectives to be covered should be clearly defined.

To maintain and enhance the proficiency of facility personnel, a program with both a fixed and a flexible component is suggested. The fixed component is designed to maintain proficiency by providing a structured review of topics selected from the initial training program over a two-year period. The flexible component is used to correct actual or potential weaknesses of personnel and to train on operating experiences, modifications, and procedure changes.

Each facility should have a process for assessing the strengths and weaknesses of their personnel. This process should include analysis of job and training performance evaluations, examination results, interviews designed to assess knowledge, or any combination of these methods. This information should be used to help in determining topics for continuing training and the minimum acceptable standards of performance for individuals. Additional attention and priority should be given to areas of individual and team weaknesses.

2.1 Fixed Continuing Training

The fixed component of a continuing training program should satisfy needs and job analysis results, regulatory compliance training, general employee training, and fundamentals training.

DOE-HDBK-1118-99

2.1.1 Analysis Data

Facility-specific analysis data should provide the basis for the continuing training program content to be covered, as well as an initial indication of the desired frequency at which they should be covered. Various forms of analyses may be used depending on the job position and the hazard level of the facility to determine continuing training program content. For example, a needs and job analysis may be required for operators and maintenance personnel whereas a broad based needs assessment may be appropriate for technical staff and management personnel at the same high hazard facility. The DOE Handbook for *Alternative Systematic Approaches to Training* provides additional guidance on which type of analysis would be used under different circumstances.

If a job analysis has been performed, the task difficulty, importance, and frequency (DIF) of performance should be weighed to determine both frequency and depth of presentation. This may be accomplished using the classical DIF decision tree referenced in the *Guidelines for Job and Task Analysis for DOE Nuclear Facilities* or the alternative approach suggested in the DOE Handbook for *Table-Top Job Analysis*. In either case, tasks will be selected as train, no train, pre-train, or overtrain.

The selection of train, no train, pre-train, and overtrain tasks should always be validated by subject-matter experts and management. All tasks that may be performed by facility personnel should be considered. Those tasks identified as overtrain tasks during the job analysis process are by definition tasks that require both initial and continuing training to maintain proficiency. The content for continuing training programs should be identified during the design phase of the SAT process and based on the learning objectives derived from the task statements. The learning objectives derived from the overtrain task statements represent the knowledge and skills necessary to perform these tasks and should be the basis for a major part of the fixed portion of the continuing training program. Pre-train tasks are those tasks that are performed very infrequently and there is adequate time to provide training on the task just prior performance ("just in time training"). Training for pre-train tasks should also be included in the continuing training program to ensure that the training is actually conducted prior to performing the task. Refer to the DOE Handbooks for *Table-Top Training Design*, *Alternative Systematic Approaches to Training*, and *Training Program Handbook: A Systematic Approach to Training* for more information on the design process.

DOE-HDBK-1118-99

If the number of tasks selected as overtrain is found to be unmanageable, the tasks may need to be re-evaluated by training, subject matter experts, and operations and training management to ensure they were classified correctly. A table-top process as described in the DOE Handbook for *Table-Top Job Analysis* should be used to conduct this re-evaluation. It may not be possible to cover all the learning objectives for all the overtrain tasks in a two year period. Therefore, some of the learning objectives for the overtrain tasks (e.g., those that are less important to safety and have not been shown to be areas of weakness) may have to be presented on a frequency less often than once every to two years (e.g., once every 3 years).

At low hazard nuclear facilities it is possible that none of the tasks would be selected as overtrain tasks or the number of overtrain tasks may be very small. In this case the fixed portion of the continuing training program may be based primarily on regulatory training and other areas discussed in sections 2.1.3 and 2.1.4 of this handbook. The number of pre-train tasks is normally small and these tasks are performed infrequently enough that they can easily be accommodated in the continuing training program schedule if they are identified early and well planned.

When an analysis other than a job analysis is performed, the continuing training program should be based on the activities/competencies which, if performed incorrectly, would have an impact on safety and require continued practice or performance in order to maintain proficiency.

2.1.2 Regulatory Training

Regulatory compliance training should be part of the fixed component of the continuing training program. This is the mandated training required by DOE Orders and Federal Regulations, such as security training and Occupational Safety and Health Act (OSHA) training, and can readily be scheduled well in advance. Training personnel should monitor DOE Orders, Federal Regulations, and special reports for information and changes in requirements influencing training. These changes should be incorporated into the continuing training program and also documented and tracked.

DOE-HDBK-1118-99

2.1.3 General Employee Training

Changes to the General Employee Training (GET) should be part of the continuing training program for all facility personnel. An exact repeat of the GET received during the initial training is not required. Instead, any changes that may have occurred to the topic areas addressed in the initial GET program should be included in the continuing training program. Trainee proficiency should be measured periodically by administering examinations on the areas of the GET program that were included in the continuing training program.

2.1.4 Fundamentals Training

Continuing training should include selected fundamentals or knowledge training. Basic knowledge, as well as specialized knowledge, can be lacking when infrequent operations occur or newly supplied equipment breaks down. Therefore, instructions on selected fundamental topics should be provided on a continuing basis. The topics chosen should maintain the technical and/or operational knowledge and skills. The fundamentals portion of continuing training should be derived from analysis data, identified job deficiencies, examination results, and operating experiences.

2.2 Flexible Continuing Training

The content of the flexible component of a continuing training program should be based on feedback from line management, training evaluations, industry operating events, and changes to the facility and its procedures. The flexible portion of continuing training is a method for quickly updating personnel on changes to facility procedures, modifications to facility design, and recent industry or in-house operating experience. This information can be provided in different settings depending on the nature of the material. This portion of continuing training should keep personnel informed of changes to their jobs and to keep them up-to-date on job-related industry events.

Items that could have an immediate impact on facility safety or reliability should be presented as soon as possible to the appropriate personnel. This may include presenting the information during the shift supervisor's preshift briefing. Management should emphasize the importance of the information and should communicate the management operational philosophy,

DOE-HDBK-1118-99

standards, and concerns. All training provided should be documented, and attendance should be tracked to verify that all individuals receive the information provided by this means.

Individuals and teams should be assessed to determine their proficiency. Assessment methods include, but are not limited to, written examination, performance tests, laboratory exercises, simulator exercises, and oral evaluations. These assessments should be performed immediately after training, during the following weeks on the job if possible, or the next continuing training cycle.

2.2.1 Facility Modification and Procedure Change

Information on facility modifications and procedure changes should be provided to affected individuals. Changes to emergency procedures, Technical Safety Requirements and safety-related systems should be reviewed before the individual performs work that may be affected by the change.

Facility administrative procedures should ensure that the training department is notified of facility modification plans and the installation schedule as soon as possible so preparations may be made for necessary training. Training department notification should not be delayed until the completion of the modification documentation. This training should be completed before using the system/equipment that has been modified.

Facility and training management should collaborate to determine which changes and modifications are to be covered as well as the training setting to be used. Line management should verify that all affected personnel received and reviewed the selected information in a timely manner.

Shift supervisors should guide personnel in interpreting the significant aspects of procedure changes, facility modifications, and operating experiences. A preshift discussion period or training session for this purpose is encouraged. Qualified guest lecturers, such as managers, shift technical advisors, procedure writers, or project engineers, may be used to supplement instructors and shift supervisors in conducting these discussions.

DOE-HDBK-1118-99

2.2.2 Operating Experience

The facility should incorporate operating experiences into continuing training programs. The DOE Handbook for *Implementing U.S. Department of Energy Lessons Learned Programs* can be of assistance in this effort.

A case study is one method used to learn from the experience of others. Many different approaches and settings can be used with this method. Examples include group discussions in the classroom and role playing in the laboratory and simulator setting. Case studies can be prepared by the training organization or an industry experience review group and provided to personnel to review and discuss. The DOE *Guide to Good Practices for Developing and Conducting Case Studies* can be of assistance in this effort.

Another approach is to provide all the raw data concerning an event to an individual or team attending the continuing training class. That individual or team will then analyze and present the information to the whole class.

A third approach is to provide individuals with a role to play during an event scenario conducted during a session. After the scenario, the instructor and the participants critique how the role(s) played affected the results. A modification to this approach is to have instructors play all roles in the scenario, videotape the session, and have the group observe the scenario and develop their conclusions individually. The group then discusses the problem(s), the root cause(s), and prevention or mitigation of the event consequences. A structured critique should include problems observed, the factors (personalities, attitudes, procedures, facility design, etc.) that affected the severity or mitigation of the event, and the short- and long-term corrective actions that should be taken to prevent recurrence.

DOE-HDBK-1118-99

3. METHODS

3.1 Skills training

All personnel should demonstrate competency in selected operations and maintenance activities during on-the-job training, laboratory exercises, simulator sessions, facility walk-throughs, or paperwork walk-throughs as part of the continuing training program. Tracking participation in normal, abnormal, and emergency evolutions may be used to help determine what should be practiced. This should be part of both the fixed and the flexible components of the continuing training program.

To maintain operational and maintenance skills, personnel should practice operations with the first-line supervisor aggressively leading the exercises. Sufficient time should be allocated for skills-training exercises to be repeated until weaknesses are corrected and competency is demonstrated. Some hands-on practice with the equipment and with operations is also needed by first-line supervisors to maintain familiarity with the operations and maintenance of the facility and give them an appreciation of the complexity of some evolutions.

Each facility should use its facility-specific task list, activities/competencies, industry and in-house operating experience, and other forms of feedback to develop its own list of evolutions to be included in the continuing training program. This list should identify the frequency within the one- or two-year cycle at which each evolution is to be covered. Some of these evolutions may need to be covered only once while others may require periodic coverage within the two-year cycle. Certified operations personnel require annual training and examinations on abnormal facility procedures and emergencies.

This list should be based on analysis data, and performance feedback from individuals and teams during facility operations, simulator evaluations, and facility walk-throughs and drill evaluations. Additionally, line and training managers may elect to adjust the frequency within the two-year cycle at which specific tasks are covered in training based on the performance in the facility. If performance trends indicate that individual or team performance of a task is declining, that task should be covered in training more frequently. Conversely, if performance trends do not indicate a performance problem is associated with certain tasks, the line and training managers may decide to cover those tasks in training less frequently (e.g., less than once every two years).

DOE-HDBK-1118-99

During on-the-job training sessions, laboratory and simulator exercises, and facility walk-throughs, the exercises used should emphasize the importance of the following:

- Teamwork
- Communications
- Diagnostic skills
- Lessons learned from facility and industry operating experience
- Appropriate response to facility conditions
- Procedure use
- Use of reference materials
- Compliance with the Technical Safety Requirements
- Operating practices employed at the facility
- Applying theoretical knowledge to practical situations.

Response to abnormal and emergency conditions should include use of alternate methods of accomplishing a given function, such as using different lineups, emergency lighting, or ventilation of a work space. Exercises involving failures and/or operator or maintenance errors should also be included. When conducting the exercises, use of applicable facility procedures should be maximized.

3.1.1 Laboratory and Simulator Exercises

Laboratory exercises and simulator exercises (for facilities having simulators) should address the performance tasks identified for continuing training at a frequency sufficient to ensure that necessary skills are maintained. To accomplish this objective, the skills portion of continuing training should address each of the following major functional areas of responsibility:

- Conduct of normal operations and maintenance, including preventative actions and maintenance
- Diagnosis of and response to abnormal conditions in facility systems and components
- Diagnosis of and response to emergency conditions that challenge the safety systems.

DOE-HDBK-1118-99

Exercises should be varied to provide an increased sample size of tasks in a given category while still completing the required objectives. Some exercises should be administered to all employees qualified to perform the task in order to assess the consistency of task performance among those individuals or teams. Performance problems found during these exercises should be considered when scheduling future training.

Evaluation of individual and team performance should be conducted periodically before scheduling any continuing training to assess individual and team performance. This is to gain a clearer picture of how the team would perform on the job and to determine the proper frequency for continuing training on these tasks.

Laboratory and simulator training should reflect the actual facility environment as closely as possible. Opportunities to apply the theory and fundamentals presented in lecture sessions to actual hands-on training should be emphasized. Facility and industry operating experiences should be used when developing these exercises because they provide examples of initiating events, event sequences, and lessons learned. New exercises should be added periodically to present personnel with varying situations. Exercises should be realistic and performed under conditions that closely compare to actual conditions on the job.

Abnormal and emergency condition exercises should be started at varying conditions of equipment status. These exercises should address events of various degrees of severity and complexity caused by occurrences such as natural disasters, fires or toxic gases, human error, and instrument or equipment failure.

The number of malfunctions/failures/faults for each exercise should be limited. An exercise should contain no more than one major failure within the design basis of the piece of equipment or facility system. In addition to a major failure, the exercise may include some minor failures. Usually, one major failure and two or three minor failures should be sufficient to test a wide range of objectives. Additionally, sufficient time should be allotted in the exercises so they develop fully and realistically. Some exercises, however, may include multiple failures to provide opportunities to assess individual and team ability to deal with these situations and establish priorities for corrective actions.

DOE-HDBK-1118-99

The facility's procedure describing the conduct of operations and maintenance should provide the basis for team training. It should describe individual roles and responsibilities during normal, abnormal, and emergency conditions. Exercises should provide opportunities for teams to practice their teamwork and diagnostic skills in routine evolutions, as well as in abnormal and emergency situations. The same professional demeanor expected of the team in the facility should be maintained and reinforced during all training.

The individuals who normally work together should make up the teams for training, including maintenance personnel and technical staff. Some team exercises should prepare all personnel to function together effectively, regardless of team composition. The interface between the operations, maintenance, technical staff, and operations support (Health Physics, Chemical Operators, etc.) should be included in some exercises and facility walk-throughs to maintain and improve proficiency in the interaction of these personnel. The DOE *Guide to Good Practices for Teamwork Training and Diagnostic Skills Development* provides information regarding the use and principles of teamwork and diagnostics.

Proficiency in using emergency procedures should be considered when determining the amount of training to schedule. Facilities that do not have a facility-referenced simulator or training laboratories should consider other methods to provide this important training such as facility drills, use of shop space, and walk-throughs. Increased amounts of classroom time or expansion of a facility drill and walk-through program may be necessary to develop the desired proficiency.

3.1.2 Facility Drill and Walk-Through Programs

Facility drills and walk-throughs provide a means of training individuals to respond to conditions that cannot be covered adequately in the classroom, laboratory, or simulator. All employees should participate in the facility drill and walk-through program to upgrade their skills on evolutions such as facility evacuation, failure of equipment, fire brigade responsibilities (if applicable), and selected tasks performed outside of normal operations. Employee performance should be evaluated against established criteria such as performance tests or other standards. Scheduled facility activities should be considered in planning skills training. For example, training on facility startup after a modification should be completed immediately before the actual startup.

DOE-HDBK-1118-99

Participation in a facility drill or walk-through may include being assigned as a monitor for observing and evaluating personnel response to normal, abnormal, and emergency conditions. Facility drills and walk-throughs should be structured to allow review and practice of actions required to respond to normal, abnormal, and emergency facility conditions. Facility drills and walk-throughs should involve the following:

- Reviewing or implementing facility procedure steps
- Performing or simulating actions required to establish stable facility conditions
- Identifying equipment control locations and functions
- Identifying expected facility instrumentation and alarm response
- Including maintenance personnel, operations support, and technical staff
- Practicing communications necessary to gather information or coordinate actions
- Simulating adverse facility environments (e.g., no lighting, high noise, high radiation levels).

Each facility drill or walk-through must be carefully planned and monitored to evaluate individual and team response. A review of facility and industry operating experiences should provide examples of initiating cues, event sequences, and lessons learned that can be used when developing scenarios. The drill or walk-through scenarios should include the following:

- Statement to participants clarifying the objectives of the drill or walk-through, the authority of the evaluators and the shift supervisor, and the requirement for adherence to approved procedures
- Precautions, including conditions under which the drill will be terminated
- Reference materials
- Prerequisites for initiation, including the need for safety monitors
- Narrative summary of expected sequence
- Provision for drill and walk-through critiques with participants
- Performance tests.

Performance testing should be used during the drill or walk-through to evaluate employee proficiency in the performance of assigned tasks. Performance deficiencies identified in the critique should be reviewed by training and line management, and the results should be provided to the employee. Additions or modifications to training programs required to correct

DOE-HDBK-1118-99

performance deficiencies (or remedial training) should then be initiated. More information concerning drill programs can be found in the DOE Handbook for *Establishing Nuclear Facility Drill Programs*.

3.2 Lecture Series

Continuing training programs should include planned lectures or seminars conducted on a regular and continuing basis. In addition to correcting identified weaknesses in fundamentals, lectures and seminars should provide for review of selected initial training material to prevent significant degradation of knowledge that is seldom used but important. They also should refresh and enhance the trainees' knowledge of essential facility operation and maintenance practices, review and provide amplification of facility and industry experience, and discuss recent or pending facility modifications and procedure changes.

Using a systematic training process, training management, with line management approval, should select lecture topics based on analysis data and other identified needs of the employees. The lecture series should be designed and sequenced to reinforce the laboratory, simulator, and in-facility portions of the continuing training program. Frequency of lecture topic presentations should be based on the analysis data and use of the supporting fundamental knowledge.

Lectures and seminars may include video presentations; however, this medium should not be a complete substitute for live instruction. In each instance that video presentations are used, an instructor should be available to provide amplifying information and answer questions.

Affected personnel should attend all lecture and seminar sessions. An attendance record should be kept to track attendance and for line management use. Absences should be made up by rescheduling, viewing a video of the missed session, or using self-study and discussion with knowledgeable personnel designated by a training manager. Each employee performing makeup work should pass written examinations or performance tests that were required during the training. The time required to make up any missed training should be based on its significance to facility operation. Some training (e.g., significant facility modifications) may require accelerated makeup schedules. Although self-study and discussion sessions may be used for makeup, this practice should be limited.

DOE-HDBK-1118-99

Self-study periods should be scheduled with the lecture series to provide an opportunity to study new or additional material. While individualized study is encouraged, it should not be substituted for lecture sessions or seminars conducted by an instructor. If self-study is used, an instructor should be assigned to monitor and assist the trainee.

DOE-HDBK-1118-99

INTENTIONALLY BLANK

DOE-HDBK-1118-99

4. TESTING

An essential element for an effective continuing training program is the evaluation of each employee's proficiency in operating or maintaining the facility in a manner consistent with the philosophy and standards established by line management. It is vital that those managers responsible for setting standards are involved in evaluations.

Performance of personnel should be evaluated frequently. Repeat errors or other indications of degraded proficiency should be reviewed by the training manager and brought to the attention of the line manager so additional training, if appropriate, is initiated. Individuals should be evaluated in areas such as the following:

- Teamwork
- Communications
- Diagnostic skills
- Lessons learned from facility and industry operating experiences
- Appropriate response to changing facility conditions
- Procedure use
- Technical Safety Requirement compliance
- Decision making
- Technical and fundamental knowledge and skills
- Ability to apply theoretical knowledge to practical situations
- Use of facility-reference material.

Test results should be used to relate job performance to initial and continuing training. Written and performance tests can be used to assess knowledge associated with task performance. The line manager should solicit input from personnel and provide the training manager with specific training needs that should be considered for incorporation into the continuing and/or initial training program. Emphasis should be placed on identifying and correcting weaknesses. Test developers and reviewers should consult references such as the DOE *Guide to Good Practices for the Development of Test Items* and the DOE *Guide to Good Practices for the Design, Development, and Implementation of Examinations* for further information on this subject.

DOE-HDBK-1118-99

INTENTIONALLY BLANK

DOE-HDBK-1118-99

5. REMEDIAL TRAINING

Specific remedial training for personnel may be required to refresh and upgrade knowledge and skills related to their duties. A standard method of implementing this training and evaluating the personnel involved should be established.

5.1 Attendance

Attendance requirements should be determined by line management. Normally, personnel having significant deficiencies in one or more of the following areas should be assigned to remedial training:

- Duty performance identified by the line manager
- Performance tests
- Simulator performance
- Written tests
- Facility drill task performance
- Facility walk-through task performance.

Individuals and/or teams with significant deficiencies in important duty areas should be removed from those specific duties until remediated satisfactorily.

5.2 Content

Remedial training should be structured to upgrade individual knowledge and skills identified as deficient. Examination categories and areas in which performance standards were not met should be covered.

The line manager or a designated representative should provide content input to the training manager based on a review of individual or team deficiencies and on a careful analysis of the root cause of the deficiencies. The training manager should be responsible for formulating and approving individual remedial training and for obtaining line management concurrence.

DOE-HDBK-1118-99

5.3 Remedial Training Methods

Remedial training may involve a variety of training methods including skills training exercises at the facility, in a laboratory or a simulator, planned lectures, interviews and discussion sessions, and directed self-study. The method used and the duration of the remedial training should be dictated both by the extent of training required and individual performance.

5.4 Performance Standards

Successful completion of remedial training should be determined by testing. The test should cover all areas previously identified as deficient and may include an interview or written test as well as on-the-job evaluation. Performance standards for remedial training should be the same as for the original training.

In the event that these standards are not met, line management should review the individual's suitability for resuming those affected duties. If appropriate, additional remedial training should be structured to correct the deficiencies.

DOE-HDBK-1118-99

6. EVALUATION

The continuing training program should be evaluated on a periodic basis to determine program effectiveness. These evaluations should include the use of the applicable objectives and criteria from the DOE Standard, *Guidelines for Evaluation of Nuclear Facility Training Programs*. Recommended changes to the continuing training program as a result of these evaluations should be formalized, approved, and tracked. The areas encompassed should include the following:

- Feedback from facility personnel
- Inspection, audit, and evaluation reports of continuing training completed by outside organizations and facility personnel
- Individual performance evaluations related to job duties
- Simulator and facility performance evaluations and results of examinations
- Facility operations problems related to individual knowledge or skills deficiencies
- Changes in job assignments related to job duties and/or safety-related functions of facility personnel
- Regulations and standards affecting continuing training
- Assessment by the line manager of employee performance deficiencies related to training
- Assessment of changes from updates in the job analysis and new task analysis.

Continuing training program evaluation results should also be used to identify operating practices, facility design factors, and procedures that adversely impact the performance of facility personnel. This evaluation should include root-cause or a similar analysis to determine if problems are attributable to training, procedures, operating practices, facility design, or any combination of these factors. Analysis results and recommendations for correction should be transmitted to line management for resolution.

The training supervisor (or an equivalent position) should review the continuing training curriculum periodically to identify deficiencies, required changes that need immediate action, or significant program modification. The supervisor should recommend corrective action for review and approval by the training and line manager. Additionally, the training supervisor should implement the necessary changes to the program and lesson plans.

DOE-HDBK-1118-99

Deficiencies in instructor performance should be addressed as described in the DOE *Guide to Good Practices for Training and Qualification of Instructors*.

DOE-HDBK-1118-99

7. RECORDS

Auditable records of an individual's participation and performance in, or exception(s) granted from, the training program(s) should be maintained. Individual training records should include the following (as appropriate):

- Verified education, experience, employment history, and most recent health evaluation summary
- Training completed and qualification(s) achieved
- Latest completed checklists, graded written examinations (with answers corrected as necessary or examination keys) and operational evaluations used for qualification (this requires controlled access to training records to maintain examination security)
- Lists of questions asked and the examiners' overall evaluation of responses on oral examinations
- Correspondence relating to exceptions granted to training requirements (including justification and approval)
- Records of qualification for one-time-only special tests or operations
- Attendance records for continuing training courses or sessions.

A historical record that documents initial qualifications on each position qualified should be maintained as part of individual training records. For example, if an individual initially qualified in 1986, the record should have the date and name of the qualification. If more than one qualification is achieved and maintained, the individual training record should contain documentation to that effect.

For current qualification(s), the checklists, operational evaluations, graded written examinations (with answers corrected as necessary) etc., should be maintained in the record. Some facilities may prefer to maintain a separate file of completed examinations with answer keys for an employee. When an individual holds qualification on multiple positions, records that support current qualifications for each position should be maintained. Duty area or task qualification should be documented using a similar method (for facilities/positions that use duty area or task qualification instead of position qualification). Functional supervisors should have access to qualification records, as necessary, to support the assignment of work to qualified personnel.

DOE-HDBK-1118-99

Upon requalification, records that supported the previous qualification may be removed from the record and replaced with the information documenting present qualification. Superseded information should be handled in accordance with procedures contained in DOE O 200.1, "Information Management Program."

In addition, records of the training programs (which should include an audit trail documenting the development of and modifications to each program) and evaluations of the effectiveness of those programs should also be maintained.

DOE-HDBK-1118-99

CONCLUDING MATERIAL

Review Activity:

DOE

Operations Offices

HR

AL

DP

CH

EH

FN

EM

ID

ER

NV

FM

OR

NE

RF

RL

OAK

SR

Preparing Activity:

DOE-EH-31

Project Number:

TRNG-0008

National Laboratories

ANL

BNL

FNAL

INEL

LANL

LLNL

MNREL

ORNL

PNNL

SNL