

20

Personnel Training

Activity Classroom Training

1.0 Purpose This guideline provides a basis for the performance of surveillance of facilities' classroom training programs to assess if nuclear facility personnel possess the required job-related knowledge and skills.

2.0 Scope The scope of this guideline includes the preparation, performance and evaluation of classroom training programs.

References

1. INPO Criteria 85-002, "The Accreditation of Training in the Nuclear Power Industry."
2. INPO 85-006, "Principles of Training System Development Manual."
3. NRC NUREG-1220, "Training Review Criteria and Procedures."
4. INPO 82-026, "Technical Instruction Training and Qualifications."
5. INPO 88-002, "Principles of Training System Development."

3.0 Guidelines

3.1 In preparation for and during the conduct of this surveillance

- Obtain and review implementing procedures, instructions, and drawings governing this activity.
- Prepare a guide or checklist using the selected items from this guideline.
- Review past surveys, audits, surveillances, and other evaluations/assessments.
- Ensure that checklists include, where applicable, actual observations of performance, general plant conditions, radiological work practices, housekeeping, work document controls and use, and safety practices.

Note: Refer to Chapter 1 for specific details on the attributes listed above.

3.2 Evaluate the classroom training program for content and adequacy of implementation by reviewing the following:

A. Lesson plans are prepared and should include the following information:

1. Training description.
 - Title, purpose, and scope of training.
 - Terminal objective(s).
 - Enabling objectives.
 - Duration of the training.
 - References for additional instructor research.

2. Expected trainee entry-level skills and knowledge (including prerequisites).
 3. Classroom presentation outline that provides an introduction, body, and summary which addresses the following:
 - Enabling objectives, learning activities, and training method(s).
 - Text material and reference assignments.
 - Audiovisual media scheduling and use.
 - Trainee handouts.
 - Trainee study assignments.
 4. Classroom workbook assignments (when applicable).
 - Schedule and application.
 - Questions to be answered and/or projects to be completed by the trainees to apply the knowledge or skill acquired during the classroom presentation.
 - References available to the trainee that aid in answering the questions or completing the project.
 - Safety considerations.
- B. Training is implemented as outlined by approved training materials, is well organized, and is current.
- C. Training activities encourage direct trainee participation in the learning process.
- D. Instructors are adequately prepared as evidenced by effective and consistent delivery.
- E. Instructors are qualified to present the applicable course.
- F. The instructor uses instructional techniques appropriate to the lesson content and learning objectives.
- G. When individualized instruction is used, either the training materials contain the information to be learned or referenced texts are readily available.
- H. Testing
1. Administration
 - Scheduling and use.
 - Performance standards for evaluating the trainee performance.
 - Administration of exam bank usage (i.e., re-use of questions does not compromise exam).
 - Instructions for providing feedback to the trainees/management.
 - Effective control of examination conditions (such as monitoring and student interaction, etc.).

2. Trainee mastery of the learning objectives is evaluated regularly using written and/or oral examinations and quizzes which are retained as records. Pass/fail criteria is clearly specified.
 3. Written and oral examinations and quizzes are administered and graded in a consistent manner; references to correct answers should be specified.
 4. Acceptance criteria to be used during the administration of oral examinations are defined in advance of the examination.
 5. Contracted training is evaluated to ensure that the trainees are achieving the specified learning objectives, as measured by appropriate oral and written exams and quizzes.
- I. Verify that classroom training is evaluated periodically for effectiveness and content by
 1. Supervisor monitoring from the receiving department.
 2. Student feedback.
 3. Performance feedback.
 4. Industry and regulatory feedback.
 - J. Practical exercises (laboratory, etc.) are controlled and administered in similar fashion to classroom training. Protective wear and adequate precautions are included in the lesson guide.

4.0 Other Guidelines for Consideration

- 4.1 See Chapter 1, "General Quality Surveillance Guidance."
- 4.2 See Chapter 20, "Qualification and Certification."

Activity On-the-Job Training (OJT)

1.0 Purpose: This guideline provides a basis for the performance of surveillance of facilities' OJT training programs to ensure that nuclear facility personnel possess the required job-related knowledge and skills.

2.0 Scope This guideline covers the performance and evaluation of OJT programs.

References

1. INPO Good Practice TQ-501, "Development and Implementation of On-the-Job Training Programs."

2. NRC NUREG-1220, "Training Review Criteria and Procedures."

3.0 Guidelines

3.1 In preparation for and during the conduct of this surveillance

- Obtain and review implementing procedures, instructions, and drawings governing this activity.
- Prepare a guide or checklist using the selected items from this guideline.
- Review past surveys, audits, surveillances, and other evaluations/assessments.
- Ensure that checklists include, where applicable, actual observations of performance, general plant conditions, radiological work practices, housekeeping, work document controls and use, and safety practices.

Note: Refer to Chapter 1 for specific details on the attributes listed above.

3.2 Verify that a documented OJT program exists and evaluate for the following content:

- A. Program content (identification of the tasks to be performed.)
- B. Program materials provide the guidance and structure in implementing the program. Materials should include
 - 1. Clear statements of the knowledge, skills, or tasks the trainee must demonstrate to satisfactorily complete the training.
 - 2. Reference material that the trainee can use to obtain the desired knowledge and skills.
 - 3. Designation of trainers/evaluators familiar with the necessary techniques.
 - 4. Standards (or references to standards) to be used in evaluating trainee knowledge and performance.
- C. OJT procedures which govern trainee prerequisites, trainer/evaluator qualifications, and program coordination, such as
 - 1. Assigning target dates for trainees to reach milestones and complete the program.

2. Monitoring trainee progress.
 3. Providing training material and assistance to trainees and trainers/evaluators.
 4. Coordinating training assignments to take advantage of unusual or infrequent job-related activities.
 5. Documenting training as it is completed.
 6. Informing appropriate supervisors of training problems and of individuals' progress in completing the OJT.
 7. Evaluating training effectiveness and factoring feedback from job performance into the overall training program.
 8. Ensuring that documentation of completion of OJT requirements exists prior to the trainee being assigned job tasks.
- D. Training phase—Observe the performance of the following program elements:
1. Trainee is provided with OJT materials, including (as applicable):
 - Instructions in the use of OJT materials.
 - Schedule of target dates.
 - OJT evaluation checklists, objectives, and references.
 - Supporting study material.
 2. Trainee studies references and material related to one or more OJT items.
 3. Trainer demonstrates proper performance of the task, if practical. During the demonstration the trainer explains the potential consequences of improper performance, provides “how to” information, answers questions, and discusses lessons learned.
 4. Trainee conducts, discusses, and/or walks through the items with a qualified OJT trainer.
 5. Trainer corrects performance problems observed and helps the trainee learn from his/her mistakes.

E. Evaluation Phase

1. Observe that the evaluator conducts checkout using the appropriate standards to evaluate trainee's knowledge/skills.
2. If the trainee knowledge and skills are satisfactory, evaluator signs the item off. If not, the evaluator identifies areas for further study/practice, initials the item, and directs the trainee to return for another checkout when noted weaknesses have been upgraded.
3. Evaluator provides feedback to the trainer if performance deficiencies are noted. Such feedback should be used to improve the training process.

- F. Updating OJT—Policies or procedures should provide for the periodic review and update of OJT program content, materials, and administration. Revisions to the program may be needed due to changes in a job, procedure, equipment, feedback from job performance, and lessons learned from experience.
- G. Qualifications—The checklist also should verify the existence of a qualification system (card or other documentation), signifying the satisfactory completion of OJT.

4.0 Other Guidelines for Consideration

- 4.1 See Chapter 1, “General Quality Surveillance Guidance.”

Activity Simulator Training

1.0 Purpose This guideline has been developed to review the overall simulator program.

2.0 Scope This guideline has been developed to review and evaluate the simulator training program and the overall simulator management program. This will include as a minimum the following types of activities:

- Evaluation of the simulator training instructor.
- Simulator versus the reference plant.
- Controlled documents.
- Simulator security and protection of hardware.
- Method for schedule simulator use/time.
- Written instructions for the operator of the simulator and the associated computer.
- Simulator routine maintenance program.
- Completeness of the simulator performance testing program.

References

1. 10CFR55, "Operating Tests."
2. Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants."
3. Regulatory Guide 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator License Examination."
4. NUREG-1258, "Evaluation Procedure for Simulation Facilities Certified Under 10CFR55."
5. ANSI/ANS-3.5-1985, "Nuclear Power Plant Simulators for Use in Operator Training."
6. ANSI/ANS-3.1-1987, "Selection, Qualification and Training of Personnel for Nuclear Power Plants."
7. NUREG-0737, "Clarification of the TMI Action Plan Requirements."

3.0 Guidelines

3.1 In preparation for and during the conduct of this surveillance

- Obtain and review implementing procedures, instructions, and drawings governing this activity.
- Prepare a guide or checklist using the selected items from this guideline.
- Review past surveys, audits, surveillances, and other evaluations/assessments.
- Ensure that checklists include, where applicable, actual observations of performance, general plant conditions, radiological work practices, housekeeping, work document controls and use, and safety practices.

Note: Refer to Chapter 1 for specific details on the attributes listed above.

- 3.2 Observe a series of simulator exercises/classes involving a representative sample of the training instructors, and evaluate for the following:
 - A. Instructor preparation.
 - B. Instructor presentation.
 - C. Instructor's ability to answer questions posed by students.
 - D. Proper documentation of training and attendance records.
 - E. Proper documentation of simulator materials/lessons covered during the training session.
 - F. The simulator session should include, as appropriate, the following:
 1. Emphasis on reactor and plant transients.
 2. Training on the use of installed plant systems to control and mitigate an accident in which the core is, or could be, severely damaged.
 3. Training in accident and event diagnostics.
 4. Training in good operator practices and techniques.
 5. Use of operating procedures (EOPs, AOPs, etc.).
- 3.3 Verify the qualification of the simulator instructor(s) in charge of the simulator session against applicable training qualification requirements.
- 3.4 Verify/compare the simulator with the reference plant with emphasis on differences as follows:
 - A. Control room physical arrangement.
 - B. Panels/equipment layout.
 - C. Systems.
 - D. Simulator control room environment.
 - E. For multiple unit stations the safety-significant differences between the units.
- 3.5 Verify that controlled documents are used for operator training. Items to consider for evaluation are
 - A. Placement of documents in the simulator compared to the plant control room arrangement.
 - B. Current and up-to-date revisions.
 - C. Condition of documents.

- 3.6 Verify that security and protection are provided for the simulator area, simulator hardware, and software. Items to consider for evaluation are
 - A. Accessibility to the simulator and computer area.
 - B. Security and protection of hardware from unauthorized use.
 - C. Fire protection and fire protection program as applicable to the simulator.
 - D. Process for controlling and modifying simulator software.
- 3.7 Verify the program for systematic scheduling of simulator use/time against the applicable site requirements and procedures. Items to consider for evaluation are:
 - A. Scheduling of priorities of simulator time.
 - B. Method to change simulator time priorities.
 - C. Scheduling simulator downtime (simulator maintenance, modifications, etc.).
 - D. Simulator schedule posting requirements.
- 3.8 Verify that written instructions are available for the instructor operating the simulator and the computer system. Items to consider for surveillance are
 - A. Normal startup/shutdown of the simulator.
 - B. Emergency shutdown of the simulator.
 - C. Bootstrapping/resetting of the simulator for minor equipment failures or simulation interruptions.
 - D. Software installation.
- 3.9 Verify that a program exists to provide routine maintenance for the physical condition of the simulator. Items to consider for evaluation of the program are
 - A. Monitoring and problem logging.
 - B. Scheduling of preventive maintenance.
 - C. Hardware fault detection/troubleshooting and correction process.
 - D. Method by which simulator corrective maintenance is requested.
 - E. Documentation of maintenance performed and maintenance records retention.
 - F. Restoration testing and documentation of restoration testing.
- 3.10 Verify the program for control of spare parts inventory for the simulator. Items to consider for evaluation of the program are
 - A. Procurement and ordering procedures.
 - B. Storage of spare parts.

- C. Release/issuance of spare parts.
 - D. Stock and inventory levels for both consumable and replacement parts.
 - E. Substituting spare parts.
 - F. Deletions and additions to the spare parts list and inventory.
- 3.11 Verify the procedures/program for access control of the simulator area and support areas. Items to consider for evaluation are
- A. Access authorization.
 - B. Access of files/records and stored disks/tapes.
 - C. Identification of stored disks/tapes.
- 3.12 Verify that the simulator design and design data records are maintained, as necessary, to maintain the simulator facility certification. Items to consider for evaluation are:
- A. Available and use of current and up-to-date documentation used to maintain and test the simulator.
 - B. Tracking and record retention of performance test results and data.
 - C. Updating of the computer model and simulator control board to reflect the reference plant as-built configuration following plant modifications.
 - D. Verify that the reference plant changes are reviewed at least once per year.
- 3.13 Evaluate the simulator performance testing program to fulfill the requirements of Regulatory Guide 1.149. Items to consider for evaluation are
- A. Verify that the performance testing schedule performs approximately 25 percent of the plant malfunction testing required by ANSI/ANS 3.5-1985 per year.
 - B. Verify that the performance testing schedule performs the entire plant malfunction section required by ANSI/ANS 3.5-1985 every four years.

4.0 Other Guidelines for Consideration

- 4.1 See Chapter 1, "General Quality Surveillance Guidance."

Activity Qualification and Certification

1.0 Purpose This guideline provides a method for evaluating the facility's qualification and certification programs.

2.0 Scope This guideline has been developed for use in the review and evaluation of qualification and certification programs.

- QC inspection.
- NDE examination.
- Licensed reactor operator.
- Certified nuclear welder.
- Qualification/certification of test personnel.

References

1. ANSI N45.2.6, "Qualification of Inspection, Examination, and Testing Personnel for Nuclear Power Plants."
2. ANSI N45.2.23, "Qualification of Quality Assurance Audit Personnel for Nuclear Power Plants."
3. INPO 84-003, "Guidelines for Quality Control Inspector and Nondestructive Examination Technical Training."
4. NRC NUREG-1220, "Training Review Criteria and Procedures."

3.0 Guidelines

3.1 In preparation for and during the conduct of this surveillance

- Obtain and review implementing procedures, instructions, and drawings governing this activity.
- Prepare a guide or checklist using the selected items from this guideline.
- Review past surveys, audits, surveillances, and other evaluations/assessments.
- Ensure that checklists include, where applicable, actual observations of performance, general plant conditions, radiological work practices, housekeeping, work document controls and use, and safety practices.

Note: Refer to Chapter 1 for specific details on the attributes listed above.

3.2 Select a sample of personnel (or during surveillance activities), observe the personnel performing their daily functions. From these observations, select several personnel and verify the following:

- A. Question the individual and observe his/her performance to determine if the individual is knowledgeable in the activity being performed.
- B. Qualification or certification documentation exists for each person and is current for the activity being performed.

- C. Qualification or certification documentation is being maintained by the plant's records storage facility and is current with the documentation being maintained in departmental files.
 - D. Prerequisites (minimum qualifications, such as training, experience, and successful completion of physical and technical exams) were met prior to initial certification.
 - E. Site specific on-the-job training has been completed and properly documented.
 - F. Visual examinations are satisfactorily completed, up-to-date, and properly documented, and
 - G. Upon expiration of initial certification, recertification is being conducted as required prior to the performance of inspections.
- 3.3 If contract personnel are performing activities requiring specific qualification or certification, select several of these personnel and verify the following:
- A. Question the individual and observe his/her performance to determine if the individual is knowledgeable in the activity being performed.
 - B. Certification documentation was approved by appropriate personnel and is current for the activity being performed, and
 - C. Certification documentation is being properly maintained by the responsible department.
 - D. The contractor's QA program is approved for the service being provided.
- 3.4 Select a sample of personnel from each of the various disciplines and verify the following:
- Note:** If the plant is utilizing personnel who are on loan from other sites, include a representative number of these personnel.
- A. Certification documentation exists and is current.
- 3.5 Verify that an up-to-date list of certified personnel is being maintained and distributed regularly.
- 3.6 Verify that an up-to-date list of certified contract personnel is being maintained and distributed regularly.
- 3.7 If during the course of this review insufficient training is suspected as a cause, refer to References 4.2, 4.3, and 4.4 to identify the deficient activity.

4.0 Other Guidelines for Consideration

- 4.1 See Chapter 1, "General Quality Surveillance Guidance."
- 4.2 See Chapter 20, "On-the-Job Training (OJT)."
- 4.3 See Chapter 20, "Simulator Training."