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Washington, D.C. 20555

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Washington, D.C. 20555

Administrative Judge
Christine N. Kohl
Atomic Safety and Licensing Appeal Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

In the Matter of
Metropolitan Edison Company
(Three Mile Island Nuclear Station, Unit No. 1)
Docket No. 50-289 - SP

Dear Chairman Edles and Administrative Judges Buck and Kohl:

In accordance with our practice of notifying the Appeal Board, the Licensing Board, and the parties of changed circumstances or new information on issues of interest, Licensee hereby provides a copy of the draft Institute of Nuclear Power Operations (INPO) accreditation team report for TMI-1. The report was transmitted by letter dated December 13, 1984.

Respectfully submitted,

Deborah B Bauser

Deborah B. Bauser
Counsel for Licensee

Enclosure
cc: Service List

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY	)	Docket No. 50-289
	)	
(Three Mile Island Nuclear Station, Unit No. 1)	)	

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Atlanta, Georgia 30339
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December 13, 1984

Mr. John R. Thorpe
Director, Licensing and Regulatory Affairs
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054

Dear Mr. Thorpe:

Enclosed is the second draft of the accreditation team report for the Three Mile Island Nuclear Generating Station, Unit One. This report has incorporated all items discussed at the recent meeting with your staff attended by Mr. Walter Coakley, Mr. William Wigley, and Mr. Philip McCullough of INPO.

We will continue to work with your staff as they develop the responses to the recommendations contained in the report. The final report will incorporate your responses for submission to the Accrediting Board.

This letter and the attached information will be treated as confidential by INPO and the Accrediting Board. Any disclosure to other parties will be at your initiative.

Sincerely,

K. A. Strahm
Director, Training and
Education Division

KAS:dgm

Enclosure: TMI-1 accreditation team report (second draft)

(RESTRICTED DISTRIBUTION)

ACCREDITATION REPORT

THREE MILE ISLAND NUCLEAR GENERATING STATION, UNIT ONE

GPU NUCLEAR CORPORATION

Review conducted
October 15-19, 1984

Second Draft
November 26, 1984

Table of Contents

INTRODUCTION

The Institute of Nuclear Power Operations (INPO) conducted an accreditation team review of five training programs at GPU Nuclear Corporation's Three Mile Island Nuclear Generating Station, Unit 1 (TMI-1) during the week of October 15, 1984. Training is conducted in the plant and at a training center which is located adjacent to the plant site.

The review of TMI-1 training was for the purpose of INPO accreditation and followed the utility's submittal of an Accreditation Self-Evaluation Report to INPO on June 1, 1984, and a revised Accreditation Self-Evaluation Report on October 11, 1984. The following training programs were reviewed:

- Non-Licensed Operator Training
- Licensed Operator Training
- Licensed Operator Requalification Training
- Shift Technical Advisor Training
- Radiological Protection Technician Training

The INPO accreditation team was comprised of a group of INPO and utility peer evaluators with collective expertise in nuclear power plant operations, nuclear utility training, training program development, instructional process, and training evaluation. During the visit, the team interviewed training and plant line personnel, observed training activities, toured training facilities, observed the use of training equipment and materials, examined training instructor qualifications, reviewed training procedures and records, and examined training and qualification program development, content, and evaluation.

The INPO accreditation team conducted the accreditation review using the "Criteria for Accreditation" published in Appendix C of The Accreditation of Training in the Nuclear Power Industry. May 1982 (INPO 82-011). To obtain

accreditation, TMI-1 must demonstrate to the INPO Accrediting Board that its training programs meet INPO accreditation criteria. These criteria establish the acceptable standards for obtaining accreditation. They are statements of principle to be applied with judgement.

Within each section of this report, positive features as well as deficiencies in training are provided with respect to the criteria for accreditation.

Conclusions that describe conditions detracting from achievement of INPO accreditation are followed by recommendations. The recommendations are intended to assist the utility in its efforts to improve the area addressed. In considering these recommendations, the utility should, in addition to correcting or improving specific conditions, address underlying or root causes. Each recommendation should be addressed in a written response to INPO that describes the corrective actions taken and planned.

The accreditation team report and the utility's response will be submitted to the INPO Accrediting Board. The Board will make the final decision on accreditation.

TRAINING PROCESS

- o TRAINING ORGANIZATION AND ADMINISTRATION
- o TRAINING RESOURCES AND FACILITIES
- o TRAINING PROGRAM DEVELOPMENT AND IMPLEMENTATION

TRAINING ORGANIZATION AND ADMINISTRATION

OBJECTIVE

To ensure the effective control and implementation of training activities

AREAS COVERED BY CRITERIA

Organizational goals should establish the direction and need for training. Objectives stated in measurable terms should outline the action planned to reach the organizational goals. A training plan can be used to implement the goals and objectives effectively. The structure of the training organization should clearly identify responsibilities and authority of training personnel.. Up-to-date procedures should be provided for the implementation of the organization's responsibilities. Recordkeeping should provide for both training program records and trainee records, which should be used for process evaluation. Contracted training, including both programs and services, should be consistent with the training objectives and with the utility's practices and procedures.

EVALUATION

Organizational Structure

The Three Mile Island (TMI) Training Department organization and structure are defined in Chapter Two of the GPU Nuclear Training and Education Department Administrative Manual. The relationships of the Plant Training Department to the other corporate training groups and corporate divisions . :learly defined in the TMI Training Department Administrative Manual.

The TMI Plant Training Department, the Oyster Creek Plant Training Department, the Parsippany (Corporate) Training Department, and the Educational Development Department comprise the GPU Nuclear Training and Education Department. The Director of the Training and Education Department reports to the Vice President of Nuclear Assurance as do the Directors of Quality Assurance, Nuclear Safety Assessment, Emergency Preparedness, and Special Projects. Nuclear Assurance is one of nine corporate divisions.

The Three Mile Island Plant Training Department, which serves both Units I (TMI-1) and II (TMI-2), is comprised of the following five functional groups: Operator Training, Technician Training, Simulator Development, Support Training, and Training Administrative Support. Group leaders (actually called Section Heads) of the first three groups report directly to the Manager of Plant Training, TMI. Group leaders of the latter two groups report to the Deputy Manager of Plant Training, TMI.

At TMI-1, the auxiliary operators and control room operators report to their shift foremen, who, in turn, report to the respective shift supervisors. The shift supervisors all report to the Manager, Plant Operations, TMI-1, who reports to the Operations and Maintenance Director, TMI-1. The Operations and Maintenance Director, TMI-1, reports directly to the Vice President, TMI-1. The in-plant Training Coordinator is a staff position reporting to the Operations and Maintenance Director, TMI-1, with responsibilities which include coordination of shift training, liaison with the TMI Plant Training Department, and facilitation of training reviews.

TMI-1 Shift Technical Advisors report directly to the Plant Analysis Manager TMI-1, and indirectly to their respective shift foremen/shift supervisors. The Plant Analysis Manager, TMI-1, reports to the corporate Manager of Plant Analysis who reports to the Director of Systems Engineering. The Director of Systems Engineering reports directly to the Vice President/Director of Technical Functions.

Approval authority for all radiological controls training programs resides with the Radiological Controls Training Department, TMI-2. The Radiological Controls Training Manager reports directly to the TMI-2 Radiological Controls

Director and indirectly to the Manager of TMI-1 Radiological Controls both of whom report to the Vice President and Director of Radiological and Environmental Controls. The responsibilities for radiological controls training, shared by the TMI Plant Training Department and the TMI-2 Radiological Controls Training Department, are specified in section 3.0.5 of TMI Training Department Procedure 6210-ADM-2600.01. TMI Training Department Procedure 6210-ADM-2622.02 defines implementation responsibilities in accordance with Radiological Controls Procedure 1690.1 Appendix A. Basically, the Plant Training Department is responsible for generic training, and the Radiological Controls Training Department is responsible for plant-specific training.

Direct interfaces are maintained by TMI Plant Training Department instructors with appropriate personnel in Operations, Radiological Controls, and Plant Analysis Departments.

The responsibilities and authority of training personnel are defined in position descriptions developed by group, section, or department managers and approved at the next higher level of authority. Duties, accountabilities, reporting relationships, and position qualifications are specified therein.

Training Organization Goals, Objectives, and Plans

Three Mile Island training responsibilities and major functions are set forth in Chapter Two of the Training and Education Department Administrative Manual. The TMI Plant Training Department is charged to, "Provide training of site personnel as needed to carry out their duties and to meet corporate policies and all applicable laws, regulations, licenses, and other requirements."

Nuclear Assurance Division goals including strategies for their attainment are stated in both the division organizational plan and the corporate five year plan. Divisional goals are generated annually and reviewed quarterly. Corporate goals are reviewed and revised annually. GPU Nuclear Training and Education Department and TMI Training Department goals are derived from corporate and divisional goals and are reviewed monthly to evaluate progress. TMI Plant Training Department progress reports are forwarded to the Training and

Education Department Director biweekly. Schedules of activities to accomplish goals are currently developed on a quarterly basis with weekly updates.

A GPU Nuclear Training Advisory Council provides direct input and feedback to the Director of the Training and Education Department on matters impacting on the Department's operations. The Council is guided by a charter that clearly describes its purpose, membership, and functional duties and responsibilities. The Council is comprised of 12 members who are appointed by user-division vice presidents/directors and have the authority to speak for their respective divisions on training matters. Meetings are held at least quarterly. Meeting agendas, minutes, reports, and recommendations are maintained and the Director of the Training and Education Department is required to provide the Council with a written response to each recommendation.

Procedures

Procedures are established and implemented in areas such as procedure development, records maintenance, examination control, and personnel.

The corporate guidance defining a Training System Development (TSD) Model is found in the Training and Education Department Administrative Manual, Chapter 4 and Appendix A. Some procedures guiding the systems approach to training pre-date the implementation of the TSD model and do not fully support all aspects of the model.

The TMI-1 Accreditation Self-Evaluation Report indicated that the TSD model needed to be supplemented by implementing guidelines that focused on specific requirements and recommendations for the instructional aspects of training program analysis, design, development, implementation, and evaluation. Guidelines for implementing the TSD model are near completion by the Educational Development Department.

RECOMMENDATION: TMI-1-R-1. Develop and implement sufficient procedures to ensure that all five phases of the GPU Nuclear Training Systems Development Model are fully and consistently implemented throughout the training programs.

RESPONSE:

A process for initiation, review, and revision of procedures is in place and appears to function adequately in accordance with the GPU Nuclear Corporation Policies, Plans, and Procedures System (1000-ADM-1218.01) and the TMI Training Department Procedure Flow Chart. That process is currently being employed to further incorporate the Training Systems Development (TSD) model into the operation of the training department and its allied groups.

Recordkeeping

The Three Mile Island recordkeeping system is a controlled and functional system that includes both program and trainee records. Comprehensive program and trainee records are developed by instructors and upon course completion delivered to the Document Control Center for processing. This provides secure retention and retrieval in microform and via computer (with hard copy options). Hard copy and microform records are under three-key protection while access to computer-based records requires three separate combinations of codes and approvals.

Training program records include schedules and class rosters, lesson plans and handout materials, examinations and answer keys, and class attendance records and grade sheets. Individual trainee records include training experience and performance, examination records, and qualification and practical factors sheets.

Original documents are retained permanently in secure storage on the plant site.

Contracted Training

Simulator training is purchased from the Babcock and Wilcox Company in support of the licensed operator, licensed operator requalification, and the shift technical advisor training programs. The contract is consistent with applicable goals and functional responsibilities of the GPU Nuclear Training and Education Department.

This contracted training is monitored and evaluated by TMI-1 training and operational management to ensure control of program content, instructor qualifications, instruction, lesson plans, records, and student feedback. Lesson plans and learning objectives are used for the classroom portion of simulator training, however, simulator exercise guides with learning objectives have not been developed or implemented for initial licensed operator training. Some deficiencies were noted in instructional techniques used by the vendor instructor. These included the lack of pre- and post-critique briefs and the lack of reference to plant-specific procedures as appropriate.

RECOMMENDATION: TMI-1-R-2. Require the use of approved simulator exercise guides that include learning objectives and performance criteria for the initial training of licensed operators on the simulator. Obtain contractor responses with planned corrective actions for weaknesses noted during the monitoring of simulator training.

RESPONSE:

TRAINING RESOURCES AND FACILITIES

OBJECTIVE

To ensure that the training facilities, equipment, and materials support the training activities

AREAS COVERED BY CRITERIA

Physical facilities including classrooms, laboratories, shops, simulators, and office space should meet the needs of the training programs. Equipment such as audiovisual aids and equipment and training tools should be adequate. The physical environment should contribute to an atmosphere of effective learning. Reference materials, including technical materials, should support both the trainees and the training staff.

Physical Facilities and Equipment

The Three Mile Island Training Department occupies some 90 percent of a modern building of approximately 20,000 square feet which also houses personnel from the GPU Nuclear Communications Division. The training department currently uses 2 closed offices, 28 office cubicles, 16 classrooms, a library, an audiovisual equipment room, 2 classrooms dedicated to the basic principles trainer and its computer, a large room housing a control room mock-up, a document control center, a reproduction equipment room, and a lunch area (also housing a copying machine). Access to the facility is controlled.

The building is adequately furnished and all classrooms have whiteboard space and projection screens. Equipment is available to support use of 35 mm slides, overhead transparencies, videotape, and 16 mm film.

Present conditions will be improved on in mid-1985 with the completion of an adjacent, equally sized building designed to house a plant specific simulator.

Most classes taught by the Radiological Controls Training Department are held on the plant site in two trailer classrooms, in plant laboratories, or where the tasks being taught are actually performed.

Reference Material

The Three Mile Island Training Department maintains a technical library in the Training Center. The library contains technical reference materials which support the operator, radiological control technician, and shift technical advisor training programs. Material is also available to support instructional and professional development.

Resources include current plant operating procedures, plant prints, Training Department Administrative Policies and Procedures, lesson plans, technical manuals and periodicals, academic textbooks, NRC regulations, licensee event reports, industry experience reports, and audiovisual materials. More extensive resources are available through the TMI Station Library, the GPU Nuclear Systems Library, and loan privileges at Pennsylvania State University and the Franklin Institute.

The library is accessible to trainees and staff during normal working hours, and is staffed by a full-time employee of the training department who manages acquisitions and maintains currency of holdings.

There are no recommendations under this objective.

TRAINING PROGRAM DEVELOPMENT AND IMPLEMENTATION

OBJECTIVE

To develop and provide valid and effective training programs for plant personnel

AREAS COVERED BY CRITERIA

Safe and reliable operation of nuclear power plants is served best by training programs based on the performance requirements of each job position. In order to develop and conduct performance-based training, a systematic approach should be followed. This requires definition of the job position in terms of the tasks to be performed. The knowledge and skills required for the job position the trainee will occupy are determined by analyzing the tasks. Program content, including learning objectives, sequence of presentation, and structure, is also developed through this systematic approach. Methods of instruction are then selected and materials are developed. During training and following completion of training, trainee performance is measured, and feedback is provided to the training program for program modification.

EVALUATION

Training System

A systematic approach to training titled "GPU Nuclear Training System Development (TSD) Model" was promulgated by the GPU Nuclear Training and Education Department in the fall of 1983. The purpose of the TSD model is to provide a standard approach to managing and conducting the training functions within the GPU Nuclear Corporation. Chapter 4 and Appendix A of the Training and Education Department Administrative Manual describe the TSD model as consisting of the following five phases: analysis; design; development; implementation; and

evaluation. These five phases are linked with feedback and interaction throughout the TSD model. The need for additional implementing procedures was identified in an earlier section of this report.

Analysis

The TMI-1 operator training staff initiated a job analyses for the auxiliary operator (AO), control room operator (CRO), senior reactor operator including shift supervisor (SRO), and shift technical advisor (STA) positions. The methods for conducting the job analysis, verifying the resulting task list, and selecting tasks for training, as described in the TMI-1 Accreditation Self-Evaluation Report, appear to be sound. However, the results of these analyses are not yet complete. Plant-specific task lists have been generated for the AO and CRO positions, but task lists have not been finalized for the SRO and STA positions. The further reduction of the list by selection of tasks for training was not completed for any of the four above-mentioned positions. To ensure that the content for the operator and STA training programs are based on the task requirements of the positions for which trainees are being prepared, these job analyses should be completed including the selection of tasks for training. The resulting position specific tasks selected for training can then be correlated to the applicable training materials and deficiencies, if any, corrected.

RECOMMENDATION: TMI-1-R-3. Complete the job analyses for the senior reactor operator (SRO) and shift technical advisor (STA). Verify and document that the tasks identified through job analysis of the operator and STA positions and selected for training are covered to the sufficient depth in the applicable TMI-1 operator and STA training programs. For any tasks selected for training but not presently covered, analyze each task to determine the job-related knowledge and skill requirements and incorporate the results into the applicable training programs.

RESPONSE:

The Radiological Controls and TMI Plant Training Departments have completed a job analysis for the TMI-1 radiological controls technician positions. The methods used to conduct the job analysis included use of the TMI-1 plant-specific task list resulting from the NRC Radiological Controls Technician Industrywide Job Analysis Project recently conducted by the Brookhaven National Laboratory. The TMI-1 radiological controls technician training staff and position incumbents reviewed this task list and added some tasks to the list. The resulting task list was verified by a TMI-1 Group Radiological Controls Supervisor for completeness and accuracy.

To ensure that the radiological controls technician training program is based on the radiological controls technician task requirements, the position specific tasks were cross-referenced to both classroom materials (lesson plans and Radiological Controls Procedures) and practical factors (on-the-job training) materials. The results indicate that all tasks performed by the radiological controls technician are addressed by the present training program materials.

The content for the TMI-1 operator, STA and radiological controls technician training programs is also based on information from plant feedback, equipment and procedure changes, plant operating experiences, industry events, INPO guidelines, regional training groups, and regulatory requirements. The Operations Plant Manual (OPM) is a primary source of input to the content of the operator training programs and is used as a reference document by instructors and trainees. This document contains job-performance-based content and learning objectives relating to reactor theory, materials science, thermodynamics, and systems. This manual is maintained current by plant operations personnel. An analysis of each program input is performed by cognizant training staff with assistance from appropriate plant and technical staff.

Resulting major changes to training program content are reviewed by plant and technical staff and approved by the appropriate plant and/or technical management.

Design/Development

Chapter 4 and Appendix A of the Training and Education Department Administrative Manual provide statements of purpose and outline a general process for the implementation of the design and development phases of the TSD model.

The learning objectives and lesson plan content for operator programs are sequenced to carry the successful trainee from basic power plant fundamentals through licensing and post-licensing training. Trainees with previous applicable training or experience may be granted a waiver from portions of training. Criteria for granting a training waiver include testing the trainee on the material included in the training that is to be waived.

Nearly all lesson plans on plant systems for operator and STA training and a 50 percent sample of lesson plans on subjects other than plant systems training were reviewed in detail. All lesson plans reviewed contained learning objectives, appropriate trainee materials, teaching instructions, trainee activities, and up-to-date overhead transparencies. Although learning objectives were found in all lesson plans reviewed, the learning objectives and content of the operator and STA system training lesson plans do not go beyond basic knowledge requirements (e.g., list, label, explain, state). For job related knowledge and skills and task performance they should be more rigorous (i.e., comprehension and application of information). In addition, some learning objectives do not specify the conditions or standards for successful trainee performance. The lesson plan should include the operational and task performance content. This had been recognized by the utility and a lesson plan revision project is underway.

RECOMMENDATION: TMI-1-R-4. Review and revise as appropriate the plant systems training lesson plan content and learning objectives for auxiliary operator, control room operator, operations shift supervisor, and shift technical

advisor training programs to reflect the knowledge and skill requirements for the job for which the trainee is being prepared. Ensure that learning objectives include measurable standards and conditions for successful completion.

RESPONSE:

The learning objectives and content of lesson plans, laboratory guides, and practical factors guides for radiological controls technician training provided for the logical sequence of learning objectives that progresses from simple concepts to complex behaviors. All lesson plans for classroom training were reviewed in detail. These lesson plans contain learning objectives, appropriate teaching instructions, trainee activities, trainee handouts, and up-to-date instructional aids such as overhead transparencies.

Implementation and Trainee Evaluation

Guidance for program implementation and trainee evaluation are provided by program specific procedures.

Methods of instruction in the TMI-1 operator, STA and radiological controls technician training programs are appropriate for both the program content and the learning objectives. The lecture-discussion format is used in most classroom training sessions. These methods are supplemented with instructional aids. The Basic Principles Trainer (BPT) and a control room mock-up have been integrated into operator and STA training. On-the-job training and system walk-throughs are provided in the plant for the operator and STA training programs. Structured on-the-job training and laboratory training are used extensively in the radiological controls technician training program.

Training activities and instructional methods permit the trainee to become actively involved in the learning process. Selected lesson plans as well as laboratory exercise guides contain trainee activities which stimulate discussion and trainee-instructor interaction. Constructive interaction exists between instructors and trainees, and individual trainee contact with the training staff is encouraged.

Program specific procedures provide guidance for systematically evaluating and documenting the level of competence of the individual trainee in all types of training settings. Trainee progress is evaluated regularly against learning objectives, and trainees are kept up to date on their status on the program. The methods of evaluation include written examinations and quizzes, oral examinations, performance tests and checkouts, and comprehensive final examinations. Examinations are protected against compromise when in use and are secured when not in use. Administrative procedures provide guidance for the control of examinations. Program specific procedures provide criteria for the required level of trainee performance. Trainees who are performing unsatisfactorily are provided with remedial assistance, tutoring, or are recycled through the program. However, written criteria for trainee on-the-job performance check-offs need to be expanded in the non-licensed operator, shift technical advisor, and radiological controls technician training programs. This is discussed later with RECOMMENDATIONS: TMI-1-R-5, TMI-1-R-6, and TMI-1-R-8.

Program Evaluation

Chapter 4 and Appendix A of the Training and Education Department Administrative Manual describe the general TSD components for a comprehensive program evaluation process. Program specific procedures have also provided some guidance in this area. To date, program evaluation for the TMI-1 operator, STA, and radiological controls technician training programs has focused on the following methods:

- o End-of-course evaluations by trainees

- o Plant supervisory input to training to identify strong and weak areas of training
- o External agency evaluations, examinations, and audits
- o Verbal feedback from plant and technical staff
- o Industry events review
- o Training-plant interface meetings

The TMI-1 operator training unit also uses input from on-the-job training audits by instructors to supplement the program evaluation input. In addition, the TMI-1 plant operations staff provides input to the content of the licensed operator requalification class.

Each operator program is to receive an annual review conducted under the auspices of the respective training supervisor. The goal of such reviews is to ensure that programs remain current with corporate and regulatory requirements, plant procedure and system changes, industry experience, and job scope. The results of the reviews are factored into program revisions. The 1983 review was done by an Operator Training Review Team comprised of an auxiliary operator, a reactor operator, a shift foreman, the Operations Training Coordinator, the Supervisor of Licensed Operator Training, an operator instructor, and the Operator Training Manager. The final report of the team (issued in November 1983) was reviewed by the Operations Training Coordinator, the Manager of Plant Training, the Manager of Plant Operations, the Director of Operations and Maintenance, and the Vice President, TMI-1. Actions based on the report's recommendations have been initiated.

These methods are used effectively and have resulted in changes to the various programs.

TRAINING STAFF

- o STAFF SIZE AND WORKLOAD
- o STAFF QUALIFICATIONS
- o STAFF DEVELOPMENT AND EVALUATION

STAFF SIZE AND WORKLOAD

OBJECTIVE

To provide sufficient training manpower to perform all necessary functions

AREAS COVERED BY CRITERIA

To implement training, the training staff should include an adequate number of personnel to perform management, supervision, instruction and program development activities. The workload of the instructional staff should allow time for instruction preparation, materials development, program improvement, trainee evaluation, trainee counseling and staff professional development. In addition, the instructor-to-trainee ratio should be consistent with the training situation.

EVALUATION

The Three Mile Island (TMI) Plant Training Department provides sufficient staff for management, supervision, instruction, and program development functions for the support of operator, shift technical advisor (STA), and radiological controls technician training. Specific position duties and responsibilities are clearly defined in TMI Training Department Procedure, 6210-ADM-1010.01, "Training Department Organization, Functional Levels, Assignments of Responsibility, and Qualifications."

Annually, the workload of the TMI Plant Training Department is projected by the TMI Plant Training Manager and the program area managers and supervisors. This effort results in a formal planning document titled "Manpower and Work Scope Review." Data included in the report include estimates of time needed for classroom and simulator instruction, instructor preparation, and program administration and supervision. These data are used to estimate manpower

needs and to establish training staff workloads. At present there are 20 approved operator and simulator instructor positions, 16 of which are filled. Two contract instructors are currently filling the two vacant operator positions. The remaining two vacancies are for simulator instructors. An active search is underway to fill these positions with qualified permanent instructors. Operator instructors are also used to conduct the STA program. The radiological controls technician instructor staff consists of three full time instructors in the TMI Plant Training Department and three full time instructors in the TMI-2 Radiological Controls Training Department.

In addition to conducting instruction, the instructor workload includes program and course development functions such as developing and revising learning objectives, lesson plans, trainee examinations, and instructional aids and materials. Instructors provide course documentation that is maintained by an administrative assistant to the Operator Training Manager.

The instructor-to-trainee ratio is adequate for each training program and training situation and usually does not exceed one instructor for ten trainees.

There are no recommendations under this objective.

STAFF QUALIFICATIONS

OBJECTIVE

To ensure that the training staff has the qualifications necessary to provide effective training

AREAS COVERED BY CRITERIA

The duties and responsibilities of the training staff should be clearly defined. The training manager and his training supervisors should have appropriate educational, technical and experience qualifications for their positions. Technical instructors should possess technical and instructional skills qualifications that are appropriate for their assigned duties. Utilities should certify instructors, both in technical and instructional skills. Staff members responsible for program development should have appropriate education, training and experience qualification for their responsibilities. The training quality should be maintained through appropriate and qualified assistance and supervision.

EVALUATION

The job descriptions for the TMI-1 training staff positions are stated in TMI Training Department Procedure, 6210-ADM-1010.01, "Training Department Organization, Functional Levels, Assignments of Responsibility and Qualifications." Each training staff position is defined by the minimum education, experience, and licensing/certification requirements.

The Plant Training Manger, the Operator Training Manager, the Simulator Development and Training Manager, the Technician Training Manager, and the Radiological Controls Training Manager all possess appropriate qualifications for their respective positions.

The Plant Training Manager holds a graduate college degree and has had extensive military nuclear operations training and experience. The Operator Training Manager holds a bachelor's degree and has approximately 10 years of military and commercial nuclear power plant experience. The Simulator Development and Training Manager holds a graduate college degree and has 11 years military nuclear operations and six years of related industrial training experience. The Technician Training Manager has an appropriate technical background and over 15 years of training and supervisory experience with the utility. The Radiological Controls Training Manager holds an associate degree and has over 15 years of training and supervisory experience in health physics and radiological control.

Program specific qualifications for instructors are delineated in applicable training department procedures as listed below:

- o Operator Instructor - 6210-ADM-2610.02
- o Simulator Instructor - 6210.ADM-2610.03
- o Radiological Controls Technical Instructor - 6210.ADM-2610.04

Each procedure establishes the program specific technical qualifications as well as the instructional skills requirements necessary to be a fully qualified instructor.

The technical qualifications of the operator (and STA) instructors meet the requirements specified in the applicable job descriptions and in TMI Training Department Procedure, 6210-ADM-2610.02. The technical qualifications of the operator instructors are summarized as follows: four instructors hold senior reactor operator (SRO) licenses or are SRO certified on the TMI-1 plant; two instructors are presently completing SRO training; one instructor is presently completing reactor operator training; one instructor has over seven years experience as a TMI-1 auxiliary operator. Four of the operator instructors hold college degrees. Both contract instructors were SRO licensed on TMI-1.

The technical qualifications of the Simulator Development and Training Group instructors meet the requirements specified in their respective job descriptions and in Training Department Procedure, 6210-ADM-2610.03. Four of the five instructors have had extensive commercial and military nuclear operations experience. Of this group one individual holds an active SRO license on TMI-1. The fifth instructor has 10 years of related technical experience and is a licensed professional engineer. Three of the simulator instructors hold college degrees.

The six radiological controls technician instructors also meet the technical qualifications for their respective positions. All have had specialized training in the subjects that they teach and each has had at least three years of technical work experience which is related to their instructional assignment. Each instructor is qualified technically in accordance with the applicable procedure.

Instructional skills qualification requirements include the successful completion of a 40 hour fundamental instructional skills course. Although the focus of this program is on teaching skills, program development fundamentals are also covered as instructors are responsible for developing and modifying instructional materials. All but one of the instructors have completed this course or its equivalent. This instructor is scheduled to complete the course in the Spring, 1985. This instructor as well as the two contract instructors are under direct supervision of qualified staff and receive program development and instructional skills assistance when needed.

The Corporate Training Department at Parsippany conducts portions of the licensed operator training (decision analysis and supervisory skills) and the Technical Functions Division of GPU Nuclear conducts fundamentals training for STAs. The instructors that conduct these portions of the licensed operator and STA training programs are technical experts in the subjects that they teach, are under the direct supervision of qualified staff, and receive instructional skills assistance when needed.

There are no recommendations under this objective.

STAFF DEVELOPMENT AND EVALUATION

OBJECTIVE

To maintain an effective and qualified training staff

AREAS COVERED BY CRITERIA

Criteria and procedures for developing and evaluating the qualification of the training staff should be established and implemented. This should include initial and continuing training of instructional staff members, as well as periodic instructor performance evaluations. Opportunities for continuing professional development should be provided for the training staff in response to both individual and organizational needs.

EVALUATION

Initial and continuing technical and instructional skills training for TMI-1 instructors are guided by program specific procedures. These procedures delineate program specific technical and instructional skills requirements that an instructor must meet before teaching. Initial technical training is provided to those instructors who do not fully meet all technical qualifications for their positions. This may include licensed operator training, plant-specific check-outs, or spending time on shift to obtain plant-specific knowledge and skills. If an individual already holds an SRO license or certificate on Unit 1 or has met the technical requirements of the radiological controls technical instructor qualification procedure, no additional initial training is required.

Continuing technical training is provided to all instructors through methods described in program procedures. These include licensed operator requalification training, structured time on shift, special instructor reading lists, and specialized or vendor training.

Initial instructional skills training consists of a 40 hour training course that provides the instructor with the basic skills needed to conduct training. Topics covered in this course include the following: Role of the Instructor; Oral Presentation Techniques; Principles of Instruction; Training Systems Development; Instructional Objectives; Instructional Techniques; Instructional Media; Lesson Plans; Testing and Evaluation; Classroom Arrangement; and Student Records.

In addition each instructor is required to demonstrate teaching proficiency and presentation techniques by satisfactorily presenting a lesson in his/her area of technical expertise prior to being fully qualified as an instructor.

Continuing instructional skills training programs are developed and conducted based on individual instructor or large group needs as determined by instructor evaluations or by supervisor observation. Examples of large group continuing training activities include workshops and seminars on development of audiovisual aids, writing learning objectives, and writing test items. Individual instructor continuing activities are aimed at improving the instructional proficiency of the individual and may include one-on-one conferences with a supervisor, special reading assignments, or attending an external course or program.

Plant Training Department instructors are evaluated several times each year in accordance with TMI Training Department Procedure, 6210-ADM-2631.02, "Training Department Instructor Evaluation Procedure." This procedure specifies the evaluation forms to be used (one for instruction and one for test administration), the frequency of the evaluation, the review of evaluation results with the instructor, and the routing of the completed evaluations to supervisor and

training manager. The results of these evaluations have been effectively used as input into the content of the continuing training programs.

Evaluations of radiological controls technician instructors are performed by management personnel based on trainee feedback at the end of each week during training. The Radiological Controls Training Manager reviews the results of these evaluations.

There are no recommendations under this objective.

TRAINING PROGRAMS

- o NON-LICENSED OPERATOR TRAINING
- o LICENSED OPERATOR TRAINING
- o LICENSED OPERATOR REQUALIFICATION TRAINING
- o SHIFT TECHNICAL ADVISOR (STA) TRAINING
- o RADIOLOGICAL PROTECTION TECHNICIAN TRAINING

NON-LICENSED OPERATOR TRAINING

Objective

To develop and maintain the required knowledges and skills of non-licensed operators and ensure the demonstration of competence to perform assigned job functions

Areas Covered By Criteria

A training program describing content and evaluation should be established and implemented for initial and continuing training of non-licensed operators. Using clearly defined and assessable learning objectives, the program content, sequence, and structure should be established based on the job performance knowledge and skills requirements. While initial training should develop the required job-related knowledge and skills, continuing training should maintain and improve them. Systematic methods for evaluation and documentation should be used to measure a trainee's learning progress and eventual competence. The evaluations should include written and oral examination as well as practical ability demonstrations. Comprehensive final examinations should also be used.

EVALUATION

Auxiliary Operator Training

The Auxiliary Operator (AO) Training Program for the Three Mile Island Nuclear Generating Station, Unit 1 (TMI-1) consists of initial classroom training and on-the-job (OJT) training. There are three auxiliary operator job positions advancing from the entry level "C" operator to the "A" operator. Procedures exist for allowing personnel with previous nuclear experience to enter the program above the entry level position. This training program is defined and

implemented by the TMI Training Department Procedure, 6211-ADM-2523.02," Auxiliary Operator Training Program." The average amount of time to complete the training program is two years.

The classroom training for the AO "C" position consists of forty weeks of mathematics, nuclear and reactor theory, heat transfer, electrical and mechanical fundamentals, radiation protection, chemistry, plant systems and procedures, and safety. While the program topics for non-licensed operator training compare favorably to the INPO Training Guideline, the utility's evaluation of the content using plant-specific job analysis data is incomplete as noted in Recommendation TMI-1-R-3.

Quizzes and examinations are routinely administered during classroom training and a comprehensive written examination is administered at the end of the classroom training. A review of the written examinations indicated the use of complete answer keys and that the grading was consistent. Upon successful completion of the classroom training the AO "C" is advanced to AO "B".

The on-the-job training (OJT) phase consists of four sections: administrative requirements that are completed prior to entering classroom training, outbuildings, secondary systems, and primary systems. Performance criteria are defined for checkouts in the sections covering outbuildings, secondary systems and primary systems. Adequate performance criteria has not been established for the administrative requirements section of the checklist.

RECOMMENDATION: TMI-1-R-5. Provide trainee performance criteria for the administrative requirements section of the Auxiliary Operator Qualification Checklist to ensure consistent training and evaluation.

RESPONSE:

At the completion of each section, a oral examination is given to the AO by an SRO licensed shift supervisor or shift foreman. Successful completion of this oral examination is required before the AO may independently perform any task. A comprehensive written and oral examination is administered in the twelfth month of the OJT program. AO "Bs" who successfully complete this examination process and have at least one year's experience as an AO "B", are advanced to AO "A" which is the highest classification of Auxiliary Operator.

Auxiliary Operator Retraining

All Auxiliary Operators at the "A" and "B" levels participate in Auxiliary Operator Retraining. This program is defined and implemented in TMI Training Department, Procedure 6211-ADM-2523.02, "Auxiliary Operator Training Program." The program consists of six weeks of training each year and the content contains general employee training requirements, fundamentals, systems and procedures, and change actions (i.e., procedure changes, industry events, equipment changes). Weekly quizzes and examinations are administered to evaluate student performance in class.

LICENSED OPERATOR TRAINING

Objective

To develop the required knowledge and skills of licensed operators and ensure the demonstration of competence to perform assigned job functions

Areas Covered by Criteria

A training program describing content and evaluation should be established and implemented for initial training of licensed operators. Using clearly defined and assessable learning objectives, the program content, sequence, and structure should be established based on the job performance knowledge and skill requirements. Initial training should develop the required job-related knowledge and skills. Systematic methods for evaluation and documentation should be used to measure a trainee's learning progress and eventual competence. The evaluation should include written and oral examinations as well as practical ability demonstrations. Comprehensive final examinations should also be used.

Evaluation

Licensed operator training for Three Mile Island Nuclear Generating Station, Unit 1 (TMI-1) consists of three training programs. The Replacement Operator Training Program prepares the TMI experienced auxiliary operator for control room duties and for the NRC Reactor Operator examination; the Senior Reactor Operator Replacement Training Program prepares TMI licensed reactor operators to perform senior reactor operator duties and for the NRC Senior Reactor Operator examination; the Direct Senior Reactor Operator Training Program prepares qualified personnel such as training staff and corporate engineers for the NRC Senior Reactor Operator Examination. All three programs are defined in the TMI Training Department Administrative Manual.

The lesson plans used in the licensed operator training program are written to satisfy the requirements for the reactor operator and senior reactor operator job positions. While the program topics for senior reactor operator and reactor operator training compare favorably to the INPO Training Guideline, the utility's evaluation of the content using plant-specific job analysis data is incomplete as noted in Recommendation TMI-1-R-3.

Reactor Operator Training

The Replacement Operator Training Program consists of 36 weeks of training, including 9 weeks of classroom instruction, 3 weeks of simulator training, and 24 weeks of on-the-job training. Two additional weeks are added for audit examinations, self study, and remedial training as needed following the audit examination results.

Classroom training is divided into two phases. The first phase provides training in fundamentals (reactor theory, thermodynamics, chemistry, and technical specifications). The second phase provides systems and integrated plant training.

The written examination process includes the use of complete answer keys, and grading was found to be consistent. Trainees failing a weekly examination receive guidance and are reexamined.

The 24 weeks of on-the-job training is administered by the plant operations staff and controlled by qualification checklists. Comprehensive oral check-outs are given by designated task examiners. Written performance criteria have been established for these qualification checklists.

Three weeks of simulator training is conducted at the Babcock and Wilcox Training Center in Lynchburg, Virginia. Program content is approved by the Supervisor, Licensed Operator Training. A licensed senior reactor operator accompanies all classes to the simulator to provide technical information and ensure training evaluations are appropriate for TMI operators.

A day of simulator training is divided into four hours of classroom training and four hours of training on the simulator. Lesson plans and learning objectives exist for the classroom portion. Learning objectives and exercise guides for the simulator phase of the initial license operator program are needed to supplement those common to the license operator requalification program (RECOMMENDATION: TMI-1-R-2).

The TMI Manager, Plant Operations or his designee evaluates the student during reactor startup certification and operational examinations on the simulator. A plant-specific simulator will be operational in 1985 and should enhance the present training programs. In addition, a Basic Principles Trainer, which is being used in this year's licensed operator requalification program, will be incorporated into the next initial licensed operator training program. The control room mock-up is used in the initial operator training program.

A comprehensive written examination, an oral examination board, and plant walk-throughs are given at the conclusion of the program. Written examinations that were reviewed had answer keys and grading was consistent. The oral board is composed of the Supervisor, Licensed Operator Training and the Manager, Plant Operations or his designated representative. The oral examinations, oral boards and plant walk-throughs were conducted using structured examination guides with documentation of identified weaknesses.

Senior Reactor Operator Training

Senior reactor operator (SRO) training consists of two programs. The Senior Reactor Operator Replacement Training Program for licensed reactor operators and the Direct Senior Reactor Operator Training Program for candidates possessing an appropriate degree in Engineering or Science.

The Senior Reactor Operator Replacement Training Program is approximately 23 weeks in duration consisting of 14 weeks of classroom instruction, 3 months of on-the-job training, 3 days of decision analysis, 1 week of supervisory development, and 2 weeks of simulator training. The classroom training covers reactor theory, plant design and operating characteristics, plant control

systems, plant procedures, radiation control and safety, plant transients, recognition and mitigation of core damage and general topics.

The Direct Senior Reactor Operator Training Program consists of 18 to 32 weeks of training as determined by Supervisor, Licensed Operator Training based on an evaluation of the candidate's education and past experience.

On-the-job training for both programs is administered by the plant operations staff and controlled by qualification checklists. Comprehensive oral check-outs are given by designated task examiners. The on-the-job training for the Direct SRO candidate includes additional tasks from appropriate on-the-job training checklists for control room operator and auxiliary operator. Written performance criteria have been established for these qualification checklists.

The Replacement SRO program consists of two weeks at the Babcock and Wilcox Company simulator in Lynchburg, Virginia. Simulator training for senior reactor operators is scheduled in the same manner as described for reactor operators.

A simulator operational examination is conducted at the completion of simulator training by the Manager, Plant Operations or his designated representative. Direct SRO program candidates receive additional simulator training for additional control room operation, an additional number of normal and abnormal plant operations, and startup certification.

Comprehensive written and oral examinations are administered by the training department at the conclusion of the training program. The oral examination consists of a "walk-through" of the plant and an oral board. The oral board is composed of the Supervisor, Licensed Operator Training and Manager, Plant Operations or his designated representative.

There are no recommendations under this objective.

LICENSED OPERATOR REQUALIFICATION TRAINING

Objective

To maintain the required knowledge and skills of licensed operators and ensure the demonstration of competence to perform assigned job functions

Areas Covered by Criteria

A training program describing content and evaluation should be established and implemented for licensed operator requalification training. Using clearly defined and assessable learning objectives, the program content, sequence, and structure should be established based on the job performance and skill requirements. While initial training developed the required job-related knowledge and skills, requalification training should maintain and improve them. Systematic methods for evaluation and documentation should be used to measure a trainee's competence. The evaluation should include written and oral examinations as well as practical ability demonstrations. Comprehensive annual examinations should also be used.

Evaluation

The Licensed Operator Requalification (LOR) Training Program consists of classroom and simulator training. Classroom training is conducted at the TMI Training Center. Simulator training is conducted at the Babcock and Wilcox (B&W) Training Center in Lynchburg, Virginia.

The details of the LOR Program are described in the TMI Training Department Procedure, 6211-ADM-2611.01, "Licensed Operator Requalification Program Description (Unit 1)."

Classroom training consists of six five-day segments repeated for each of six operating shifts and the off-shift licensed personnel. The two types of lectures are given include fundamentals review that consists of theory, design features, operating characteristics, systems and regulations; and operational proficiency items that covers procedure and technical specification reviews, design changes, industry operating events, and other related topics. Topic selection is also based on annual LOR examination results and input from plant operations management personnel based on operator performance assessments.

Classroom training is closely coordinated with on-site training on the Basic Principles Trainer (BPT), a small scale, computer-driven simulator. This device provides the opportunity to review concepts and principles associated with plant operation, while at the same time perform the major steps in plant operations. This training is conducted by qualified BPT instructors using detailed exercise guides. A full-scale control room mock-up is also utilized to supplement classroom training.

Weekly written quizzes are given covering the materials presented during the week of LOR training. An annual, comprehensive written LOR examination is also administered at the end of the cycle. An annual oral examination is administered to each licensed individual. General guidelines are used to identify areas to be reviewed with comments on any individual strengths or weaknesses.

In addition to using the BPT trainer, skills training is conducted through participation in plant drills, simulator exercises, and in-plant watch-standing. Plant drills are formally conducted for those evolutions which are not adequately addressed in the simulator program.

Additionally, off-shift licensed personnel (i.e., licensed instructors) are required to stand two eight-hour shifts in the control room each month, to maintain their familiarity with plant operations.

Simulator training consists of one week (40 hours) of training conducted by vendor personnel at the Babcock and Wilcox Training Center. The training organization provides the vendor with plant materials, procedures, and drill guides to be used. A Senior Plant Manager attends the LOR session to formally evaluate crew and individual performance at the end of each week. Plant personnel, including the Shift Technical Advisor, attend simulator training as a crew.

Information on plant modifications, design changes and industry operating events is routed to each licensed operator. Any items identified as significant by plant or training management are included in the LOR program.

Both plant operations and training personnel are directly involved in the development, implementation, and evaluation of the LOR training program. Both groups define training need, approve program content, and monitor and evaluate the training conducted. This close coordination strengthens the program's effectiveness.

There are no recommendations under this objective.

SHIFT TECHNICAL ADVISOR TRAINING

Objective

To develop and maintain the required Shift Technical Advisors and ensure the demonstration of competence to perform assigned job functions

Areas Covered By Criteria

A training program describing content and evaluation should be established and implemented for initial and continuing training of Shift Technical Advisors. Using clearly defined and assessable learning objectives, the program content, sequence, and structure should be established based on job performance knowledge and skill requirements. While initial training should develop the required job-related knowledge and skills, continuing training should maintain and improve them. Systematic methods for evaluation and documentation should be used to measure a trainee's learning progress and eventual competence. The evaluations should include written and oral examinations as well as practical ability demonstrations. Comprehensive final examinations should also be used.

Evaluation

Initial Training

The Shift Technical Advisor (STA) training program at the Three Mile Island Nuclear Generating Station, Unit 1 (TMI-1) is designed to prepare an individual with a Bachelor's Degree in Science or Engineering and two years of experience in nuclear plant operations, design or engineering support to perform STA duties at TMI. The program is defined and implemented in the TMI Training Department Procedure, 6211-ADM-2610.01, "Shift Technical Advisor Training Program."

The STA Training Program consists of 5 phases conducted over 39 weeks including 10 weeks of classroom, 23 weeks of on-the-job training (OJT), 3 weeks of simulator training and three weeks for final examinations, oral examination preparation and final oral boards. The actual time allotted to the program varies based on trainee experience, simulator schedules, and personnel schedules.

Classroom training is conducted at the TMI Training Center and at the GPU Nuclear Technical Functions Division offices in Parsippany, New Jersey. Parsippany classroom training covers nuclear physics, reactor design, fluid flow, thermodynamics and heat transfer, and steam processes. Learning objectives were developed at TMI by the STA Training Coordinator (Plant Training Department) and Plant Analysis Manager (Technical Functions Division) and new lesson plans have been developed at Parsippany for use in the October 1984 STA training program. In addition, advanced engineering concepts are presented to enable the STA to make independent assessments of plant and equipment status and assist TMI shift supervisors in managing normal and abnormal plant evolutions.

Classroom training at the TMI Training Center is accomplished in conjunction with on-the-job training (OJT). This phase includes systems, aspects of reactor plant operation, accident mitigation, safety analysis, pressure/temperature plot and anticipated transient operating guidelines, emergency procedures, transient analysis, chemistry materials, radiological controls and decision analysis. Classroom lesson plans have incorporated learning objectives identified by the STA Training Coordinator and Plant Analysis Manager.

Written examinations are given to STA trainees throughout the program. A review of these exams indicated that examinations had complete answer keys and that grading was consistent. Oral examination boards are given throughout the program as part of the STA qualification process. Sufficient guidance for the selection and administration of oral board questions is provided in the STA Training Program Procedures. Areas of weaknesses are identified and documented. The final oral board consists of five senior staff representing operations, training, and technical functions.

On-the-job training is intended to familiarize trainees with plant systems, rules, regulations and procedures governing plant operations, and STA shift duties. Completion of OJT items is documented by using the STA systems and procedures qualification cards. Primary verification of OJT tasks may be conducted by a qualified STA, a licensed SRO, the Plant Analysis Manager, or the STA Training Coordinator. Final verification of the OJT qualification card is by the Plant Analysis Manager. These qualification cards do not include performance criteria.

RECOMMENDATION: TMI-1-R-6. Provide trainee performance criteria for items on the STA systems and procedures qualification cards to ensure consistent training and evaluation.

RESPONSE:

Simulator training consists of three separate one week sessions at the Babcock and Wilcox Training Center at Lynchburg, Virginia. Learning objectives for simulator training are provided by the TMI STA Training Coordinator. In addition, the Plant Analysis Manager and the STA Training Coordinator or designated representatives attend each STA simulator training session to ensure that the desired training results are achieved.

An evaluation of the training program content using plant-specific job analysis data to validate the content is incomplete (Recommendation TMI-1-R-4).

Continuing Training

Historically, the STA continuing training program has consisted of selected segments of the licensed operator requalification program and proficiency training seminars conducted by STAs. There is a lack of structured guidance

for the development and conduct of STA continuing training that identified the appropriate retraining or enhancement training.

RECOMMENDATION: TMI-1-R-7. Define the objectives of the STA continuing training program and the approach to be used in identifying content of the program.

RESPONSE:

RADIOLOGICAL PROTECTION TECHNICIAN TRAINING

Objective

To develop and maintain the required knowledges and skills of radiological protection technicians and ensure the demonstration of competence to perform assigned job functions

Areas Covered By Criteria

A training program describing content and evaluation should be established and implemented for initial and continuing training of radiological protection technicians. Using clearly defined and assessable learning objectives, the program content, sequence, and structure should be established based on the job performance knowledge and skill requirements. While initial training should develop the required job-related knowledge and skills, continuing training should maintain and improve them. Systematic methods for evaluation and documentation should be used to measure a trainee's learning progress and eventual competence. The evaluation should include written and oral examinations as well as practical ability demonstrations. Comprehensive final examinations should also be used.

Evaluation

Initial Training

The Radiological Controls Technician Training Program at the Three Mile Island Nuclear Generating Station, Unit 1 (TMI-1) is divided into programs for the "A/B" and "C" grade technician. The programs consist of training on fundamentals, plant-specific procedures, and practical factors. The program and progression requirements are described in Radiological Controls Procedure, 1690.1, and TMI Training Department Procedure, 6210-ADM-2622.02.

The eight weeks of classroom training for the "C" technician is conducted by the TMI Training Department and consists of radiological fundamentals and functional knowledge and abilities training. The training program content has been validated by plant-specific job analysis data. Each task selected for training from the plant-specific task list was referenced to the appropriate training activity and material.

The four weeks of plant-specific procedure training is conducted in the plant by the Radiological Controls Training Department. The laboratory exercise guides have been validated by comparison to plant-specific job analysis data.

Progression from each job position to the next higher position requires successful completion of a written examination and oral board. A review of the written examination and the oral board results indicates complete answer keys and consistent grading.

The practical factors training consists of four phases: level C technician, level B technician, level A technician and foreman. Each technician must complete the practical factors requirements for the next grade prior to progression. Specific experience requirements are also established for each position. While practical factors worksheets include the tasks required for qualification, they do not define adequate performance criteria.

RECOMMENDATION: TMI-1-R-8. Expand the trainee performance criteria for the practical factors worksheets for the Radiological Controls Technician to ensure consistent training and evaluation.

RESPONSE:

Continuing Training

The Radiological Controls Technician Cyclic Training Program consists of five four-day segments repeated for each of six operating shifts.

Training content is developed on an annual basis with input from the Radiological Controls Department and the TMI Plant Training Department. The program content includes performance weaknesses, regulations and procedure changes, requalification commitments and academic areas. Weekly examinations are prepared, administered and graded by Radiological Controls Personnel.