

# NRC INSPECTION MANUAL

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## INSPECTION PROCEDURE 41500

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### TRAINING AND QUALIFICATION EFFECTIVENESS

PROGRAM APPLICABILITY: 2515

SALP FUNCTIONAL AREA: OTHER

#### 41500-01 INSPECTION OBJECTIVES

01.01 To ensure that a training inspection is an appropriate response to identified performance problems.

01.02 To ensure that the training and qualification programs for nuclear power plant personnel are developed, implemented, evaluated, documented, and maintained as required by 10 CFR 50.120 and allowed by 10 CFR 55.

#### 41500-02 INSPECTION REQUIREMENTS

02.01 Response. Verify that a training inspection is the appropriate response to identified performance problems.

#### 02.02 Training and Qualification Programs

- a. Evaluate the performance of nuclear power plant workers to determine if they have been trained and qualified commensurate with the performance requirements of their jobs.
- b. Evaluate the methods of licensee training and qualification (classroom, laboratory, simulation device, on-the-job) to determine if the training and qualification program has been developed, implemented and evaluated using a systems approach to training.
- c. Evaluate the effectiveness of the implementation of the systems approach to training.

#### 41500-03 INSPECTION GUIDANCE

##### General Guidance

The safety of nuclear power plant operations and the assurance of general public health and safety depend on personnel performing at adequate levels. The systematic determination of qualifications and the provision of effective initial training and periodic retraining will enhance confidence that workers can perform

adequately. The approach the Commission has taken in 10 CFR 50.120 and 10 CFR 55 is to specify the systems approach to training (SAT) by which applicants and licensees shall develop, implement, and evaluate personnel training programs. This approach provides for flexibility and site-specific adaptations in the training and qualification programs. SECY-93-021, "Amendments to 10 CFR Parts 50 and 52 on Training and Qualification of Nuclear Power Plant Personnel," indicates that the staff will monitor the effectiveness of the SAT process through licensed operator requalification program reviews conducted using IP 71001, "Licensed Operator Requalification Program Reviews," and through review activities associated with 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." SECY-93-021 further stated that training inspections will be conducted only for cause using the guidance in this inspection procedure.

Consistent with the SAT process, each applicant and licensee is required to include the following key elements in its training programs: (1) analysis of job performance requirements and training needs, (2) derivation of learning objectives based upon the preceding analysis, (3) design and implementation of the training program based upon the learning objectives, (4) trainee evaluation, and (5) program evaluation and revision based upon the preceding evaluations.

The training program review criteria outlined in this procedure and supported by NUREG-1220, "Training Review Criteria and Procedures," may also be used in conjunction with NRC Management Directive 8.8, "Management of Allegations," to examine elements of the licensee's training and qualification programs as appropriate in order to follow up on allegations concerning the programs.

### Specific Guidance

03.01 Response. When training related concerns are identified, the information provided in Attachment 1, "NRC Staff Guidance for Monitoring the Effectiveness of Training of Nuclear Power Plant Personnel," must be used to determine the appropriate response. If an inspection of the training programs is determined to be appropriate, the inspection is conducted in accordance with the remainder of this procedure.

03.02 Training and Qualification Programs. The inspector must use NUREG-1220, Revision 1, "Training Review Criteria and Procedures," to evaluate the effectiveness of the licensee's training and qualification programs. NUREG-1220 is used to determine the success of training and qualification programs in meeting and maintaining job performance needs, and to evaluate the licensee's SAT process for developing, implementing, evaluating, and documenting training and qualification programs where a particular training related human performance problem has been identified or is suspected. Events which may initiate an assessment include performance-related operational events involving any non-operations personnel covered by 10 CFR 50.120 and operations personnel covered by 10 CFR Part 55 with training as a cause as well as

unsatisfactory requalification program inspection results or an increase in the failure rate on initial examinations.

#### 41500-04 RESOURCE ESTIMATES

For planning purposes, the direct inspection effort to accomplish this procedure should be estimated by the regional office, consistent with the scope of the planned regional initiative(s) or reactive inspection to be performed. Typically a full inspection that inspects two unrelated training programs will require four individuals: one team leader, one training and assessment specialist, and two subject matter experts (SME). At least one training and assessment specialist should be assigned to each team. A SME should be assigned for each unrelated program being inspected. For inspections of operations training and/or requalification programs, an operator licensing examiner should act as a SME. A partial inspection will require a team leader to act as SME for the program under inspection and one training and assessment specialist. NRR is prepared to assist the regions as necessary. Direct inspection effort for Reactive Inspections or Regional Initiatives should be recorded on RITS against Procedure 41500. Where the procedure is used for allegation follow-up in conjunction with NRC Management Directive 8.8, the actual time expended should be recorded against IPE code AF.

#### 41500-05 REFERENCES

10 CFR 50.120.

10 CFR Part 50, Appendix B, Criteria II.

10 CFR Part 55.

Site Specific Technical Specifications, Training.

ANSI/ANS 3.1, 1981, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants."

Regulatory Guide 1.8, Rev. 2, "Qualification and Training of Personnel for Nuclear Power Plants."

NUREG-1220, Revision 1, "Training Review Criteria and Procedures."

IP 40500, "Effectiveness of Licensee Control in Identifying, Resolving, and Preventing Problems."

IP 71001, "Licensed Operator Requalification Program Evaluation."

END

Attachment:

NRC Staff Guidance for Monitoring  
the Effectiveness of Training of Nuclear Power  
Plant Personnel



NRC STAFF GUIDANCE FOR MONITORING  
THE EFFECTIVENESS OF  
TRAINING OF NUCLEAR POWER PLANT PERSONNEL

Purpose

The NRC is issuing this guidance to inform the staff of appropriate actions for monitoring the effectiveness of training of nuclear power plant personnel.

Background

In November 1993, 10 CFR Part 50.120, "Training and Qualification of Nuclear Power Plant Personnel," became effective. This rule requires licensees to establish, implement, and maintain training programs based on a systems approach to training (SAT). The personnel covered by this regulation are (1) non-licensed operator, (2) shift technical advisor, (3) shift supervisor, (4) instrument and control technician, (5) electrical maintenance personnel, (6) mechanical maintenance personnel, (7) radiation protection technician, (8) chemistry technician, and (9) engineering support personnel (formerly technical staff and managers).

In March 1994, NRC revised the regulations in 10 CFR Part 55 to delete the requirement that each licensed operator pass a comprehensive requalification written examination and operating test administered by the NRC during the term of the operator's 6-year license as a prerequisite for license renewal. This regulation, which affects reactor operators and senior reactor operators, allows training programs for licensed operators to be developed using SAT.

Through the Policy Statement on Training and Qualification of Nuclear Power Plant Personnel, NRC endorsed the training accreditation process managed by the Institute for Nuclear Power Operations (INPO) and 11 accredited training programs. In issuing 10 CFR 50.120 and revising 10 CFR Part 55, the Commission reaffirmed its conclusion that currently accredited training programs can meet the requirements of 10 CFR Part 55 for training licensed operators and 10 CFR Part 50.120 for training those other than licensed operators. The staff recognizes that training programs developed in accordance with INPO guidelines and accredited by the National Nuclear Accrediting Board (the Board) are based on SAT; therefore, accredited programs are considered to be consistent with the regulations. The September 27, 1993, Memorandum of Agreement between the NRC and INPO documents NRC and INPO training-related activities.

The Board accredits utility training programs, while INPO manages and implements the accreditation process. Utility training programs are initially accredited for 4 years, and accreditation is renewed every 4 years thereafter. The Board can (1) grant initial accreditation or renew accreditation of a program, (2) place a

program on probation for a specified period of time, or (3) withdraw accreditation of a program. The utility resolves minor training program weaknesses by preparing corrective action plans that are monitored by INPO. Individual program weaknesses or SAT process problems are usually the bases for a program being placed on probation.

NRC is confident that programs accredited under the INPO-managed accreditation process will continue to meet the requirements of 10 CFR part 55 and 10 CFR 50.120. Notwithstanding this confidence, the NRC is responsible for monitoring utility training programs and assuring that they are effective. The means by which this is accomplished is discussed below.

### Discussion

The NRC staff uses two primary methods of evaluating the effectiveness of training programs in the industry. The first is to monitor human performance. The second method is to monitor the industry's training program accreditation process.

### NRC Evaluation of Training Program Effectiveness by Monitoring Human Performance

NRC monitors human performance at nuclear power plants as a means to evaluate the effectiveness of utility training programs. Declining human performance can indicate training deficiencies; therefore, NRC looks for evidence of training problems when reviewing information regularly collected and documented at nuclear sites. This information includes resident inspector insights; trends in licensee event reports; and results of operator initial examinations, requalification examinations and inspections, and other team inspections. The NRC developed the "Training Program Inspection Protocol" (protocol attached) as a systematic approach for determining what actions to take when the staff finds that declining performance may be a result of ineffective or omitted training.

The protocol assists NRC in determining the appropriate response to each instance of declining human performance. Each decision step requires site-specific insights. The protocol prescribes alternative levels of follow-up action based on an assessment of a licensee's performance. The initial assessment of licensee performance using the protocol may indicate the need to (1) address an immediate safety concern, (2) conduct an operator requalification examination, (3) inspect all training programs, or (4) review a specific aspect of a limited number of training programs. Rather than stating rigid decision standards that may not be appropriate in every case, the protocol enables NRC to tailor a response to the specific situation. Each decision to conduct a training inspection is made after careful consideration of plant specific performance information and discussion between NRC headquarters and regional staff.

## NRC Evaluation of Training Program Effectiveness by Monitoring the Training Accreditation Process

NRC monitors INPO accreditation activities by observing accreditation team visits and attending Board meetings as a part of NRC's assessment of the industry's training and qualification programs. The purpose of these visits is to monitor the health of industry training programs and to observe the implementation of programmatic aspects of the accreditation process.

Although the Board's action of placing a training program on probation or withdrawing accreditation indicates a Board concern, it does not necessarily place a training program in noncompliance with either 10 CFR Part 55 or 10 CFR Part 50.120 since training programs are accredited to a "standard of excellence" rather than a minimum level of regulatory compliance. However, NRC reviews the circumstances leading to the withdrawal or probation to ensure safe operations and continued compliance with regulations.

### Accreditation Probation

Before determining its response to the issues that resulted in training program probation for a specific program, the NRC reviews the concerns raised by the Board. In doing the review, the senior resident inspector, appropriate regional personnel, or both, would read INPO's accreditation report and discuss the issues with the licensee and NRR's Division of Reactor Controls and Human Factors (DRCH) to determine the safety significance of the training deficiencies. If the NRC determines that compliance with the regulations is not affected and finds that the probationary status is not safety significant, it may not need to act further. NRC would document the results of this safety review in the resident inspector's monthly inspection report by stating that the accreditation report was reviewed, discussing any safety significant issues, and discussing any follow-up actions taken or planned to resolve safety-significant issues. However, NRC would not address the status of the training program accreditation.

If the staff finds safety-significant issues, it may request the licensee to provide a basis for continued operation, schedule a licensed operator requalification examination, schedule an inspection of the training program, or meet with licensee managers, as necessary, to discuss the safety significance of the concerns and the corrective actions taken or planned. Safety-significant concerns may also prompt the region to request that the licensee describe, in writing, the concerns found and the plan for corrective actions. The licensee should be asked to describe each concern in detail, its safety significance, its relationship to regulatory requirements, and whether the licensee continues to meet regulatory requirements. This request for information is consistent with NRC authority under 10 CFR 50.54(f).

If the staff finds no safety-significant issues, it may conduct a training inspection in accordance with Inspection Procedure (IP) 41500 if declining human performance that may be the result of



ineffective or omitted training is identified. If a training inspection is to be conducted, it will not normally be scheduled to start until after the training program has been removed from probation. If the Board extends probation, the region and NRR/DRCH will determine the appropriate action for the NRC on a case-by-case basis. NRC conducted training inspections after the probationary period are intended to determine if the licensee's training programs support safe operation and continue to comply with regulations, not to verify the licensee's corrective actions in response to probation, which may go beyond the requirements of the regulations.

Licensed operator requalification program evaluations will be conducted as scheduled, even if a licensee's training programs have been placed on probation. NRC Inspection Procedure (IP) 71001, "Licensed Operator Requalification Program Evaluation," is intended to be completed during each systematic assessment of licensee performance (SALP) cycle and should be conducted while annual examinations are being conducted. However, in response to a licensee's operator training programs being placed on probation, the scope of the inspection may be limited to objectives directly related to assessing the operator requalification examination process. These objectives include determining the adequacy of the written examinations, operating tests, and remedial training and assessing the licensee's effectiveness in conducting examinations.

#### Accreditation Withdrawal

The Board may withdraw accreditation in response to major deficiencies in a utility's accredited training program. It is not known what action INPO will take to assist the facility in regaining accreditation. Currently, the only facilities that do not have accredited training programs are those that are no longer members of INPO and are permanently shut down.

While the Board action of withdrawing accreditation has not yet occurred, it would result in a situation where the NRC can no longer be assured that the licensee is in compliance with the regulations based on accreditation. Therefore, if accreditation is withdrawn, the licensee should be requested to report the circumstances of the withdrawal to the NRC in order for the staff to determine the significance of the issues related to the withdrawal. If the NRC determines that compliance with the regulations is not affected it may not need to act further. If the withdrawal relates to a breakdown in the SAT process or a safety-significant issue, an immediate inspection focused on the process problem or safety issue(s) shall be conducted. Further action, such as Confirmatory Action Letters or orders, shall be taken, as appropriate.

# Training Program Inspection Protocol (Page 1)

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the Human Factors Assessment Branch.

# Training Program Inspection Protocol (Page 2)

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