

Program Description Document

MFC Nuclear and Radiological Facility Training Program



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PURPOSE

This Program Description Document (PDD) describes the program for the selection, training, and qualification/certification of personnel involved in the operation, maintenance, and technical support of the Materials and Fuels Complex (MFC) reactor, nonreactor nuclear, and radiological facilities. This PDD also addresses training program requirements for MFC controlled facilities located at the Idaho Nuclear Technology and Engineering Center (INTEC).

NOTE: *This PDD is divided into three chapters to mirror the layout of the Order (Chapter I, “General Requirements” and Chapter II, “Hazard Category 1, 2, and 3 Nuclear Facility Personnel”). A third chapter has been included to address training requirements for radiological and other non-nuclear facility operations.*

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CHAPTER I – GENERAL REQUIREMENTS

1. TRAINING IMPLEMENTATION MATRIX

This document fulfills the requirements previously met by PLN-1799, “Materials and Fuels Complex Training Implementation Matrix,” which has been archived. Minor changes to PDD-147, as defined in LWP-1201 “Document Management” that do not decrease MFC’s implementation of DOE O 426.2 requirements will be approved by MFC management. These changes will be submitted to DOE-ID as information. All other updates to PDD-147 will be submitted to DOE-ID for approval prior to implementation.

Where sections of this PDD satisfy DOE O 426.2 requirements (hereafter referred to as the Order), those sections are noted by a reference to the applicable Order chapter(s) and section(s), enclosed in brackets [] and in bold text. **[O 426.2, Chapter I, Section 1]**

2. TRAINING ORGANIZATION

The MFC training organization is staffed by a training manager, instructional analysts/developers, instructors, and administrative personnel. They support MFC organizations involved in operating nuclear and radiological facilities by:
[O 426.2, Chapter I, Section 2]

- Assuring that operations, maintenance, technical staff, technicians, supervisors and managers receive the necessary training to perform their job assignments in a safe and efficient manner. **[O 426.2, Chapter I, Section 2]**
- Maintaining and improving operations and maintenance, personnel and technical staff, technicians, supervisors and manager performance through structured continuing training programs.
[O 426.2, Chapter I, Section 2]

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MFC training organization roles and responsibilities are as follows:

| Performer | Responsibilities |
|--|--|
| MFC Training Manager | <ol style="list-style-type: none"> 1. Is responsible to the MFC Mission Support and Business Directors for management of the MFC training program. 2. Is responsible for personnel instruction, training materials, facility-specific training records, training facilities, equipment, and procedures for MFC nuclear and radiological facilities. 3. Is responsible for implementing a systematic approach to training (SAT) methodology at MFC nuclear facilities. 4. Analyzes, designs, develops, delivers and evaluates training programs. |
| MFC Training Instructor | <ol style="list-style-type: none"> 1. Obtain and maintain INL Instructor qualification (QNTRNGIN) and other training requirements in accordance with LWP-12029, Training Staff Qualification as part of Company Manual 12, "Training and Qualification," (hereafter referred to as Manual 12.) 2. Implement initial and continuing training programs for qualifications and certifications identified within this PDD. 3. Properly administer timely examinations/evaluations. 4. Ensure training materials are approved and up-to-date prior to use. 5. Ensure training materials, equipment, and facilities are adequately prepared to deliver training for initial and continuing training programs. |
| MFC Instructional Specialist (also known as Instructional Analyst/Developer) | <ol style="list-style-type: none"> 1. Obtain and maintain INL Instructor qualification and INL Instructional Specialist (QNTRNGIS) qualification. 2. Analyze, design, develop, and evaluate initial and continuing training programs for qualifications and certifications identified within this PDD. 3. Design, develop, and maintain examination/evaluation question banks. 4. Properly prepare examinations/evaluations. 5. Ensure training materials meet the minimum requirements for the job. 6. Develop and maintain on-the-job training (OJT) qualification checklists. |

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| Performer | Responsibilities |
|-----------------------------------|--|
| MFC Training Administrative Staff | <ol style="list-style-type: none"> 1. Establish and maintain the MFC Training Records Center. 2. Perform Training Coordinator/Training Administrator/Records Coordinator duties. 3. Schedule training; process and maintain MFC training records. 4. Schedule and track nuclear facility qualification/certification records in support of operator, maintenance, technical staff, technician, supervisor and manager positions. |

MFC training instructors are qualified in accordance with Manual 12 which includes instruction on subjects such as Technical Safety Requirements (TSR), facility operating characteristics and principles, operating limits, and their bases, and facility-specific knowledge for the material they will present. In addition, the MFC training organization has instituted a MFC Nuclear Operations Instructor Checklist to document additional training and qualification above the requirements identified in Manual 12.

Instructional Specialists are responsible for the analysis, design, development and evaluation of initial and continuing training programs for the qualification and/or certification of MFC personnel. Instructors are responsible for implementing initial and continuing training programs for qualifications and certifications identified within this PDD. Instructors provide facility line management with the support necessary to ensure that personnel in the operating organization are qualified to perform their job functions.

The initial and continuing training requirements for qualification of MFC instructors and Instructional Specialists are specified in Appendix C.

The job responsibilities of MFC training personnel (including subcontractors) are contained in the above table. **[O 426.2, Chapter I, Section 2]**

3. PERSONNEL SELECTION

3.1 Selection

Personnel selection is based on meeting the minimum entry-level requirements related to background, experience, education, and medical examination (as applicable), and is based on the ability of the person to meet job performance requirements. **[O 426.2, Chapter I, Section 3.a]**

Minimum entry-level requirements related to education and experience have been established to provide reasonable assurance that personnel involved in the operation of MFC nuclear facilities have, or can acquire, the knowledge and skills to operate and maintain the facilities and related support systems in a safe and reliable manner under all conditions.

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Minimum entry-level requirements for MFC nuclear facilities meet those contained in the Order and are identified, by position, in Appendix B, Table B-1, Education and Experience Requirements for the Analytical Laboratory (AL), Fuel Conditioning Facility (FCF), Fuel Manufacturing Facility (FMF), Hot Fuel Examination Facility (HFEF), Material Security and Consolidation Facility (MSCF), Radioactive Scrap and Waste Facility (RSWF), Space and Security Power Systems Facility (SSPSF), Transient Reactor Experiment and Test Facility (TREAT), TREAT Warehouse, Zero Power Physics Reactor (ZPPR) (nonreactor nuclear facilities), and Appendix B, Table B-2, Education and experience requirements for NRAD (Category-B reactor).

Hiring managers shall ensure that an employee position description (EPD) Form 325.01 for the specified position identifies the minimum entry-level education and experience requirements (years and types) in accordance with the PDD-1004 and Appendix B, Table B-1 or B-2. Once a new employee is hired, the operations/facility manager must verify (and attach objective evidence) that the new employee meets the position-specific requirements by completing Form 361.92, "Education and Experience Verification."

NOTE: *Appendix B, Table B-3 provides examples of documentation satisfying education and experience requirements.*

If Form 361.92 indicated that an individual does not meet the experience requirement of Appendix B, Tables B-1 and B-2, and cannot satisfy the alternatives to experience provisions (Section 3.3 below), consideration may be given to the collective experience of the operating organization. An individual who does not meet the experience requirements for a position may be assigned to that position based on consideration of the collective experience and the strength and balance of the overall operating organization. In such cases, documented justification (a cover letter and Form 361.92) is provided to DOE-ID for approval. **[O 426.2, Chapter I, Section 3.a]**

For positions identified in Appendix B, Tables B-1 and B-2 (which are consistent with those specified in the Order), a cross-reference of equivalent MFC and facility-specific position titles is provided in Appendix B, Table B-4, DOE O 426.2 positions and equivalent MFC positions.

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3.2 Alternatives to Education

Educational requirements in the Order are described as either baccalaureate or associate degree, or high school diploma. In each case, the type of degree/diploma required is a function of the person's responsibilities. Persons who do not possess the formal educational requirements specified should not be automatically eliminated where other factors provide sufficient assurance of their abilities to fulfill the duties of a specific position. These factors must be evaluated on a case basis using INL Form 361.92 and approved by operations/facility management. **[O 426.2, Chapter I, Section 3.b]**

Alternatives to the education and experience requirements allow MFC operating organization personnel to be granted equivalency for specific educational prerequisites or requirements based on previous background and experience. When completing Form 361.92, the individual's manager should consider the following in making the evaluation of an acceptable alternative to the educational requirements:

- General Education Development (GED) test for a high school diploma.
- Professional engineers license or successful completion of Engineer in Training (EIT) examination for a baccalaureate or associate degree requirement.
- When combined with experience, completion of technical portions of an engineering, engineering technology, or related science program may substitute for the baccalaureate or associate degree. Successful completion must be determined by a transcript or certification by an institution or program accredited by an accrediting organization recognized by the Council for Higher Education Accreditation (CHEA) or the United States Department of Education (USDOE). Completion of 80 semester credit hours may be substituted for the baccalaureate requirement and 43 semester credit hours for the associate degree (in technical subjects related to the position).
- Related experience may substitute for education at the rate of six semester credit hours for each year of experience up to a maximum of 60 credit hours. **[O 426.2, Chapter I, Section 3.b.(1) through.(4)]**

All equivalencies for education must be approved prior to qualification/certification, and each equivalency must be documented (Form 361.92) in the individual's training record.

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3.3 Alternatives to Experience

Experience in design, construction, and operational training may be considered applicable nuclear experience. Employee experience must be evaluated on a case basis using INL Form 361.92 and approved by operations/facility management.

[O 426.2, Chapter I, Section 3.c]

When completing Form 361.92, operations/facility management should consider the following in making the evaluation of an acceptable alternative to the experience requirements:

- Where course work is related to job assignments, post-secondary education may be substituted. Formal education must not be allowed to substitute for more than 50% of the experience requirement unless stated in Chapter II. **[O 426.2, Chapter I, Section 3.c. (1)]**
- Job-related training in the position sought may qualify as equivalent to nuclear experience on a one-for-one basis for up to a maximum of 2 years. **[O 426.2, Chapter I, Section 3.c. (2)]**

All equivalencies for experience must be approved prior to qualification/certification, and each equivalency must be documented (Form 361.92) in the individual's training record.

4. INITIAL TRAINING

4.1 Training Process

Training to support the various MFC Nuclear Operations (operations, maintenance, and technical staff personnel) qualification and certification programs is based on a graded approach to implementing the SAT process in accordance with Manual 12 to ensure operating organization personnel are qualified to perform job requirements. Training programs consists of classroom-type training, OJT, and simulator/laboratory training as applicable. Classroom-type training may include lectures, seminars, computer-based training, and structured self-study activities. Classroom training and OJT shall be developed and delivered in accordance with Manual 12.

[O 426.2, Chapter I, Section 4.a, 4.a.(2), and 4.a.(6)]

Training and qualification programs are reviewed by MFC training and facility management and are maintained to reflect changes to the facility, processes, Documented Safety Analysis (DSA), TSRs, procedures, regulations, and applicable industry operating experience, which impact training program content. If training and qualification program changes are necessary, the changes must be evaluated to determine if this PDD remains applicable to current facility conditions and meets the requirements of the Order. If the PDD is no longer fully

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applicable to current facility conditions or no longer meets the requirements of the Order, it must be updated and re-approved by DOE-ID.

[O 426.2, Chapter I, Section 4.a.(4)]

Training and qualification programs are periodically evaluated using Manual 12 and DOE-STD-1070-94, "Guidelines for Evaluation of Nuclear Facility Training Programs." Evaluations of the various MFC programs will apply a graded approach to the criteria of DOE-STD-1070-94 every 2 years and may be conducted as part of the self-assessment process specified in LWP-13750, "Performing Management Assessments." PDD-147 must be included in these reviews to ensure the document reflects current facility conditions and meets the requirements of the Order.

[O 426.2, Chapter I, Section 4.a.(1) and 4.a.(3)]

Courses are administered in accordance with LWP-12057, "Delivery of Training."

Initial and continuing training programs are established to ensure that operating organization personnel are qualified to perform job requirements. The requirement is fulfilled by following a SAT process that includes the analysis, design, development, implementation, and evaluation of training programs, as outlined in the Order. **[O 426.2, Chapter I, Section 4.a]**

MFC training analysts use a variety of methods to determine training needs, including: Job Analysis, Document Analysis, Verification, Templating, and Functional Analysis as described in DOE-HDBK-1074-95, "Alternative Systematic Approaches to Training," and DOE HDBK-1078-94, "A Systematic Approach to Training." The analysis is conducted by training personnel that have received specialized training. LWP-12035, "Training Needs Analysis," and MCP-36, "Job Analysis," are used to ensure that analysis activities are consistent and meet or exceed management expectations. The results of the initial and/or revalidation analysis are documented on Laboratory-wide training forms. The training needs analysis process is used to understand training requests and to solicit line and training management support to the training solution agreed on. **[O 426.2, Chapter I, Section 4.a]**

Based on the analysis, a task may be classified as a 'pre-train' task. Tasks given this classification are not included in initial or continuing training programs for MFC operations personnel. However, when performance of pre-train tasks are required, training will be designed, developed, and implemented by MFC training personnel and approved by facility management. Personnel who have received training addressing a pre-train task will be required to perform or simulate the task annually to maintain competency. After a two year period following the initial training, refresher training will be conducted to maintain task-fundamental knowledge.

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As a way of reminding affected MFC managers and training staff, tasks designated as pre-train are listed in each facility's continuing training plan and included within periodic reports.

Training design is used to determine the learning objectives associated with each task statement and defines the content of the training program. The training method (for example, classroom, OJT, simulator, etc.) and examination items are determined at this time. MCP-42, "Designing Courses," and MCP-45, "Examination Items/Examination Banks," are used to guide training design activities. The results of training design are documented on Laboratory-wide training forms. **[O 426.2, Chapter I, Section 4.a]**

Training materials are reviewed and approved by line and training management per MCP-48, "Instructional Material Development, Revision, and Entry into TRAIN," and MCP-52, "On-The-Job Training Material Development."

The evaluation of trainee mastery of objectives is conducted in accordance with LWP-12064, "Performance Examinations," LWP-12065, "Written Examinations," and/or LWP-12066, "Oral Examinations."

The evaluation and revision of training materials are based on the performance of trained personnel working in the job setting. MCP-68, "Training Program Evaluation," MCP-72, "Incorporating Change Actions into Training," and MCP-73, "Incorporating Lessons Learned into Training," are used to control the evaluation and revision process. **[O 426.2, Chapter I, Section 4.a]**

Training records and training materials are controlled in accordance with MCP-79, "Instructional Materials Control," and MCP-85, "Training Records Administration."

MFC nuclear facilities do not include job functions that require team solutions and activities so team training is not necessary.
[O 426.2, Chapter I, Section 4.a.(5)]

Initial training programs for operating organization personnel provide a structured approach by which a candidate can participate in the learning activities necessary to achieve a specific qualification or certification goal. Initial training programs are designed to develop and enhance the candidate's knowledge and skills to perform the tasks associated with their job assignment. Initial training programs are modified to address the current operational status of MFC facilities. As facility status and/or program scope changes, modifications are implemented in accordance with Manual 12.

Additionally, qualification or certification prerequisites are established and a training program exists for each level of a specific operator progression or advancement path. This process ensures the candidate has obtained the training

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and experience necessary to support completion of the next level or step in the progression or advancement path. Entry-level requirements and prerequisites must be satisfied prior to final approval of a qualification or certification.

OJT shall be performed in accordance with LWP-12009, “Develop, Conduct and Evaluation of On-The-Job Training,” to ensure personnel are not assigned to work independently until they have completed the necessary training requirements and demonstrated the required level of understanding. GDE-9001, “Conduct of Operations Guidance for Training and Qualifications,” also provides guidance for the conduct of OJT. **[O 426.2, Chapter I, Section 4.a.(7)]**

OJT qualification checklists (aka qualification cards) for operator and supervisor positions shall be used to complete the requirements for qualification/certification. The qualification checklist identifies the specific knowledge and skills that must be demonstrated and include the categories specified in the Order for operators and Fissionable Material Handlers (FMHs) to the extent to which they are applicable.

NOTE: *If the topics are applicable to the operator and/or FMHs, they are applicable to the supervisor. Training for the supervisor shall be of increased depth to reflect the added responsibility of the position. [Chapter II, 6.c]*

Qualification checklists for Nuclear Facility Operator (NFO), FMH, and Reactor Operator (RO) positions represent examples of Type I checklists. All sections of a Type I checklist must be completed in order for the candidate to attain qualification to that position.

In addition to the Type I qualification checklists, some MFC facilities also utilize Type II qualification checklists. Type II checklists are used to document OJT, and following the completion of specific core areas, allow for the qualification of an individual on a task-by-task or task-area basis (several associated tasks). Once the required core areas are completed, training for individual tasks or task areas are completed, and the individual’s knowledge and skill is evaluated, followed by the facility manager granting qualification to independently perform a specific task/task area.

NOTE: *Type II qualification checklists are normally used for the task/task area qualification of Nuclear Process or Experiment Operator personnel and are expected to be completed in a timely manner.*

Tasks and/or task areas addressed through use of the Type II OJT qualification checklist, once the qualification is completed, carry the same requalification requirements as those addressed in the Type I OJT checklist.

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A listing of the initial qualification or certification requirements for each identified position is provided in Appendixes C through M.

4.2 General Training

Establish Initial Training for Personnel in General Safety and Emergency Actions. [TSR-400, 5.400.5]

4.2.1 General Employee Training

New employees are required to attend a new hire orientation. New employees also complete INL Site Access training, radiological training (General Employee Radiological Training [GERT], Radiation Worker I, or Radiation Worker II), and a New Employee Checklist (Form 361.57) for the facility(s) in which they will work.

All persons employed either full- or part-time in MFC facilities shall be trained commensurate with their job duties. General employee training (GET) covers the following topics, as they apply to the individual position and duties: [**O 426.2, Chapter I, Section 4.b.(1)**]

- A general description of the facilities
- Job related policies, procedures, and instruction
- Radiological health and safety program (training program content must be in accordance with 10 CFR 835)
- Facility emergency plans
- Industrial safety/hygiene program
- Fire protection program
- Security program
- Quality assurance program
- Access controls
- Facility hazards
- Facility safety systems
- Hazardous materials
- Safety equipment.

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- Criticality safety (training program content must be in accordance with ANSI/ANS 8.20 – 1991, “Criticality Safety Training”).
[O 426.2, Chapter I, Section 4.b.(1).(a)]

For persons requiring long-term (for example, more than 10 working days) access, understanding of the information provided by the GET program shall be evaluated by written examination (includes computer and web-based training examinations) associated with applicable topic area courses (for example, GERT, Radiation Worker, Site Access). All hazard identification and safety signage on the written examination must be identical in appearance and language as it exists at the facility. The examination must cover areas selected for training and must be of sufficient difficulty to ensure the person has adequate knowledge to work independently at the facility. **[O 426.2, Chapter I, Section 4.(1).c]**

Employees, visitors, contracted personnel, and temporary personnel shall be under continuous escort while at the facility unless they have completed the required GET and passed the associated written examination. **[O 426.2, Chapter I, Section 4.(1).b]**

Changes in GET areas identified above shall be included in continuing training programs for all facility personnel. Periodic examinations should be administered on areas of the GET program that are included in the continuing training program. **[O 426.2 Chapter I, Section 4. (1)(d)]**

GET is identified in employee Individual Training Plans (ITP) categorized by General Employee Controlled Area Access and other MFC specific job training. ITPs are reviewed periodically to identify required safety, organizational, and functional area training for employees in accordance with LWP-12003 “New and Transferred Employee Training Requirements.” Refresher training and re-examination shall be conducted as required.

4.2.2 Probabilistic Risk Assessment Training

A Probabilistic Risk Assessment (PRA) is not required for MFC nuclear facilities nor has a PRA been conducted at any MFC nuclear facilities. Therefore, PRA training is not required.
[O 426.2, Chapter I, Section 4(2)]

4.2.3 Technician and Maintenance Personnel Training

Technicians and maintenance personnel will complete GET to attain a satisfactory level of knowledge in the areas of plant and facility overview and facility specific hazards, safety, and procedures.

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All technicians and maintenance personnel shall be qualified to perform their assigned tasks, or work under the direct supervision of personnel qualified to perform the task. **[O 426.2, Chapter I, Section 4.b.(3).(a)]**

Technician and maintenance qualification programs are implemented by using qualification checklists and shall include performance demonstrations of their ability to perform assigned tasks, and should include written examinations as appropriate to the assigned tasks.

Qualification of technicians and maintenance personnel is awarded for a maximum of 2 years.

For maintenance personnel, OJT may be provided as part of a helper program in preparation for ‘skilled craftsman’ status. The Site-Wide Training Department administers the INL Helper Program. Whether an individual completes the INL Helper Program or is hired from outside, an examination verifying fundamental knowledge of craft specifics shall be administered. After completion of the test, personnel are assigned to work with experienced maintenance personnel.

Personnel who work on engineered safety features/safety-related systems (identified in the facility DSA) must be trained on those systems for the nuclear facilities in which they are expected to perform work. This training, at a minimum, shall include the purpose of the system, a general description of the system including major components, relationship to other systems, safety implications associated with working on the system, and related industry and facility-specific experience. **[O 426.2, Chapter I, Section 4.b.(3).(b)]**

Health Physics Technician (HPT) initial training is conducted in accordance with PDD-1073, “Radiological Control Training and Qualification Program,” and includes core materials provided by DOE and consists of self-paced study and on-the-job performance. Facility specific classroom and on-the-job training is completed in addition to the DOE core training.

[O 426.2, Chapter I, Section 4.b.(3).(c) and DOE-STD-1122-2009]

4.2.4 Technical Staff Training

Technical Staff are personnel responsible for supervision, design, evaluation, modification, testing, and performance of technical support functions for the nuclear facility operating organization. Examples of technical staff responsibilities include: surveillance and testing related to normal facility operation and operation of safety-related systems; analyzing routine operational/facility data; planning modifications to facility safety systems; providing technical assistance during normal,

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abnormal, and emergency facility conditions to offer technical problem resolution to operations in their area of expertise; providing engineering/technical assistance in support functions to the facility such as radiological, quality assurance, and for initial design or modifications that impact nuclear safety.

Initial and continuing technical staff training of Criticality Safety Engineers, Safety Analysts and System Engineers is conducted in accordance with R2A2-10005, "Criticality Safety Engineer," R2A2-10008, "Safety Analyst," and PDD-10600 "System and Plant Engineering Program," which meet the requirements of this section.

Technical staff personnel are considered qualified by virtue of meeting the entry-level requirements associated with the position and by completing applicable GET identified in the technical staff training program.

The technical staff training program ensures technical staff personnel have the knowledge to perform their day-to-day tasks applicable to the operation of their assigned facility or facilities. The program includes initial and continuing training. See Appendix A, MFC Certified and Qualified Positions, for a listing of technical staff positions at MFC. **[O 426.2, Chapter I, Section 4.b.(4).(a)]**

Qualification activities include classroom training, required reading, self-study, and performance demonstrations to ascertain their ability to adequately support operational, maintenance, and engineering activities. Entry-level technical staff personnel who provide technical support to the operating organization must be trained in the following facility specific subject areas as appropriate to the position:

- Facility organization
- Engineering fundamentals
 - Heat transfer, fluid flow, and thermodynamics
 - Electrical science
 - Nuclear physics
 - Chemistry/chemistry controls
 - Process controls
- Facility systems, components, and operations

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- Selected normal, abnormal, and emergency operating procedures
- Environment, safety, and health orders
- Codes and standards overview
- Facility document system
- DSA, TSRs, and safety basis documentation
- Nuclear criticality control
- Material, maintenance, and modification control
- The as low as reasonably achievable (ALARA) approach to exposure control and radioactive waste reduction program
- Quality assurance/Quality control practices.
[O 426.2, Chapter I, Section 4.b.(4).b]

The facilities at MFC may share technical staff resources. Each organization that provides personnel to work as technical staff is responsible for ensuring that all individuals have the required knowledge and skills to perform their functions in accordance with PDD-1004.

Many engineering disciplines subject to the requirements of this PDD will require different levels of knowledge and requirement applicability associated with their discipline. Therefore, the immediate manager/supervisor shall apply a graded approach when determining the level of knowledge and the applicability of the requirements as they pertain to the specific job function or position.

Newly hired or assigned technical staff personnel will need a period in which to complete this program. Management shall write an appointment letter for “technical staff-in-training,” documenting competency commensurate with responsibilities, limitations on work performance, required supervision/oversight, and stating the time the employee has to complete all program training requirements. This letter shall be placed in the personal training file of the employee.

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Limitations/compensations for “technical staff-in-training” may include:

- Assignment of a mentor
- Review/oversight of work methods/products by a member of technical staff who has completed the technical staff training program
- Extended supervisory oversight.

Selected training programs within the technical staff training and qualification programs may rely almost entirely on instruction provided by vendors as is the case with Life Safety Systems personnel.

For a System Engineer, the technical staff training program shall be consistent with the requirements of DOE Order 420.1C, “Facility Safety.”

4.2.4.1 Technical Staff Qualification Process and Initial Training

The MFC technical staff training and qualification program is implemented by using MFC technical staff qualification checklists for the facilities supported.

The technical staff qualification program is broken down into the following areas as determined by assessment of the duties using the SAT process:

- Core Subject Area Requirements

The goal of the initial core requirements is to supplement formal education and training in order to familiarize technical staff personnel with company-specific information.

- Facility Systems, Components, and Operations (as applicable to the job position)

The purpose of facility systems, components, and operations knowledge is to enable the individual to locate major facility systems and components and to explain their design purpose, major precautions and limitations for their use, and interactions with other systems.

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4.2.5 Management and Supervisory Training

Managers and supervisors shall meet the entry-level education and experience requirements as defined in Appendix B, Tables B-1 or B-2

Managers and supervisors shall complete the company supervisory skills training or show evidence that an equivalent course has been completed.

[O 426.2, Chapter I, Section 4.b.(5).(a)]

Training related to management and supervisor knowledge and skill is provided, as appropriate to their job responsibilities. The topics listed above under Technical Staff Training must be considered for applicability when developing manager and supervisor training programs. If training related to those topics is applicable to the position, that training must be included in addition to the topics listed below.

[O 426.2, Chapter I, Section 4.b.(5)]

4.2.5.1 Supervisory Skills Training

The CBT course 00INL896, "INL Supervisory Skills Training," in conjunction with other required courses (for example, Conduct of Operations, ES&H training, etc.) meets the minimum Order requirements for supervisory skills training and includes:

- Leadership skills
- Interpersonal communication
- Roles, responsibilities, authority, and accountability
- Motivation of personnel
- Problem analysis and decision making
- Fitness for duty procedures
- Administrative policies and procedures
- Conduct of operations
- Conduct of maintenance
- Conduct of selection, training, qualification and certification of personnel

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- Work control processes
- Management of personnel performance issues and performance appraisals.
[O 426.2, Chapter I, Section 4.b.(5) (a)]

4.2.5.2 Management Training

General topics required to be covered in the management training program include:

- Supervisory skills training as listed above
- Quality assurance and quality control
- Facility security and emergency plans
- Purchasing
- Material storage
- Facility modifications (configuration control)
- Nuclear, industrial, and radiation safety
- Environmental issues
- Budgeting.
[O 426.2, Chapter I, Section 4.b.(5) (b)]

A comparison of the newly appointed manager's education, experience, and training to the duties and responsibilities of the position (as specified in the EPD) will be conducted to identify knowledge and skill gaps. An ITP will be created to reflect gaps identified by the comparison. As a minimum, the manager will complete NS-18304, INL Nuclear Facility Manager (NFM) or MFC Nuclear Support Manager qualification. In addition, the manager may require discipline-specific or facility specific training, which would be documented in the manager's ITP, a qualification checklist, or the appointment letter.

Newly hired or assigned management personnel will need a period in which to complete this program. Management shall write an appointment letter identifying the affected individuals as "managers-in-training," documenting

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competency commensurate with responsibilities, limitations on work performance, required supervision/oversight, and stating the time the employee has to complete all program training requirements. This letter shall be placed in the personal training file of the employee.

Limitations/compensations for managers-in-training may include:

- Assignment of a mentor
- Review/oversight of work methods/products by a management peer who has completed the management training program
- Extended supervisory oversight.

4.2.5.3 Exceptions to Training

Some candidates may already possess the knowledge and skills necessary for certain aspects of their job requirements that may be deemed equivalent to certain areas of training programs on the basis of prior education, experience, training, and/or testing. Testing (that is, performance demonstrations, written examinations, oral examinations, or evaluation of work products) is the preferred method for determining such exceptions. In all cases, the requisite examinations (for example, written and operational) to establish qualification/certification shall be completed.

[O 426.2, Chapter I, Section 4.c]

An exception to completing specific training requirements shall be processed in accordance with LWP-12004, "Training Exceptions, Exemptions, and Extensions." LWP-12004 is a DOE-ID approved document.

[O 426.2, Chapter I, Section 4.c.(1) and.(3)]

The operating organization ensures that sufficient facility-specific instruction is provided in areas where an exception is granted to enable the candidate to perform job requirements. **[O 426.2, Chapter I, Section 4.c.(1)]**

Personnel placed in the training program that have satisfactorily completed equivalent training programs comparable in content and performance standards may be released from portions of training on an individual case

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basis. Exceptions from training should be based on a review of previous training records (that is, transcripts), personal interviews, and on examinations that are based on the objectives stated for the training program.

[O 426.2, Chapter I, Section 4.c.(2)]

Exceptions based on prior training and experience for qualified or certified positions will only be allowed for initial qualification or certification. The original copy of the approved exception shall be included in the employee's training file. **[O 426.2, Chapter I, Section 4.c.(1)]**

Individuals who believe that they have knowledge or skills equivalent to that which is addressed by the training program may challenge the requirement to attend individual portions of the training program. In these situations, examinations (written or performance) may be administered. If challenge examinations are administered, they shall be sufficiently comprehensive to adequately test the learning objectives that are included in the training program.

[O 426.2, Chapter I, Section 4.c.(4)]

The use of challenge examinations is not considered an exception to the training and, as such, challenge examinations are excluded from the requirements for exceptions. **[O 426.2, Chapter I, Section 4.c.(4)]**

5. QUALIFICATION PROCESS

A PROGRAM SHALL BE ESTABLISHED, IMPLEMENTED, AND MAINTAINED FOR QUALIFICATION AND TRAINING OF NUCLEAR FACILITIES PERSONNEL. THE PROGRAM SHALL CONSIST OF THE FOLLOWING MINIMUM REQUIREMENTS DERIVED FROM DOE O 426.2, "PERSONNEL SELECTION, TRAINING, QUALIFICATION, AND CERTIFICATION REQUIREMENTS FOR DOE NUCLEAR FACILITIES."

- **ESTABLISH INITIAL TRAINING FOR PERSONNEL IN GENERAL SAFETY AND EMERGENCY ACTIONS.**
- **ESTABLISH ADDITIONAL TRAINING FOR SELECTED PERSONNEL INVOLVED IN OPERATIONS AFFECTING NUCLEAR SAFETY.**
- **ESTABLISH ADDITIONAL AND CONTINUING TRAINING, (FOR EXAMPLE, CLASSROOM INSTRUCTION, ON-THE-JOB TRAINING, OTHER METHODS) OF QUALIFIED OPERATIONS PERSONNEL.**

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- **ESTABLISH REQUALIFICATION OF QUALIFIED OPERATORS AND THEIR IMMEDIATE SUPERVISORS. [TSR-400, 5.400.5]**

Qualification is defined in terms of education, experience, training, examination, and any special requirements necessary for performance of assigned responsibilities. The requirements in the Order are intended to provide reasonable assurance that personnel at DOE Hazard Category 1, 2, and 3 nuclear facilities possess qualifications to operate and maintain the facility safely and reliably under all conditions.

[O 426.2, Chapter I, Section 5]

Satisfactory completion of training and qualification programs enables operating organization personnel to perform job functions without direct supervision by another qualified person. **[O 426.2, Chapter I, Section 5]**

5.1 General

Competence commensurate with responsibility (CCR), described in PDD-1004, is one of the guiding principles of the INL Integrated Safety Management System (ISMS). CCR ensures that work is performed safely by qualified personnel in accordance with effective procedures and is implemented in accordance with Manual 12 and this document. **[O 426.2, Chapter I, Section 5.a]**

The program leading to qualification includes requirements for documented assessment of the person's qualifications through examinations and performance demonstrations. Qualification requirements for personnel in each MFC facility and functional level are identified in Chapter II and Appendixes C through N. These requirements are based on the criteria contained in the Order.

[O 426.2, Chapter I, Section 5.a]

- Qualification may be granted only after assuring that all requirements (including training and examinations) and other specified requirements (for example, medical examination) have been satisfactorily completed.
- Qualification of operators and their immediate supervisors is valid for a period not to exceed 2 years unless revoked for cause (for example, medical disqualification, performance deficiencies).
[O 426.2, Chapter I, Section 5.a. (1) &. (2)]

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5.2 Subcontractor Personnel

The project/construction manager and facility manager are responsible for ensuring that subcontractor employees and temporary personnel who perform specialized activities (for example, radiation protection, maintenance, in-service inspections, radiography, and welding) are qualified to perform their assigned tasks. Qualification requirements are designed to ensure that subcontractor personnel who work at the MFC facilities are qualified or supervised to perform their assigned tasks. Subcontractor employees who work at the MFC facilities are responsible for meeting the qualification requirements for the job function they are to perform prior to engaging in that job function.

[O 426.2, Chapter I, Section 5.b]

Nuclear facilities within the MFC operating organization typically do not use subcontractor personnel, as described in the Order. In the case that subcontractor personnel are used, the operating organization ensures these personnel are qualified to perform assigned tasks by documenting at least one of the following:

- The satisfactory result of an audit of subcontractor records that relate to qualification of the subcontractor personnel being considered for assignment by the operating organization
- Previous verification (within 2 years) of the ability of the subcontractor employee to perform assigned tasks safely and efficiently
- Successful completion by the subcontractor employee of those segments of the operating organization's qualification program that are considered pertinent to the accomplishment of the task to be performed.

[O 426.2, Chapter I, Section 5.b.(1), (2), and (3)]

For subcontractor employees who do not meet the requirements, work activities on engineered safety features/safety-related systems as identified in the facility DSA at MFC facilities, must be supervised by a person who does meet the qualification criteria for the activities. **[O 426.2, Chapter I, Section 5.b]**

5.3 Managers and Technical Staff

Managers and technical staff are considered qualified by virtue of meeting the entry-level requirements associated with their positions and by completing applicable position-specific training. Position-specific training may be identified in qualification checklists or ITPs. A comprehensive examination is not administered to determine their qualification. Continuing training programs are implemented to meet the needs of the individual and position.

[O 426.2, Chapter I, Section 5.c]

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5.4 Technicians and Maintenance Personnel

Qualification of technicians and maintenance personnel shall include performance demonstrations and should include examinations as applicable to the position. These positions may utilize task qualification; this may be accomplished by completing OJT checklist item(s) for a given task. When OJT is completed, task qualification may be granted. Task qualification allows an individual to independently perform tasks for which they are trained and qualified. Technicians and maintenance personnel that are not qualified to perform these tasks are directly supervised. A list of certified and qualified positions at MFC is provided in Appendix A. **[O 426.2, Chapter I, Section 5.d]**

5.5 Operator and Supervisors

Qualification of operators and their immediate supervisors must include examinations (written, oral, operational evaluations, performance demonstrations) as applicable to the position:

- Written examinations and performance demonstrations must be administered to qualified operators and supervisors
- Written and oral examinations and operational evaluations must be administered to certified operators and supervisors
- Initial qualification/certification for a position must include a comprehensive written examination to ascertain the person's suitability to perform assigned duties. **[O 426.2, Chapter I, Section 5.e]**

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NOTE 1: *An Operational Evaluation is a documented evaluation of an individual's knowledge and skills for a position requiring certification. The operational evaluation is a facility walkthrough that may include system and/or component operation, or simulation of operations, during which the candidate is observed and questioned regarding procedures, safety implications, and TSRs. [O 426.2, Attachment 2, Definitions]*

NOTE 2: *A Performance Demonstration is a documented evaluation of an individual's knowledge and skills for a position requiring only qualification (including non-reactor operator personnel at a reactor). The intent of the process is similar to that of an Operational Evaluation but tailored to more limited job requirements. [O 426.2, Attachment 2, Definitions]*

5.6 Examinations

Qualification of operators and supervisors includes examinations applicable to their positions. (See Appendixes A through N for a list of certified and qualified positions and applicable qualification/certification requirements.)

[O 426.2, Chapter I, Section 5.e]

Examinations (written, oral, operational evaluations, performance demonstrations, etc.) on material included in the initial training program are administered and documented as appropriate to the job positions within the facility and the defined facility-specific training program requirements. **[O 426.2, Chapter I, Section 5.e]**

Written examinations shall be used in the operator and supervisor qualification/certification programs in accordance with LWP-12065. Operational evaluations and performance demonstrations shall be conducted in accordance with LWP-12064. Oral examinations shall be conducted in accordance with LWP-12066. Examinations and examination banks shall be controlled in accordance with MCP-45. These examinations/evaluations contain a representative selection of questions on the knowledge and skills identified from learning objectives developed from the analysis of the job. **[O 426.2, Chapter I, Sections 5.f.(1) and.(2)]**

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Comprehensive written examinations shall be administered to each operator or supervisor completing a formal training program as an evaluation mechanism in determining suitability for qualification or certification. The minimum passing score is 80% for all examinations. Comprehensive written examination requirements associated with each MFC qualified/certified operator position are identified in Chapter II, Section 6 and Appendixes C through N. Additionally, a comprehensive written examination may be required to reinstate a certification. Initial and biennial comprehensive written examinations required to achieve and/or maintain qualification/certification or to reinstate certification shall evaluate the employee's knowledge in the following major areas as applicable to the position: **[O 426.2, Chapter I, Section 5.f &(3)]**

- Theory
- Systems/normal operations
- Abnormal and emergency operations
- Administrative/health and safety
- Criticality safety/fuel handling
- DSA/TSR.

Oral examinations for certified operators and supervisors may be conducted utilizing a walkthrough or oral board; the process normally used at MFC will be a walkthrough. A facility manager may specify that a separate oral board be conducted at his/her direction. This oral examination shall be tailored to evaluate the employee's operational knowledge (initial training program subjects) and organizational awareness (for example, operating philosophy, use of procedures, shift and relief turnovers, verification of system/equipment status) to determine how that individual will function in an operating environment.

[O 426.2, Chapter I, Section 5.f.(6)]

Comprehensive written examinations and individual performance demonstrations (conducted as walkthroughs) shall be administered for qualified operator and supervisor positions for initial qualification. Performance demonstrations for tasks may consist of OJT evaluation or walkthrough, depending on the complexity of the task. **[O 426.2, Chapter I, Section 5.e(1)]**

Comprehensive written, oral examinations, and operational evaluations shall be administered for initial certification.

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NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the Facility Manager may stipulate that a separate oral examination/board be conducted for initial certification or recertification.*
[O 426.2, Chapter I, Section 5.f.(5)]

Qualification and/or certification requirements for MFC nuclear and radiological facilities are identified in the following appendixes:

- Appendix C, MFC General Qualification Requirements
- Appendix D, AL Qualification Requirements
- Appendix E, FCF/TREAT Warehouse Qualification/Certification Requirements
- Appendix F, FMF Qualification/Certification Requirements
- Appendix G, HFEF Qualification/Certification Requirements
- Appendix H, NRAD Qualification/Certification Requirements
- Appendix I, Non Nuclear Facility Qualification Requirements
- Appendix J, SSFSF Qualification/Certification Requirements
- Appendix K, TREAT Qualification/Certification Requirements
- Appendix L, ZPPR Qualification/Certification Requirements
- Appendix M, Material Security and Consolidation Facility – CPP-651 Qualification Requirements
- Appendix N, Irradiated Materials Characterization Laboratory (IMCL) Qualification/Certification Requirements.

5.7 Task/Program/New Project Training and Qualification

Task, program, or project-specific training that is not a part of a facility-specific qualification/certification, shall be described in a training request form or a training plan developed in accordance with Manual 12 and meet the applicable requirements of the Order. The training request/plan shall describe the initial and continuing training (if any) necessary for all personnel involved in the task, program, or project and be reviewed and approved by the appropriate facility manager and the MFC Training Manager. These qualifications are typically for a limited period of time.

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The job analyses associated with facility-specific qualifications or certifications may identify any number of pre-train tasks. If, following an individual's initial qualification or certification, the need for the performance of a pre-train task is identified (through the use of a training request form or a training plan), then task specific training and qualification activities will be conducted.

There are occasions and circumstances that may require personnel to perform tasks (for example, pre-train tasks) that either (1) are not specifically addressed in an overall qualification program, or (2) are part of a qualification program that has not been fully completed. ISMS at the INL requires that all persons have CCR in order to work. Task qualification, as described herein, meets the requirements of CCR and is consistent with the requirements of the Order.

Under no circumstances will a person be assigned to, or be allowed to perform any job or task for which that person is not qualified (that is, CCR must first be demonstrated).

The following guidelines are provided for managers initiating task qualification or certification:

- The task shall be well defined, with authority, responsibility, and limits clearly identified.
- The person shall have completed all requirements for performance of the specific task, including meeting education and experience requirements and examination/performance demonstration, where applicable.
- Tasks requiring qualification shall be approved by an appropriate qualification authority.
- Tasks requiring certification shall be approved by nuclear facility management.
- If the task has not been performed in greater than 2 years following initial task qualification or certification, the Facility Manager and the MFC Training Manager will determine what retraining and/or performance demonstration(s) will be required prior to resumption of task performance.
- The time period of this qualification or certification should be identified. In no circumstance should the period exceed 2 years. If maintenance of the qualification/certification is encompassed by a broader formal continuing training and requalification/recertification program, task qualification will no longer be necessary.

Documentation of qualification or certification for a specific task as described above shall be maintained in the individual's training record.

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6. CERTIFICATION PROCESS

Certification is the formal written endorsement by operations management of an individual who has completed qualification requirements for a position. ROs, Senior reactor operators, FMHs, and FMH Supervisors at Hazard Category 1, 2, and 3 nuclear facilities must be certified. Refer to Appendixes A through N for a list of certified positions and applicable certification requirements. These requirements include a comprehensive written examination, an operational evaluation, and an oral examination. Prior to granting certification, operations management, or their designated alternates, shall assure that the individual is capable of safely performing all functions of the position and the individual's medical summary is current.

[O 426.2, Chapter I, Section 6]

Comprehensive written, oral examinations and operational evaluations must be administered for certification. The Order allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities). At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the Facility Manager may stipulate that a separate oral examination/board be conducted for initial certification or recertification. **[O 426.2, Chapter I, Section 5.f.(5)]**

Satisfactory completion of qualifications that result in certification shall be endorsed (by signature) by a certifying official other than the candidate's immediate supervisor or the person/group who provided the training. Initial certification and recertification endorsement is accomplished by meeting the applicable certification requirements specified in Appendixes C through N. Certification is valid for a period not to exceed 2 years, unless revoked for cause (for example, medical disqualification, performance deficiencies, or failure to maintain proficiency). **[O 426.2, Chapter I, Section 6]**

MFC certified personnel are expected to advance to senior positions. This progression may result in individuals holding multiple certifications. Having individuals certified for more than one position causes inefficiencies in training and unnecessary confusion in meeting continuing training requirements if each certification retained its respective certification base date. Consequently, dates associated with any current junior certifications may be advanced to coincide with a newly achieved senior certification base date. Simultaneous recertification on the junior positions and certification on the senior position may be accomplished concurrently provided that:

- Written, operational, and oral examinations required for the new certification include questions and operations reviewing all of the current junior certifications
- The required continuing training requirements have been completed.

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It may also be advantageous to have a group of individuals in a selected position have their certification anniversary fall due on the same date. This would be accomplished by individuals recertifying early to synchronize the overall group certification anniversary base date.

An individual whose certification has lapsed or who has been disqualified for any other reason is not permitted to fill a certified position until the certification is reinstated. The MFC Training Manager and the applicable facility operations manager, or their designated alternates, shall jointly determine the remedial training and examination(s) that will be required to reinstate the certification. **[O 426.2, Chapter I, Section 6]**

A candidate's certification(s) shall be removed for any of the following reasons:

- Failure of a requalification/recertification written examination
- Failure of an oral examination/walkthrough
- Lapse or failure of a medical evaluation
- Serious job performance problems indicating person may perform in an unsafe manner
- Failure to complete control manipulations (if applicable)
- Failure to complete recertification requirements
- Failure to maintain proficiency
- Other reasons determined by the facility/operations manager.

An individual who fails an examination shall be removed from duties associated with the applicable certification and placed in a remedial training program. That individual shall be given a reasonable opportunity and sufficient training to successfully pass the required examination to become recertified.

Certification requirements for MFC nuclear and radiological facilities are identified in the following appendixes:

- Appendix C, MFC General Qualification Requirements
- Appendix D, AL Qualification Requirements
- Appendix E, FCF/TREAT Warehouse Qualification/Certification Requirements
- Appendix F, FMF Qualification/Certification Requirements

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- Appendix G, HFEF Qualification/Certification Requirements
- Appendix H, NRAD Qualification/Certification Requirements
- Appendix J, SSPSF Qualification/Certification Requirements
- Appendix K, TREAT Qualification/Certification Requirements
- Appendix L, ZPPR Qualification/Certification Requirements
- Appendix M, Material Security and Consolidation Facility – CPP-651 Qualification Requirements
- Appendix N, Irradiated Materials Characterization Laboratory (IMCL) Qualification/Certification Requirements.

7. CONTINUING TRAINING

Continuing training programs are established to maintain and enhance the knowledge and skills of operating organization personnel who perform functions associated with engineered safety features/safety-related systems as identified in the facility DSA. Continuing training is structured based on the results of needs or job analysis data and is commensurate with specific position needs. **[O 426.2 Chapter I, Section 7]**

Changes in GET shall be included in continuing training programs for all facility personnel. Periodic examinations should be administered on areas of the GET program that are included in the continuing training program.
[O 426.2 Chapter I, Section 4.b.(d)]

7.1 General

Continuing training programs shall be documented in a line management approved 2 year training plan; continuing training shall be developed based on this plan. The Training Records and Information Network (TRAIN) system is used to document completion of scheduled continuing training.

Two year continuing training plans must be reviewed and updated, as needed, to reflect the status of completed training and any additional requirements identified by management. If scheduled training cannot be completed, line management and the MFC Training Manager shall approve the change.

Operator and supervisor participation in the continuing training program is required following initial qualification/certification and is administered on a 2-year cycle. Qualified/certified personnel must complete required items at the specified intervals in order to maintain an active qualification/certification.

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Individuals holding more than one qualification/certification must complete the requirements associated with each position. **[O 426.2 Chapter I, Section 7.a.(1)]**

Completion of required continuing training is verified for each operator and supervisor annually, based on each person's qualification/certification anniversary date. For example, an operator's anniversary date is August 4th and their continuing training is completed up to (but not including) June's session, they are considered current. This two month buffer allows time for shift workers to complete the required training. If continuing training requirements are not current by the anniversary date, the associated qualifications/certifications are lapsed.

Periodic examinations (written, oral, operational evaluations, performance demonstrations, as applicable to the position) must be administered and documented throughout the cycle on material included in the program.

[O 426.2, Chapter I, Section 7.a (3)]

Continuing training programs for qualified operations personnel must include, at a minimum, training in significant facility system and component changes, applicable procedure changes, applicable industry operating experience, selected fundamentals with emphasis on seldom used knowledge and skills necessary to ensure safety, and other training as needed to correct identified performance problems. **[O 426.2, Chapter I, Section 7.a (2)]**

Continuing training programs for maintenance, technical staff, and manager/supervisor positions include topics identified by management and based on the criteria in the preceding paragraph. The topics are determined by training and line management. They are documented in a 2-year continuing training plan. Progress toward completion of continuing training and the effectiveness of the training program is discussed during periodic training effectiveness feedback meetings with the training organization and other affected groups. Continuing training is administered on a 2-year cycle and is required to be completed prior to granting requalification.

7.2 Certified Operator and Supervisor Continuing Training

Continuing training programs for certified operations personnel must consist of preplanned classroom-type training, OJT, operational evaluations, and drills (in-plant and/or table-top) on a regular basis. Continuing training programs for certified operators and certified supervisors shall include, at a minimum, the following requirements, as related to job performance.

[O 426.2, Chapter I, Section 7.b]

- Training and examination covering abnormal facility procedures and emergencies shall be required at least annually for certified operators and certified supervisors. **[O 426.2, Chapter I, Section 7.b (1)]and [LRD-18001, Section 3.9.1]**

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- Facility abnormal and emergency procedure training is presented annually in accordance with the 2-year continuing training plan as a stand-alone topic or as part of applicable facility process or system topics.
- The examination covering facility abnormal and emergency procedures is included in the biennial recertification examination. On the following year (off year), the facility abnormal and emergency exam, as a separate examination, is given to all certified operators in accordance with the facility's 2-year continuing training plan, or as a separate examination administered on the anniversary of the employee's certification base date. Based on the size and complexity of the MFC facility and the number of operators, one of these two approaches will be used with the concurrence of facility line management and the MFC Training Manager.
- Drills conducted in the facility, or on a mockup, enable operating personnel to maintain their ability to respond to abnormal or accident situations. Drills shall be conducted in accordance with STD-1145, "Operations Drill Program Manual." MFC nuclear facilities do not include job functions that require team solutions and activities so team training, as a part of initial training, is not necessary. However, in an effort to promote continuous improvement, drills shall be conducted as a crew (if applicable) to build and develop team skills.
[O 426.2, Chapter I, Section 7.b (2)]
 - At least one facility drill every year for certified operators and supervisors. For those facilities that have criticality alarm systems, the minimum one drill per year must be a criticality alarm drill, which is required for both certified and qualified operators and supervisors. **[O 426.2, Chapter I, Section 7.b (2)] [LRD-18001, Section 3.6]**
 - No training drills will be conducted in the facility that lead to or have the potential for safety concerns.
[O 426.2, Chapter I, Section 7.b (2)]
- Instruction in the use of facility systems to control and mitigate accidents. Such training must include both classroom-type training and training conducted in the facility. **[O 426.2, Chapter I, Section 7.b (3)]**
- Personnel who are responsible for developing, approving, and delivering training are excused from continuing training for the area of primary administrative responsibility in accordance with LWP-12004. For example, an individual who prepares, administers, and grades a written

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examination need not take the examination.

[O 426.2, Chapter I, Section 7.b (4)]

- Training, as applicable to the position, in the following subjects where examinations and experience (industry and facility-specific) or other evidence indicates additional emphasis in scope and depth of coverage is needed:
 - Theory and principles of facility operation
 - General and specific facility operating characteristics
 - Facility instrumentation and control (I&C)
 - Facility protection systems
 - Engineered safety features (SSCs)
 - Normal, abnormal, and emergency procedures
 - Radiation control and safety
 - Criticality safety/fuel handling
 - DSA and TSRs. [O 426.2, Chapter I, Section 7.b (5)]

Attendance at continuing training is mandatory unless specifically excluded in accordance with LWP-12004 and is tracked by attendance rosters in accordance with LWP-12057.

7.3 Technician and Maintenance Personnel Continuing Training

Technicians and maintenance personnel who have completed facility-specific training and qualification, maintain their qualification by continued satisfactory performance of assigned duties, and satisfactory completion of applicable elements of the continuing training program. Assessment of performance is documented through the annual performance appraisal process. Completion of requalification requirements is documented by signature of the individual's manager. [O 426.2, Chapter I, Section 5.d]

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Technicians and maintenance personnel who do not meet the requirements to maintain qualification shall be notified by their management that their qualification has lapsed. Personnel and their immediate supervisors must not be allowed to continue to function in qualified positions if they have not completed all of the requalification program elements within the 2 year continuing training cycle. They shall be assigned remedial activities to restore qualification in accordance with Section 5.

7.4 Technical Staff Continuing Training

Participation in continuing training is required to maintain and improve the ability of Technical Staff personnel to function safely in the operating organization. Continuing training topics include a review of the topics presented in the technical staff initial training program and also include:

- Applicable procedure revisions
- Significant facility system and component changes
- Applicable industry/facility operating experience
- Changes to DOE and regulatory requirements
- Other training needed to correct performance problems.
[O 426.2, Chapter I, Section 5.c]

Continuing training for the technical staff may be completed through attendance in classes/courses when they are presented as part of operations or maintenance initial or continuing training.

Continued satisfactory performance of assigned duties and assessment of individual performance, such as that conducted during performance appraisals, serves as sufficient evidence of maintenance of qualification. Completion of requalification requirements is documented by signature of the individual's manager. [O 426.2, Chapter I, Section 5.c]

Completion of continuing training requirements shall be verified and documented yearly by the MFC training organization. It is the responsibility of the individual and the immediate manager/supervisor to ensure that the continuing training requirements, as outlined, are addressed and completed.

- Attendance as a minimum of four sessions per calendar year will be required for technical staff enrolled in this program.
- A continuing training schedule shall be published each year for each technical staff program.

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- The topics selected for these sessions will be determined based on a list of topics provided by management and incumbents, and the sessions will be instructed by subject-matter experts (SME) assigned by management.
- Failure to meet the required minimum attendance will result in having to make-up the training, either through the immediate manager/supervisor or course instructor.

8. REQUALIFICATION/RECERTIFICATION

Personnel (including operations, maintenance, and technical support personnel) may be re-qualified by MFC management upon completion of the continuing training program including requisite examinations (written, oral, operational/performance). Personnel and their immediate supervisors must not be allowed to continue to function in qualified or certified positions if they have not completed all of the requalification or recertification program elements within the 2 year continuing training cycle. MFC management must indicate by signature that the person has successfully completed the requalification program and is formally re-qualified. Refer to Appendixes A through N for a list of certified and qualified positions and applicable requalification/recertification requirements. **[O 426.2 Chapter I, Section 8]**

Qualification of operators and supervisors is awarded for a maximum of 2 years. Personnel shall attend continuing training over a 2-year period and be reevaluated biennially to retain their qualification. Operators and their immediate supervisors shall not be allowed to continue to function in qualified positions if they have not completed all of the requalification program elements within the 2-year continuing training cycle. If a qualified operator fails a requalification examination or shows serious job performance deficiencies, which indicate that he or she may perform in an unsafe manner, the operator shall be removed from activities requiring qualification.

Tasks areas that are addressed through use of the Type II OJT checklist, once the qualification is completed, carry the same requalification requirements as those addressed in Type I OJT checklists.

Certified operators and their immediate supervisors shall not be allowed to continue to function in certified positions if they have not completed all of the recertification program elements within the 2-year continuing training cycle. If a certified operator fails recertification examination or shows serious job performance deficiencies that indicate he or she may perform in an unsafe manner, the operator shall be removed from activities requiring certification.

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Recertification is the formal endorsement by operations management of an individual who has completed requalification requirements. These requirements include a comprehensive or periodic written examination, an operational evaluation, and an oral examination. The Order allows the operational evaluation and oral examination to be combined as a walkthrough at MFC nuclear facilities. Prior to granting recertification, operations management, or their designated alternates, shall assure that the individual is capable of safely performing all functions of the position and the individual's medical summary is current. In addition, recertification includes a review of the individual's operating performance during the past certification period.

[O 426.2 Chapter I, Section 8]

Changes in GET shall be included in continuing training programs for all facility personnel. Periodic examinations should be administered on areas of the GET program that are included in the continuing training program.

[O 426.2 Chapter I, Section 4.b.(1)(d)]

Technicians and maintenance personnel who have completed facility-specific training and qualification, maintain qualification by satisfactory completion of the continuing training program and, satisfactory performance of their assigned duties. An assessment of individual performance such as that which is typically included in personal performance appraisals may be used to document continued satisfactory performance.

[O 426.2, Chapter I, Section 5.d]

Continuing training for the technical staff may be completed through attendance in classes/courses when they are presented as part of operations or maintenance initial or continuing training. Continued satisfactory performance of assigned duties and assessment of individual performance, such as that conducted during performance appraisals, serves as sufficient evidence of maintenance of qualification.

[O 426.2, Chapter I, Section 5.c]

8.1 Requalification Examinations

Requalification of operators and supervisors must include examinations applicable to their positions. (See Appendixes A through N for a list of certified and qualified positions and applicable requalification/recertification requirements.) This may be achieved by either administering a comprehensive biennial requalification examination, including any operational evaluations or performance demonstrations that may be specified, or by administering periodic examinations (for example, quarterly) during the requalification cycle.

[O 426.2 Chapter I, Section 8.a.]

Periodic examinations (written and/or performance demonstrations) of other members of the operating organization (that is, maintenance personnel, technicians, technical staff) is also appropriate in some areas during the continuing training program.

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Written examinations shall be used in the operator and supervisor requalification / recertification programs in accordance with LWP-12065. Operational evaluations and performance demonstrations shall be conducted in accordance with LWP-12064. Oral examinations shall be conducted in accordance with LWP-12066. Examinations and examination banks shall be controlled in accordance with MCP-45. These examinations/evaluations contain a representative selection of questions on the knowledge and skills identified from learning objectives developed from the analysis of the job. **[O 426.2, Chapter I, Section 5.f]**

Re-examinations for certified and qualified personnel shall include subjects about which the individuals are expected to be knowledgeable and emphasize those subjects covered by the continuing training program.
[O 426.2 Chapter I, Section 8.a(1)]

The minimum passing score is 80% for all examinations. Comprehensive written examination requirements associated with each MFC qualified/certified operator position are identified in Chapter II, Section 6 and Appendixes C through N. Additionally, a comprehensive written examination may be required to reinstate a certification.

Biennial comprehensive written examinations required to maintain qualification/certification or to reinstate certification shall evaluate the employee's knowledge in the following major areas as applicable to the position:

- Theory
- Systems/normal operations
- Abnormal and emergency operations
- Administrative/health and safety
- Criticality safety/fuel handling
- DSA/TSR.

Oral examinations for certified operators and supervisors may be conducted utilizing a walkthrough or oral board. This oral examination shall be tailored to evaluate the employee's operational knowledge (initial/continuing training program subjects) and organizational awareness (for example, operating philosophy, use of procedures, shift and relief turnovers, verification of system/equipment status) to determine how that individual will function in an operating environment. **[O 426.2, Chapter I, Section 8.a(5)]**

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Comprehensive written examinations and performance demonstrations (conducted as walkthroughs) shall be administered for qualified operator and supervisor positions for requalification. Performance demonstrations for tasks may consist of OJT evaluation or walkthrough, depending on the complexity of the task.

[O 426.2 Chapter I, Section 8.a(2)]

Comprehensive written, oral examinations and operational evaluations shall be administered for recertification. The operational evaluation and oral examination will normally be combined as a walkthrough at MFC nuclear facilities.

[O 426.2 Chapter I, Section 8.a(3) & (5)]

Operational evaluations administered for recertification shall be conducted in accordance with Manual 12. These operational evaluations include a facility walkthrough and must require certified operators and certified supervisors to demonstrate an understanding of and the ability to perform a representative sampling of the control manipulations applicable to the position.

[O 426.2, Chapter I, Section 8.a(6)]

Re-examinations may be administered as a comprehensive biennial examination, or as periodic (for example, quarterly) examinations throughout the continuing training cycle.

An annual facility abnormal and emergency procedure examination shall be administered for certified positions as part of the continuing training program.

An operator or supervisor who has been disqualified for any reason is not permitted to fill that position until reinstatement is granted. Remedial training and examination(s) required to reinstate the qualification shall be jointly determined by the MFC Training Manager and applicable facility operations manager or their designated alternates. **[O 426.2, Chapter I, Section 8.a(7)]**

A candidate's qualification(s) shall be removed for any of the following reasons:

- Failure of a requalification examination (written, walkthrough, etc.)
- Lapse or failure of a medical evaluation
- Failure to complete requalification requirements
- Serious job performance problems indicating person may perform in an unsafe manner
- Other reasons determined by the facility/operations manager.

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Qualification or certification may be regained after completing remedial training designed to correct the deficiency and satisfactorily completing a re-examination or completion of the lapsed training requirement. Remedial activities are developed in accordance with LWP-12064, LWP-12065, and LWP-12066, "Oral Examinations," and documented using Form 361.77, "Remedial Training Plan." In addition, recertification must be based on the following:

- A review of individual operating performance during the past certification period by either line management, by a committee, or by a person designated by management
- A current medical examination. **[O 426.2, Chapter I, Section 8.a(7)]**

8.2 Absences

When a qualified or certified individual has been absent from duties for less than three months, completion of missed continuing training and re-establishment of proficiency (for certified positions) are necessary prior to reassignment to duties. For these cases, the qualification or certification base date remains the same as it was before the absence.

When a qualified or certified individual has been absent from duties greater than three months, but less than 12 months, selected retraining (including written and oral examinations and operational/performance evaluations, as deemed necessary) must be given prior to reassignment to duties. For these cases, the qualification or certification base date remains the same as it was before the absence.

[O 426.2, Chapter I, Section 8.b(1)]

When a qualified or certified individual has been absent for greater than twelve months, comprehensive written and oral examinations and operational/performance evaluations (as required of initial candidates) must be given to determine weak areas. Retraining and re-examination is required in areas of weakness and upon successful completion, a new qualification or certification base date may be established. Activities to perform prior to reassignment to qualification or certification duties may be documented by letter or use of Form 361.77., "Remedial Training Plan." **[O 426.2, Chapter I, Section 8.b(2)]**

8.3 Extensions

All extension requests shall be conducted in accordance with LWP-12004. LWP-12004 is a DOE-ID approved document. Extensions are documented and include the name of the individual seeking the extension, the length of the extension, and a justification as to why the extension is warranted. Individual extensions are reviewed by training management and approved by line management. Approval of any extension shall be granted before the individual exceeds the annual or biennial due date or the certification(s) and/or

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qualification(s) automatically lapse. The extension process outlined in LWP-12004 meets the requirements outlined in the DOE Order.

[O 426.2, Chapter I, Section 8.c(1)]

An extension of one month is allowed for requalification. Proper line management approval shall be obtained prior to the lapse in qualification in accordance with LWP-12004. The one month extension will not alter or change the qualification base date. This grace period is allowed for programmatic operational commitments. **[O 426.2, Chapter I, Section 8.c(2)]**

A 30-day extension for certified job positions programmatic or operational commitments may be granted on a case basis and requires DOE-ID approval. Requests should be submitted to DOE-ID in a timely manner to allow adequate time for consideration of the extension request. The extension period for the facility certification will not alter or change the original certification base date. This grace period is allowed for programmatic operational commitments. **[O 426.2, Chapter I, Section 8.c(2)]**

9. MEDICAL EXAMINATIONS

A complete medical examination shall be conducted to evaluate the physical condition and ability of an employee to operate or supervise the operation of a facility and/or associated systems.

The examining physician shall complete a medical evaluation form, electronic Form 5850 or Form 5860, and a copy shall be forwarded to the candidate's manager as well as a copy given to the employee for information. The information is electronically entered into the INL Occupational Medical Program (OMP) database. The TRAIN system automatically accesses this database and electronically updates the status of the qualification/certification based on satisfactory completion of the medical evaluation. In the situation where the medical evaluation is not completed on time, or the candidate fails the medical evaluation, the certification is automatically suspended.

NOTE: *The first biennial re-examination is scheduled to coincide with the employee's birth date without exceeding the 2-year interval. This aligns the medical examination with the employee's birth date for scheduling of subsequent examinations.*

An initial medical examination must be given to certified operators, FMHs, and certified supervisor candidates to verify health and physical fitness to safely perform their assigned tasks. A re-examination must be given to certified operators, FMHs, and certified supervisors at least every 2 years. **[O 426.2, Chapter I, Section 9]**

Medical examination requirements for Hazard Category 2/Category B reactors must be in accordance with ANSI/ANS 15.4-2007, "Selection and Training of Personnel for Research Reactors." **[O 426.2, Chapter I, Section 9.b]**

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A current medical evaluation is one element in obtaining and maintaining certification. Lapse or failure of a medical examination will result in the removal of certification in affected areas. **[O 426.2, Chapter I, Section 9]**

A certified operator, FMH, or certified supervisor shall be cleared by medical examination prior to returning to work following any illness or injury that keeps the individual from performing his or her duties for a period exceeding one month. **[O 426.2, Chapter I, Section 9]**

Medical examination requirements for other operating organization personnel shall be in accordance with company procedures. **[O 426.2, Chapter I, Section 9]**

10. RECORDS

Nuclear facility qualification and certification records shall be maintained at MFC in accordance with Manual 12. **[O 426.2, Chapter I, Section 10]**

Training records shall be maintained for each individual seeking or maintaining qualification/certification in any of the MFC positions identified in Appendix A. Individual training record documentation must include the following at a minimum:

NOTE: *Medical records are sensitive unclassified information due to their content and therefore must be protected in secured locations other than training record files. These records are located at the Central Facilities Area medical facility. Additionally, controlling access to training records is required to maintain examination security.* **[O 426.2, Chapter I, Section 10]**

- Education, experience, and employment history and most recent health evaluation summary. **[O 426.2, Chapter I, Section 10.a]**
- Training programs completed and qualification/certification achieved. **[O 426.2, Chapter I, Section 10.b]**
- Latest completed checklists, graded written examinations (with answers corrected as necessary or examination keys), performance demonstrations/walkthroughs used for qualification, and operational evaluations used for certification. The record should include an evaluation of knowledge and performance during performance demonstrations/walkthroughs or operational evaluations. **[O 426.2, Chapter I, Section 10.c]**
- Lists of questions asked and the examiner's overall evaluation of the responses on oral examinations. **[O 426.2, Chapter I, Section 10.d]**

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- Qualification or Certification Endorsement Form(s).
[O 426.2, Chapter I, Section 10.b]
 - Copies of correspondence relating to exceptions to training requirements and extensions of qualification/certification
 - Records of qualification for one-time-only, special operations, modified or supplemental training programs
 - Attendance records for required training courses/sessions/formal training schools
 - Lapsed and/or reinstated qualification or certification.
- Additional items as deemed appropriate to the employee's training and/or qualification.

Attendance records for nuclear facility required training courses or sessions are recorded in the TRAIN system. Hard copies of attendance rosters are maintained in the MFC Training Records Center for MFC training courses/qualifications or the WCB Training Records Center for INL-wide training/qualifications. A TRAIN history report is available as a historical account of training attendance. **[O 426.2, Chapter I, Section 10.d.(3)]**

BEA training organizations maintain "active" training record files in central locations. These records contain all items relating to an individual's current qualification/certification. Items not related to the individual's current qualification/certification are considered "inactive" and may be sent to records storage. Adequate documentation is maintained in the active record to facilitate retrieval of all inactive records. **[O 426.2, Chapter I, Section 10.e]**

A historical record is retained in an individual's training file that documents the individual's initial qualification or certification and applicable verifying information (for example, Record Storage Summary Form, or suitable record historical summary). An alternate approach is to retain a copy of each of the employee's initial qualification or certification endorsement forms in his or her individual training record.
[O 426.2, Chapter I, Section 10.e]

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CHAPTER II – HAZARD CATEGORY 1, 2, AND 3 NUCLEAR FACILITY PERSONNEL

1. PURPOSE

This chapter contains specific training requirements for positions unique to MFC nuclear facilities. These requirements are in addition to those listed in Chapter I.

[O 426.2, Chapter II, Section 1]

MFC training and qualification programs are developed using a graded approach based on the hazards involved and risk associated with each operational facility. Given the diverse operational activities that are conducted within MFC, the method and rigor in which a specific Order requirement is implemented at one MFC facility may differ from that of another facility.

An example of the application of a graded approach from facility to facility includes the identification of pre-requisite training requirements for the Shift Supervisor position and the level of rigor in which these requirements are met. Another example is the application and definition of ‘pre-train’ tasks at facilities where only a few operators may be required to perform these tasks and at intervals that may differ from the accepted definition of a ‘pre-train’ task.

The MFC training organization, in consultation with the MFC Mission Support and Business Directorates, utilize risk-based, qualitative measures to ensure actions taken that represent a graded approach to implementation of an Order requirement are prudent and give full consideration to the hazards and hazard mitigations for the activity.

[O 426.2, Chapter I, Section 4.a.(2)]

2. EDUCATION AND EXPERIENCE REQUIREMENTS

Education and experience requirements for operating organization personnel are intended to provide reasonable assurance that these personnel have, or can acquire, the knowledge and skills to operate and maintain nuclear facilities and related support systems in a safe and reliable manner under all conditions. Persons at the manager level must meet the requirements shown in Appendix B, Tables B-1 or B-2, prior to assuming the duties of the assigned position. These tables identify the minimum education and experience requirements for operating organization positions. Except when noted, BS and AS degrees are in engineering or a related science. **[O 426.2, Chapter II, Section 2]**

If INL Form 361.92 indicates that an individual does not meet the experience requirement of Appendix B, Tables B-1 and B-2, and cannot satisfy the alternatives to experience provisions (Chapter I, Section 3.3.), consideration may be given to the collective experience of the operating organization. An individual who does not meet the experience requirements for a position may be assigned to that position based on consideration of the collective experience and the strength and balance of the overall

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operating organization. In such cases, documented justification (a cover letter and Form 361.92) is provided to DOE-ID for approval. **[O 426.2, Chapter I, Section 3]**

3. CONTROL MANIPULATION REQUIREMENTS FOR CERTIFIED POSITIONS

Control Manipulations – When used with respect to nuclear reactors, “controls” means apparatus and mechanisms that, when manipulated, directly affect the reactivity or power level of a reactor. When used with respect to any other MFC nuclear facility, “controls” means apparatus and mechanisms that, when manipulated, could affect the chemical, physical, metallurgical, or nuclear process of the nuclear facility in such a manner as to affect the protection of health and safety.

[O 426.2, Attachment 2 (Definition No. 5)]

The Order requires that reactor and nonreactor nuclear facilities develop lists of control manipulations performed by certified operators based on an analysis of the respective jobs. The listed control manipulations are performed to complete initial, annual (reactor facilities only), and biennial continuing training requirements.

[O 426.2, Chapter II, Section 3.a.(1) and (2)]

Certified supervisors at nonreactor nuclear facilities and Reactor Supervisors (RS) recertifying need only supervise or direct the performance of control manipulations to satisfy this requirement. Supervision of the performance of control manipulations is consistent with the normal responsibilities of supervisors. However, there may be situations in which the nuclear facility could require that a certified supervisor actually perform the control manipulation as part of initial certification if the operation requires in-depth knowledge of the supervisor to ensure that the operation is performed safely and correctly.

[O 426.2, Chapter II, Section 3.a.(3)]

MFC facility-specific position control manipulations and associated continuing training requirements are listed in Chapter II, Sections 7 through 17.

Hazard Category 2/Category B reactors (NRAD):

- The list of control manipulations must specify which manipulations are to be performed annually and which are to be performed biennially by reactor operators and senior reactor operators.
- Reactor operator and senior reactor operator candidates must perform a minimum of five significant reactivity manipulations (for example, reactor startup, reactor shutdown, >10% change in reactor power) for initial certification. Additional control manipulations should be based on the analysis.

[O 426.2, Chapter II, Section 3.b]

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4. OPERATIONAL EVALUATION REQUIREMENTS

The operational evaluations administered to certified operator, reactor operator, senior reactor operator, FMHs, and certified supervisor candidates must be generally similar in scope. The evaluation must contain questions and operational exercises and must include a facility walkthrough, and may include system and/or component operation. Operational evaluations, to the extent applicable to the facility, must require the candidate to demonstrate an understanding of, and the ability to perform the actions necessary to accomplish a representative sampling from the following items as applicable to the facility. **[O 426.2, Chapter II, Section 4]**

- Perform pre-startup procedures, including operating of controls associated with equipment that could affect reactivity or criticality safety **[O 426.2, Chapter II, Section 4.a]**
- Manipulate the controls as required to operate the facility between shutdown and normal operation **[O 426.2, Chapter II, Section 4.b]**
- Identify annunciators and condition-indicating signals and perform appropriate remedial actions **[O 426.2, Chapter II, Section 4.c]**
- Identify instrumentation systems and the significance of associated instrument readings **[O 426.2, Chapter II, Section 4.d]**
- Observe and safely control the operating behavior characteristics of the facility **[O 426.2, Chapter II, Section 4.e]**
- Perform control manipulations to obtain desired operating results during normal, abnormal, and emergency situations **[O 426.2, Chapter II, Section 4.f]**
- Safely operate heat removal systems, and explain relationships between proper operation of these systems to the operation of the facility **[O 426.2, Chapter II, Section 4.g]**
- Safely operate auxiliary and emergency systems, including controls of facility equipment that could affect criticality safety or release radioactive or other hazardous material to the environment **[O 426.2, Chapter II, Section 4.h]**
- Demonstrate or describe the use and function of radiation monitoring systems, including fixed radiation monitors and alarms, portable survey instruments, and personnel monitoring systems **[O 426.2, Chapter II, Section 4.i]**
- Demonstrate knowledge of significant radiation hazards, including permissible levels in excess of those authorized and ability to perform other procedures to reduce excessive radiation levels and to guard against personnel exposure **[O 426.2, Chapter II, Section 4.j]**

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- Demonstrate knowledge of the emergency plan, including, as appropriate, certified operator or supervisor responsibility to decide whether the plan should be executed and assigned duties under the plan
[O 426.2, Chapter II, Section 4.ik]
- Demonstrate knowledge and ability, as appropriate to the assigned position, to assume the responsibilities associated with safe operation
[O 426.2, Chapter II, Section 4.l]
- Demonstrate the ability to function within the facility or the control room as a team, as applicable to the facility and to the position, in such a way that procedures are adhered to and TSRs are not violated.
[O 426.2, Chapter II, Section 4.m]

5. CERTIFIED OPERATOR, FISSIONABLE MATERIALS HANDLER, AND SUPERVISOR PROFICIENCY REQUIREMENTS

Proficiency requirements ensure that certified personnel continue to possess and practice the skills and abilities necessary to operate the systems and equipment for which they are responsible in a safe and reliable manner during both normal and abnormal facility operations and system transients. Certified operators, FMHs, and certified supervisors shall actively perform job functions associated with their certification to maintain proficiency, meaning that the certified candidate has a position on the shift/crew and carries out and is responsible for the day-to-day duties of the certified position.
[O 426.2, Chapter II, Section 5]

MFC facility-specific position proficiency requirements are listed in Chapter II, Sections 7 through 17.

5.1 General

If active status is not maintained, certification must be suspended and the person must not be assigned certification duties. Prior to resuming duties associated with certification, the operating contractor must ensure that:
[O 426.2, Chapter II, Section 5.a]

- Certification is otherwise current and valid.
[O 426.2, Chapter II, Section 5.a.(1)]

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- The individual has performed certification duties under the direct supervision of a person certified in that position for a minimum period of time as stated below and must include a complete tour of the facility and all required shift turnover procedures.
[O 426.2, Chapter II, Section 5.a.(2)]
 - Non-reactor nuclear facilities must perform a minimum of 6 hours to reestablish proficiency. **[O 426.2, Chapter II, Section 5.a.(2).(a)]**
 - Hazard Category 2/Category B reactor certified reactor operators and senior reactor operators must perform a minimum of 6 hours.
[O 426.2, Chapter II, Section 5.a.(2).(c)]

5.2 Maintenance of Proficiency

The proficiency requirement is imposed to ensure that certified personnel continue to possess and practice the skills and abilities necessary to operate the systems and equipment for which they are responsible in a safe and reliable manner during both normal and abnormal facility operations and system transients. **[O 426.2, Chapter II, Section 5.b]**

5.2.1 General

If nuclear facility activities are insufficient to meet established proficiency requirements (maintain certification), the NFM and MFC Training Manager shall consider administering written and oral examinations and operational evaluations and conducting facility walkthroughs and/or simulated operations to ensure adequate operational knowledge (as determined by the duration of the inactivity). A graded approach should be used to determine the extent of activities necessary to reinstate certification.

[O 426.2, Chapter II, Section 5.b(1)]

- Non-reactor Nuclear Facilities. The operating organization must establish procedures which define requirements and frequency necessary to maintain an active status (See facility specific sections for minimum times).
[O 426.2, Chapter II, Section 5.b(2)]
- Hazard Category 2/Category B Reactors (NRAD). To maintain active status, reactor operators and senior reactor operators must perform certification duties for at least 4 hours per calendar quarter. **[O 426.2, Chapter II, Section 5.b(4)]**

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6. NON-REACTOR NUCLEAR FACILITY SPECIFIC REQUIREMENTS

Facility-specific training instructions and requirements are in addition to those described in Chapter I, Sections 1 through 10 and Chapter II, Sections 1 through 5 and do not supersede them.

NFO candidates will complete MFC Basic Operator qualification (BOQ). The MFC BOQ is a trainee qualification verifying achievement of fundamental knowledge of theory/applied science, laboratory processes, general laboratory procedures, and basic system component operation. The BOQ does not qualify the FMHs/NFO candidate to perform facility-specific work independently, with the exception of performer controlled tasks identified within LST-483, "Performer Controlled Activity List for Laboratory and Hot Cell Services." The BOQ is a one-time-only qualification and does not require examinations, or continuing training or requalification. LST-483 identifies the hazards, mitigations, and additional training, as applicable to carry out performer controlled tasks. If additional training is required, such training may be implemented through facility qualification programs, etc. BOQ may be completed concurrently with facility-specific FMH certification and/or NFO qualifications.

This section provides specific training requirements for operators, FMHs, and supervisors.

6.1 Operators

Operator training must be sufficiently comprehensive to cover areas which are fundamental to the candidate's assigned tasks to ensure that personnel are capable of safely performing their job duties. The training program must include the following: **[O 426.2, Chapter II, Section 6.a]**

- A core of subjects such as industrial safety, instrumentation and control, basic physics, chemistry, industry operating experience, and major facility systems, as applicable to the position and the facility.
[O 426.2, Chapter II, Section 6.a.(1)]
- On-the-job and classroom-type training to ensure that personnel are familiar with all aspects of their positions. Such training must include but not be limited to: **[O 426.2, Chapter II, Section 6.a.(2)]**
 - Normal and emergency procedures
 - Administrative procedures
 - Radiation control practices
 - Location and functions of pertinent safety systems and equipment

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- Procedures for making changes or alterations in operations and operating procedures
- TSRs.

6.2 Fissionable Material Handlers

FMH candidates must be trained in the following subject areas in addition to that required in Subsection 6.1 above to the extent applicable to the position:

[O 426.2, Chapter II, Section 6.b]

- Instrumentation and control, including types of instruments and control systems, principles of operation, and consequences of malfunctions
[O 426.2, Chapter II, Section 6.b.(1)]
- Facility operating characteristics, including principal features, operating parameters, and operating limits of the facility (to include auxiliary systems) [O 426.2, Chapter II, Section 6.b.(2)]
- Principles of nuclear facility operation, including the processes involved and technical terminology for the chemical, physical, and metallurgical reactions and criticality safety principles, controls, and specifications.
[O 426.2, Chapter II, Section 6.b.(3)]

6.3 Supervisors

The supervisor training program must include the subject categories and OJT specified for operators and FMHs (listed in 6.1 and 6.2) to the extent to which they are applicable. This training must be of increased depth to reflect the added responsibility of the supervisor position, to include management and supervisory topics. [O 426.2, Chapter II, Section 6.c]

To satisfy requirements for the supervisor to be considered “trained,” he/she must complete training associated with the systems and equipment they will supervise, using a risk-based, graded approach. Supervisor training will include subject categories and OJT specified for operators and FMHs to the extent to which they are applicable. Because of the diversity of operations that exist within some MFC facilities (e.g. HFEF, FCF), Shift Supervisors will be trained to provide oversight to the broader aspects of the facility operations to which they are assigned.

‘Trained’ must not be confused with ‘qualified/certified;’ for an individual to actually perform the duties of a qualified/certified position, the individual must have completed the qualification checklist, OJT, and required evaluations; for example, comprehensive written examination, walkthrough, and, if required, an oral board.

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The supervisor is not qualified to operate or manipulate a piece of equipment.

6.4 Operations Management Personnel

Operations management personnel must be qualified.

[O 426.2, Chapter II, Section 6.d]

- Training must be satisfactorily completed on applicable facility/process safety basis documents. **[O 426.2, Chapter II, Section 6.d.(1)]**
- Training must be provided on process knowledge to demonstrate operational knowledge of applicable facilities/processes. **[O 426.2, Chapter II, Section 6.d.(2)]**

6.5 Certified Operator Written Examination Contents

Written examinations must be administered to certified operator candidates (FMHs). These examinations must contain a representative selection of questions on the knowledge and skills identified from learning objectives developed from the analysis of the job and from information in Documented Safety Analysis, TSRs, system description manuals and operating procedures, lessons learned from Occurrence Reports, and other applicable sources. The examination must be developed in accordance with Manual 12 and include a representative sampling of the following, in addition to the items listed in paragraph 6.1, as appropriate to the FMH position and to the facility:

[O 426.2, Chapter II, Section 6.e]

- Facility control and safety systems, including design, principles of operation, components, functions, instrumentation, signals, interlocks, failure modes, and automatic and manual features
- Nuclear facility operating characteristics, and the reasons for these operating characteristics, including causes and effects of temperature and pressure changes, and operating limitations
- Principles of facility operation, including the process involved and technical terminology for the chemical, physical, and metallurgical reactions
- Emergency systems, including components, functions, and limitations
- Criticality safety principles, controls, and specifications
- Radiation monitoring systems, including purpose, operation, alarms, and survey equipment alarms

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- Radioactive and hazardous materials and effluent, including procedures, equipment, handling, and disposal.

6.6 Certified Supervisor Written Examination Contents

Written examinations must be administered to certified supervisor candidates (FMH Supervisors). These examinations must be based on the sources discussed in Subsection 6.5. The examination must include a representative sampling from the following items, in addition to those required for certified operators (FMHs), as appropriate to the FMHS position and to the facility.

[O 426.2, Chapter II, Section 6.f]

- Design, control, and operating limitations for the nuclear facility, including instrumentation characteristics and adjustment, nuclear facility operation, and nuclear-facility console-control mechanisms
- Radiation hazards that may arise during performance of experiments
- Nuclear and radiation theory, including details of the fission process, neutron multiplication, source effects, and neutron poison effects
- Procedures and limitations involved in initial equipment loading, alterations in fissionable material configuration, and determination of various internal and external effects on criticality safety
- Procedures, equipment, and facilities available for handling and disposing of radioactive materials and effluent
- Functions, assignments, and responsibilities of the maintenance and technical support organizations as related to nuclear-facility safety
- Applicable portions of the facility DSA/SAR.

7. ANALYTICAL LABORATORY

7.1 Analytical Laboratory Training Progression

The initial and continuing training requirements for qualification of the AL positions are specified in Appendix D.

The AL has unique organizational roles and responsibilities relating to the position requirements described in the Order. The AL is a support facility that provides analytical laboratory services such as nuclear materials analysis and studies for MFC nuclear and environmental programs.

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Analytical sampling and analysis activities are performed by both Laboratory Technicians and Laboratory Scientists. Laboratory Scientists may use the Technician training program as applicable at the discretion of the AL NFM.

Personnel performing analytical sampling and analysis activities are qualified on the basis of the activity training needs. This is achieved through task qualification and the use of Type II OJT checklists. This means that not all technicians are qualified on all analytical processes within the facility.

The AL NFM will identify Laboratory Scientists who perform Technical Staff activities, as described in Subsection 5.3, who must complete Technical Staff training and qualification requirements. Otherwise, Laboratory Scientists will complete general employee training.

Specific nuclear facility operations positions at the AL include Nuclear Facility Manager (NFM), Operations Manager, Technical Staff, Laboratory Technician (LT), Qualified Fissionable Material Handler (QFMH), Nuclear Facility Operator (NFO), and Shift Supervisor (SS).

7.2 Laboratory Technician Training

A trainee for the Laboratory Technician position who meets the entry-level requirements shall use qualification checklists to complete requirements for qualification.

Laboratory Technician trainees shall perform all OJT activities under the direct supervision of a qualified technician or technical staff member qualified as an OJT Instructor; trainee evaluation methods can include performance demonstrations and walkthroughs. Completion of these activities shall be documented via signature in the appropriate section of the qualification checklist.

There are no specific proficiency requirements for the Laboratory Technician position, unless specifically directed by the AL NFM. There are no annual requalification requirements for technicians.

All prerequisites, initial qualification requirements, and biennial continuing training requirements for technicians are addressed in Appendix D.

7.3 Operations Personnel Initial Training – General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification.

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7.4 Operations Personnel Initial Training – Operator/Qualified Fissionable Material Handler

The NFO position is a qualified position. OJT checklists shall be used to complete the requirements for qualification. An individual qualifying as an NFO shall perform OJT under the direct supervision of a qualified operator or supervisor.

The QFMH is a qualified position. OJT checklists shall be used to complete the requirements for qualification. An individual qualifying as a QFMH shall perform OJT under the direct supervision of a qualified QFMH or SS.

To maintain qualified status, the NFO shall complete the requirements specified in Appendix D.

To maintain qualified status, the QFMH shall complete the requirements specified in Appendix D.

NOTE: *Laboratory Technicians and Technical Staff who handle greater than 15 g of fissionable material will qualify as QFMH.*

7.5 Operations Personnel Initial Training – Shift Supervisor

Shift Supervisor candidates must complete AL NFO training and QFMH qualification prior to qualifying as SS. A supervisor qualification checklist shall be used to complete the requirements for SS qualification.

For the AL SS position, the following requirements apply:

- Meet entry level requirements specified in Appendix B, Table B-1.
- Complete OJT as defined in AL SS qualification checklist. Complete written examination, and performance demonstration/walkthrough.

NOTE: *The AL Facility Manager may stipulate that a separate oral examination/board be conducted for qualification or requalification.*

- To maintain qualification, an SS shall complete the requirements specified in Appendix D.

The training program shall include the categories specified in the Order for supervisors to the extent to which they are applicable. Those individuals qualified as an SS, but not assigned to a position, shall complete a minimum of one watch per quarter fulfilling the duties of an SS.

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8. FUEL CONDITIONING FACILITY/TREAT WAREHOUSE

8.1 Fuel Conditioning Facility Training Progression

The initial and continuing training requirements for qualification/certifications for the Fuel Conditioning Facility (FCF) positions are specified in Appendix E.

There are four NFO qualification areas and two supervisory qualification areas available for new trainees. In addition, trainees shall complete an FMH/FMHS certification area. Management will designate which area a new trainee will be assigned to complete.

Personnel assigned to RSWF who perform activities regulated under 40 CFR 264.16 must also complete training requirements described in PDD-162, "MFC HWMA/RCRA TSD (Treatment, Storage, and Disposal Facility) Personnel Training Program" (see Section 9).

All NFO trainees shall complete the MFC BOQ qualification and the Basic Facility Operator (BFO) qualification simultaneously (for RSWF, BOQ only), which allows operation of limited specific facility equipment.

Once qualified BOQ and BFO, NFO trainees are certified as an FMH, which allows them to assist with fissionable material handling operations. This certification is a prerequisite for all other qualifications/certifications. Only certified FMHs/FMHSs may perform project and program-specific tasks under the nuclear safety envelope established for the facility.

After completion of BOQ, BFO, and FMH, NFO trainees shall then complete either Process Preparation Operator (PPO), Process Operator (PO), Facility Systems Operator (FSO) or the Cell Support Operator (CSO) qualification.

An NFO can qualify to become a Foreman or an SS.

To qualify as a Foreman, candidates must have the PPO and PO qualifications and complete the Foreman qualification while simultaneously completing the FMHS certification. The Foreman is accountable to the SS. The Foreman has responsibility for directing FCF process operations and maintenance.

The SS candidate must have the FSO and CSO qualifications and shall complete the SS qualification while simultaneously completing the requirements for FMHS certification. The SS has overall responsibility for directing FCF facility operations, maintenance, and work control.

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8.2 Operations Personnel Initial Training – General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

8.3 Operations Personnel Initial Training – Operator/Fissionable Material Handler

NFO positions are qualified positions. Qualification checklists shall be used to complete the requirements for qualification.

Qualification as a shift operator requires completion of the BOQ, BFO, FMH, and FSO qualifications.

An NFO trainee shall perform OJT under the direct supervision of an NFO/Foreman.

System Engineers may provide oral checkouts and system/process walkthroughs for qualifying NFOs.

FMH trainees will only be designated by the FCF Manager after they attend training addressing theory of criticality, FCF criticality rules, determination of material-at-risk, and material control and accountability.

FMH positions are certified positions. Specific knowledge and skills that shall be demonstrated for certification are specified on a qualification checklist. Upon completion of the checklist and comprehensive written examination, the FMH candidate's supervisor shall recommend the candidate for final evaluation.

8.4 Operations Personnel Initial Training – Fissionable Material Handler Supervisor

For the FMH Supervisor position, an FMH Supervisor qualification checklist shall be used to complete the requirements for certification. Prerequisites shall be satisfied before the certification can be approved. Greater in depth, and more detailed knowledge than that of an FMH is required for this position.

For the FMHS position, the following requirements apply:

- Meet the entry-level requirements specified in Appendix B, Table B-1.
- Complete OJT as defined in FMHS qualification checklist.

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NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the FCF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

- Complete written and oral examination and an operational evaluation.
- Facility FMHS operational evaluations shall be evaluated by a certified FMHS and FCF NFM or alternate.

8.5 Operations Personnel Initial Training – Foreman and Supervisor

Foreman and supervisor qualification checklists shall identify the specific knowledge and skills that shall be demonstrated for qualification/certification.

For the Foreman position, the following requirements apply:

- Meet the entry-level requirements specified in Appendix B, Table B-1.
- Complete OJT as defined in Foreman qualification checklist.
- Complete a written examination and performance demonstration/walkthrough. The FCF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial Foreman qualification.
- Satisfactory completion of the Foreman training requirements does not classify the candidate as a Foreman, but only allows the individual to be considered, along with other eligible candidates, for the Foreman position when a vacancy occurs.
- Those qualified as Foreman but not assigned a position shall complete a minimum of one watch per quarter fulfilling the duties of the Foreman.
- To maintain qualified status, a Foreman shall complete the requirements specified in Appendix E.
- For the SS position, the following requirements apply:
 - Meet the entry-level requirements specified in Appendix B, Table B-1.
 - Complete OJT as defined in SS qualification checklist.

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- Complete a written examination and performance demonstration/walkthrough. The FCF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification.
- Satisfactory completion of the SS training requirements does not classify the candidate as an SS, but only allows the individual to be considered, along with other eligible candidates, for the SS position when a vacancy occurs.
- Those qualified as an SS but not assigned a position shall complete a minimum of one watch per quarter fulfilling the duties of the SS.
- To maintain qualified status, an SS shall complete the requirements specified in Appendix E.

8.6 Control Manipulations

Personnel certifying as FMH and/or FMHS shall perform all of the control manipulations listed on their qualification checklist for initial training. Biennially the FMH shall perform all control manipulations listed on the proficiency sheet as part of continuing training. The FMHS need only direct performance of the control manipulations listed on the proficiency sheet to meet this requirement. An FMHS also certified as an FMH shall also perform the required control manipulations for that position. **[O 426.2, Chapter II, Section 3]**

8.7 Proficiency

To maintain active status, FCF-certified FMHs and FMHSs shall maintain proficiency by performing (simulating as applicable) FMH and FMHS duties for at least one transfer once every calendar quarter. Proficiency will be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management, the employee shall not be assigned certification duties, and the training organization shall be informed so the TRAIN system can be updated to reflect the suspension.

[O 426.2, Chapter II, Section 5.b]

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If active status/proficiency is not maintained, prior to a worker's resuming duties associated with certification, the FCF Manager shall ensure that:

- Certification is otherwise current and valid
- The FMH or FMHS has performed certification duties for a minimum of six hours under the direct supervision of a certified FMH or FMHS. While performing the certification duties, perform or simulate at least one transfer activity. Certification duties must also include a complete tour of the facility and all required shift turnover procedures.
[O 426.2, Chapter II, Section 5.b.(2)]

9. FCF RCRA Facility Training

The initial and continuing training requirements for qualifications supporting FCF treatment, storage, and/or disposal (TSD) facility positions are specified in Appendix E.

FCF TSD facilities include RSWF, SSB, and SCMS.

9.1 Operations Personnel Initial Training - Operator

FCF RCRA Facility Operators (FO) shall complete the MFC BOQ qualification. Additionally, personnel assigned to perform activities regulated under 40 CFR 264.16 must also complete training requirements described in PDD-162, "MFC HWMA/RCRA TSDF Personnel Training Program."

The typical operator progression path is TSD Facility radiological FO, and RSWF NFO.

Once an operator completes the NFO training, he/she can progress to the SS qualification.

9.2 Operations Personnel Initial Training – Supervisor

For RSWF, a supervisor candidate must have the NFO training. Qualifying supervisors who will support SSB and SCMS must receive training addressing operator knowledge and skills.

A qualification checklist shall be used to complete the requirements for qualification as SS.

9.3 Control Manipulations

None.

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9.4 Proficiency

There are no certified positions required for support of TSD facility operations; therefore, the completion and tracking of operator proficiency is not required.

10. FUEL MANUFACTURING FACILITY

10.1 Fuel Manufacturing Facility Training Progression

The initial and continuing training requirements for qualification/certifications for FMF positions are specified in Appendix F.

There are three NFO qualification areas and two supervisory qualification areas available for new trainees. In addition trainees shall complete an FMH/FMHS certification. Management will designate which area a new trainee will be assigned to complete.

An NFO trainee shall simultaneously qualify to the MFC BOQ qualification and certify as an FMH.

After completion of BOQ and FMH, NFO trainees shall complete either the Process Equipment Operator (PEO), Advanced Fuel Cycle Initiative (AFCI) Glovebox (GB) Operator (Internal AFCI GB Operator and External AFCI GB Operator) or the FO qualification checklist.

To become an FMF AFCI GB Supervisor, a candidate must have the AFCI GB (internal and external) qualifications and complete the FMHS certification.

To become a FMF SS, a candidate must have the PEO and FO qualifications and complete FMHS certification.

10.2 Operations Personnel Initial Training – General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

10.3 Operations Personnel Initial Training - Operator/Fissionable Material Handler

FMH positions are certified positions. Qualification checklists shall be used to complete the requirements for certification. An FMH trainee shall perform OJT under the direct supervision of a certified FMH/FMH Supervisor.

The FMH operational evaluation shall be evaluated by a certified FMH/FMHS.

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The NFO positions are qualified positions. Qualification checklists shall be used to complete the requirements for qualification. An NFO trainee (PEO, FO, or AFCI) shall perform OJT under the direct supervision of a qualified NFO/SS.

The NFO performance demonstration/walkthrough shall be evaluated by a qualified NFO/SS.

10.4 Operations Personnel Initial Training – AFCI Glovebox Supervisor

An AFCI GB Supervisor qualification checklist shall specify the requirements for qualification. Prerequisites shall be satisfied before the qualification can be approved. Greater in-depth and more detailed knowledge than an AFCI GB External Equipment Operator and AFCI GB Internal Equipment Operator is required for this position.

For the AFCI GB Supervisor position, the following requirements apply:

- In addition to the entry-level requirements specified in Appendix B, Table B-1, an AFCI GB Supervisor shall have been an AFCI GB External Equipment Operator, and AFCI GB Internal Equipment Operator.
- A candidate for an AFCI GB Supervisor position who meets the entry-level requirements shall complete additional training, a written examination and performance demonstration/walkthrough. However, the FMF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial AFCI GB Supervisor qualification.
- To maintain qualified status, an AFCI GB supervisor shall complete the requirements specified in Appendix F.

10.5 Operations Personnel Initial Training - Fissionable Material Handler Supervisor/Shift Supervisor

For the FMH Supervisor position, an FMH Supervisor qualification checklist shall be used to complete the requirements for certification. Prerequisites shall be satisfied before the certification can be approved. A greater in depth and more detailed knowledge than that of an FMH is required for this position.

For the FMHS position, the following requirements apply:

- A candidate for an FMHS position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, a written and oral examination and an operational evaluation.

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NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the FMF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

- Facility FMHS operational evaluations shall be evaluated by an SS and/or the FMF Manager.

For the SS position, the following requirements apply:

- A Shift Supervisor Qualification Checklist shall specify the requirements for qualification as an SS. Prerequisites shall be satisfied before the qualification can be approved. A greater in depth and more detailed knowledge than that of an NFO is required for this position.
- Satisfactory completion of the supervisor training requirements does not classify the candidate as a supervisor, but only allows the individuals to be considered, along with other eligible candidates, for a supervisor position when a vacancy occurs. Until the person is given a supervisory position, the prospective supervisor shall complete a quarterly proficiency watch.
- In addition to the entry-level requirements specified in Appendix B, Table B-1, an SS shall have been an FMF, PEO, and FO NFO.
- A candidate for an SS position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, a written examination and performance demonstration/walkthrough. However, the FMF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification. The supervisor candidate is then eligible to be selected and assigned to the SS position.
- The SS performance demonstration/walkthrough must be evaluated by an SS and/or the FMF Manager.
- To maintain qualified status, a supervisor shall complete the requirements specified in Appendix F.

10.6 Control Manipulations

Personnel who certify as FMH and FMHS shall perform all control manipulations listed on the qualification checklist for initial training. Biennially FMHs shall perform all control manipulations listed on the proficiency sheet as part of their continuing training. FMHSs need only supervise or direct the performance of control manipulations listed on the proficiency sheet as part of their continuing

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training. If an FMHS is also certified as an FMH, then he/she shall also perform the required control manipulations for that position.

[O 426.2, Chapter II, Section 3]

10.7 Proficiency

To maintain active status, FMHs and FMHSs shall maintain proficiency by performing (simulating as applicable) fuel handling, transfer, or storage activities at least once every three months. Proficiency will be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management and the employee shall not be assigned certification duties. The training organization shall be informed so the TRAIN system can be updated to reflect the suspension. **[O 426.2, Chapter II, Section 5.b]**

Prior to a worker's resuming duties associated with certification, the FMF Manager shall ensure that:

- Certification is otherwise current and valid.
- The FMH or FMHS has performed certification duties for a minimum of six hours under the direct supervision of a certified FMH or FMHS. While performing the certification duties, perform or simulate a minimum of one fuel handling, transfer, or storage activity. Certification duties must also include a complete tour of the facility and all required shift turnover procedures. **[O 426.2, Chapter II, Section 5.b.(2)]**

11. HOT FUEL EXAMINATION FACILITY

11.1 HFEF Training Progression

The initial and continuing training requirements for qualifications/certifications for Hot Fuel Examination Facility (HFEF) positions are specified in Appendix G.

HFEF requires two certifications:

- FMH (QN785FMH)
- FMH Supervisor (QN785FMS)

HFEF qualifications include seven distinct operator qualifications:

- General Area Operator (GAO) (QN785GAO)
- Nuclear Facility Operator (NFO) (QN785NFO)
- Cask Handling Operator (CHO) (QN785CHO)

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- Metallographic/Photographic Operator (MPO) (QN785MPO)
- Post-Irradiated Equipment Operator (QN785PEO)
- Research and Development Operator (QN785RDO)
- HFEF Drum Handling Operator (DHO) (QN785DHO).

11.2 HFEF Operator Training

- All operators follow the initial qualification path as a MFC Basic Operator (BOQ), FMH, and HFEF GAO.
- The GAO qualification has two co-requisites, the FMH certification and the MFC BOQ qualification. Both must be completed before the GAO qualification is granted. Upon completion of the GAO, the operator will be directed by HFEF management into one of two paths:
 - NFO or Nuclear Process Operator (NPO).
- Nuclear Process Operators shall qualify in any of the process areas, CHO, MPO, PEO, or RDO, as directed by management.
- As directed by management, Operators may pursue the qualification path of Foreman and/or SS. Candidates who pursue these qualifications must complete the applicable (Foreman and/or SS) qualification checklists, OJT, and required evaluations associated with the areas they will supervise.

11.3 Operations Personnel Initial Training - General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

11.4 Operations Personnel Initial Training – Operator/Fissionable Material Handler

FMH positions are certified positions. Qualification checklists shall be used to complete the requirements for certification.

- An FMH trainee shall perform OJT under the direct supervision of an FMH/FMHS.
- The FMH operational evaluations shall be evaluated by an FMH/FMHS.

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- NFO/NPO positions are qualified positions. Qualification checklists shall be used to complete the requirements for qualification.
- An NFO/NPO trainee shall perform OJT under the direct supervision of a qualified NPO/NFO Operator holding the QNTRNGOJ qualification.
- NFO/NPO operational evaluations shall be evaluated by an NFO/NPO, supervisor or foreman.

Facility and process qualifications are as follows:

- GAO: GAO is the first operator qualification and is prerequisite to all other operator qualifications.
- NFO: Addresses the systems and equipment used to maintain the facility and cell environment, as well as safety equipment and backshift emergency response, allowing the operator to work the shift.
- CHO: Addresses cask handling and associated support equipment. It is considered one of the five process areas.
- MPO: Addresses equipment, systems, and techniques necessary to prepare samples in the containment box and examine samples in the metallurgical box. It is considered one of the five process areas.
- PEO: Addresses equipment operations for post-irradiated experiments within the facility design safety envelope. It is considered one of the five process areas.
- RDO: Addresses equipment operations to evaluate new ideas and processes within the facility design safety envelope. It is considered one of the five process areas.
- DHO: Addresses equipment, systems, and techniques necessary to handle and package/repackage drums for shipment. It is considered one of the five process areas.

11.5 Operations Personnel Initial Training – Fissionable Material Handler Supervisor, Foreman, and Shift Supervisor

- A qualification checklist shall be used to complete the requirements for qualification as an FMHS, Foreman, or SS and identifies the specific knowledge and skills that shall be demonstrated for qualification. Prerequisites shall be satisfied before the qualification can be approved. Greater indepth more detailed knowledge is required for these positions.

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The facility may use different titles for appointed supervisory personnel to differentiate them from others holding the same supervisory qualification.

For the FMHS position, the following requirements apply:

- Meet the entry-level requirements specified in Appendix B, Table B-1.
- Complete OJT as defined within the qualification checklist.

NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the HFEF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

- Complete a written and oral examination/operational evaluation.
- Facility FMHS operational evaluations shall be evaluated by a certified FMHS, qualified SS, and/or the HFEF Manager.

For the Foreman or SS positions, the following requirements apply:

- Must be HFEF GAO qualified.
- Entry-level requirements are specified in Appendix B, Table B-1, and must have the HFEF NFO and all HFEF nuclear process operations NPO training.
- A candidate for a supervisor position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, which includes a written examination and performance demonstration/walkthrough. However, the HFEF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial qualification. The supervisor candidate is then eligible to be selected and assigned to the supervisor position.
- Satisfactory completion of the supervisor training requirements does not classify the candidate as a supervisor, but only allows the individual to be considered, along with other eligible candidates, for a supervisor position when a vacancy occurs. Until the person is given a supervisory position, the prospective supervisor shall complete a quarterly supervisor proficiency watch.
- To maintain qualified status, a supervisor shall complete the requirements specified in Appendix G.

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11.6 Control Manipulations

Personnel who certify as FMH and FMHS shall perform all control manipulations listed on their qualification checklists for initial training. Biennially, FMHs shall perform all control manipulations listed on the proficiency sheet as part of their continuing training. FMHSs need only supervise or direct the performance of control manipulations listed on the proficiency sheet as part of their continuing training. If an FMHS is also certified as an FMH, then he/she shall also perform the required control manipulations for that position.

[O 426.2, Chapter II, Section 3]

11.7 Proficiency

To maintain active status, HFEF FMHs and FMHSs shall demonstrate proficiency by performing (simulating as applicable) fuel handling, transfer, or storage activities at least quarterly. The proficiency shall be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management and the employee shall not be assigned certification duties. The training organization shall be informed so the TRAIN system can be updated to reflect the suspension. If an FMHS is also certified as an FMH, then he/she shall also perform the required proficiency for that position.

[5480.20A, Chapter IV, Section 3]

Prior to a worker's resuming duties associated with certification, the HFEF Manager shall ensure that:

- Certification is otherwise current and valid.
- The FMH or FMHS has performed certification duties for a minimum of six hours under the direct supervision of a certified FMH or FMHS. While performing the certification duties, perform or simulate a minimum of one fuel handling, transfer, or storage activity. Certification duties must also include a complete tour of the facility and all required shift turnover procedures. **[O 426.2, Chapter II, Section 5.b.(2)]**

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12. SPACE AND SECURITY POWER SYSTEMS FACILITY

12.1 SSPSF Training Progression

The initial and continuing training requirements for qualifications/certifications for SSPSF positions are specified in Appendix J.

- There are three NFO qualification areas and two supervisory qualification areas available for new trainees. Prior to performing any project activities, trainees (NFO and supervisory) shall complete an FMH/FMHS certification area. Management will designate which area a new trainee will be assigned to complete.
- All NFOs shall complete the MFC BOQ qualification. Additionally, they are required to qualify as GAO which allows operation of limited specific facility equipment. These qualifications may be completed simultaneously.
- Upon completion of BOQ and GAO qualifications, there are two possible progression paths for NFOs. They may choose the FO or PEO, or both.
- FMH certification is a prerequisite for PEO, FMHS, Foreman, and SS qualifications/certifications. Only certified FMHs/FMHSs may perform project and program-specific tasks under the nuclear safety envelope established for the facility.
- An NFO may qualify to become a Foreman or an SS.
- To become a Foreman, the candidate shall be a qualified PEO and a certified FMHS. The Foreman has qualifications that encompass the project and program-specific knowledge and skills, as determined by the needs of the program.
- To become an SS, the candidate shall be a qualified FO and be certified as an FMHS. The SS shall complete the SS qualification program. The SS has overall responsibility for directing SSPSF operations, maintenance, and work control.

12.2 Operations Personnel Initial Training - General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

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12.3 Operations Personnel Initial Training – Operator/Fissionable Material Handler

- All SSPSF NFO positions are qualified positions. Qualification checklists shall be used to complete the requirements for qualification and identify the specific knowledge and skills that shall be demonstrated to qualify for a given SSPSF NFO position.
- Individuals qualifying as SSPSF NFOs shall perform OJT under the direct supervision of a qualified operator, foreman, or supervisor.
- An FMH trainee shall perform OJT under the direct supervision of a qualified FMH/FMHS. Trainees shall not be allowed to perform operations with actual radioisotope-power-system (RPS) products or fueled components unless specifically allowed by an approved qualification plan. Trainees use qualification hardware or simulators to perform training.
- To maintain qualified/certified status, the NFO (GAO, FMH, FO, or PEO) shall complete the requirements specified in Appendix J.

12.4 Operations Personnel Initial Training – Fissionable Material Handler Supervisor/Shift Supervisor

An FMHS qualification checklist shall be used to complete the requirements for certification as FMHS. SSPSF FMH certification is a prerequisite for FMHS. The FMHS position requires more detailed, in-depth knowledge than the FMH position. The qualification checklist for the FMHS position identifies the specific knowledge and skills that shall be demonstrated for certification.

For the FMHS position, the following requirements apply:

NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the SSPSF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

- A candidate for an FMHS position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, a written and oral examination (oral board) and an operational evaluation.
- Facility FMHS operational evaluations shall be evaluated by an SS, Foremen and/or the SSPSF Manager.

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For the Foreman position, an individual shall be certified as an FMHS in order to complete qualification as a Foreman. SSPSF PEO qualification is also a prerequisite for Foreman qualification. The qualification checklist for Foreman identifies the specific knowledge and skills that shall be demonstrated for qualification.

For the SS position, the following requirements apply:

- An individual shall be certified as an FMHS in order to complete qualification as an SS.
- Additionally, the individual shall be a qualified SSPSF Facility Operator.
- The qualification checklist for SS identifies the specific knowledge and skills that shall be demonstrated for qualification.
- A candidate for a supervisor position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, which includes written and performance demonstration/walkthrough. However, the SSPSF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification. The supervisor candidate is then eligible to be selected and assigned to the supervisor position.
- Those individuals qualified as an SS but not assigned to a position, shall complete a minimum of one watch per quarter fulfilling the duties of an SS.

To maintain qualified/certified status, the supervisor (FMHS, Foreman, or SS) shall complete the requirements specified in Appendix J.

12.5 Control Manipulations

Personnel who certify as FMH and FMHS shall perform all control manipulations listed on their qualification checklists for initial training. Biennially FMHs shall perform all control manipulations listed on the proficiency sheet as part of their continuing training. FMHSs need only supervise or direct the performance of control manipulations listed on the proficiency sheet as part of their continuing training. If an FMHS is also certified as an FMH, then he/she shall also perform the required control manipulation for that position.

[O 426.2, Chapter II, Section 3]

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12.6 Proficiency

To maintain active status, FMHs and FMHSs shall demonstrate proficiency by performing (simulating as applicable) fuel handling, transfer, or storage activities at least once per quarter. The proficiency shall be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management and the employee shall not be assigned certification duties. Training shall be informed so the TRAIN system can be updated to reflect the suspension. **[O 426.2, Chapter II, Section 5.b]**

Prior to resuming duties associated with certification, the SSPSF Manager shall ensure that:

- Certification is otherwise current and valid.
- The FMH or FMHS has performed certification duties for a minimum of six hours under the direct supervision of a certified FMH or FMHS. While performing the certification duties, perform or simulate a minimum of one fuel handling, transfer, or storage activity. Certification duties must also include a complete tour of the facility and all required shift turnover procedures. **[O 426.2, Chapter II, Section 5.b.(2)]**

13. TRANSIENT REACTOR TEST FACILITY (TREAT)

13.1 TREAT Training Progression

The initial and continuing training requirements of qualifications/certifications for TREAT positions are specified in Appendix K.

For the TREAT positions, the following apply:

- At TREAT there are operator (NFO) and SS qualifications.
- Operations personnel also certify as FMH and FMHS.
- To become an operator, a candidate shall initially qualify to the MFC BOQ qualification and before the NFO qualification is granted, certify as an FMH.
- To become an SS, a candidate shall have NFO and complete the FMHS certification.

13.2 Operations Personnel Initial Training – General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

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13.3 Operations Personnel Initial Training - Operator/Fissionable Material Handler

FMH positions are certified positions. Qualification checklists shall be used to complete the requirements for certification and identify the specific knowledge and skills that shall be demonstrated for certification.

- An FMH trainee shall perform OJT under the direct supervision of an FMH/FMHS.
- FMH operational evaluations shall be evaluated by an FMH/FMHS.
- NFO positions are qualified positions. Qualification checklists shall be used to complete the requirements for qualification and identify the specific knowledge and skills that shall be demonstrated for qualification.
- A NFO trainee shall perform OJT under the direct supervision of an NFO/SS.
- NFO operational evaluations shall be evaluated by an NFO/SS.

13.4 Operations Personnel Initial Training – Fissionable Material Handler Supervisor/Shift Supervisor

A supervisor candidate must have the NFO qualification. A qualification checklist shall specify the requirements for qualification as an SS and identifies the specific knowledge and skills that shall be demonstrated for qualification. Prerequisites shall be satisfied before the qualification can be approved. Greater in-depth, more detailed knowledge is required for this position.

For the FMHS position, an FMHS qualification checklist shall be used to complete the requirements for certification and identifies the specific knowledge and skills that shall be demonstrated for certification. Prerequisites shall be satisfied before the certification can be approved. Greater in-depth, more detailed knowledge is required for this position.

For the FMHS position, the following requirements apply:

- A candidate for an FMHS position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, a written and oral examination (oral board) and an operational evaluation.

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NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the TREAT Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

- Facility FMHS operational evaluations shall be evaluated by an SS and/or the TREAT Facility Manager.

For the SS position, the following requirements apply:

- An SS candidate must meet the entry-level requirements specified in Appendix B, Table B-1.
- A candidate for a supervisor position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, which includes written and performance demonstration/walkthrough. However, the TREAT Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification. The supervisor candidate is then eligible to be selected and assigned to the supervisor position.
- Satisfactory completion of the supervisor training requirements does not classify the candidate as a supervisor, but only allows the individual to be considered, along with other eligible candidates, for a supervisory position when a vacancy occurs. Until the person is given a supervisory position, the prospective supervisor shall complete a quarterly proficiency watch.

To maintain qualified status, a supervisor shall complete the requirements specified in Appendix K.

13.5 Control Manipulations

Personnel who certify as FMH or FMHS shall perform all control manipulations listed on the qualification checklist for initial training. Biennially FMHs shall perform all control manipulations listed on the proficiency sheet as part of the continuing training. FMHSs need only supervise or direct the performance of control manipulations listed on the proficiency sheet as part of their continuing training. If an FMHS is also certified as an FMH, then he/she shall also perform the required control manipulations for that position.

[O 426.2, Chapter II, Section 3]

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13.6 Proficiency

To maintain active status, FMHs and FMHSs shall demonstrate proficiency by performing (simulating as applicable) fuel handling, transfer, or storage activities at least quarterly. The proficiency shall be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management and the employee shall not be assigned certification duties. The training organization shall be informed so the TRAIN system can be updated to reflect the suspension. **[O 426.2, Chapter II, Section 5.b]**

Prior to resuming duties associated with certification, the TREAT Facility Manager shall ensure that:

- Certification is current and valid.
- The FMH or FMHS has performed certification duties for a minimum of six hours under the direct supervision of a certified FMH or FMHS. While performing the certification duties, perform or simulate a minimum of one fuel handling, transfer, or storage activity. Certification duties must also include a complete tour of the facility and all required shift turnover procedures. **[O 426.2, Chapter II, Section 5.b.(2)]**

14. ZERO POWER PHYSICS REACTOR

14.1 ZPPR Training Progression

The initial and continuing training requirements of qualifications/certifications for ZPPR positions are specified in Appendix L.

For the ZPPR positions, the following apply:

- At ZPPR there are operator (NFO) and SS qualifications.
- Operations personnel also certify as FMH and FMHSs.
- An NFO shall simultaneously qualify to the MFC BOQ qualification and certify as an FMH.
- To become an SS, the candidate shall have the NFO qualification and complete FMHS certification.

14.2 Operations Personnel Initial Training – General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

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14.3 Operations Personnel Initial Training - Operator/Fissionable Material Handler

FMH positions are certified positions. Qualification checklists shall be used to complete the requirements for certification.

For the FMH position, the following apply:

- An FMH trainee shall perform OJT under the direct supervision of a certified FMH/FMHS.
- The FMH operational evaluation shall be evaluated by a certified FMH/FMHS.

NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough; however, the ZPPR Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

For the NFO position, the following apply:

- The NFO positions are qualified positions. Qualification checklists shall be used to complete the requirements for qualification. An NFO trainee shall perform OJT under the direct supervision of a qualified NFO/SS.
- The NFO performance demonstration/walkthrough shall be evaluated by a qualified NFO/SS.

14.4 Operations Personnel Initial Training - Fissionable Material Handler Supervisor/Shift Supervisor

For the FMHS position, an FMHS qualification checklist shall be used to complete the requirements for certification. Prerequisites shall be satisfied before the certification can be approved. A greater in depth and more detailed knowledge than that of an FMH is required for this position.

For the FMHS position, the following requirements apply:

- A candidate for an FMHS position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, a written and oral examination, and an operational evaluation.

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NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough; however, the ZPPR Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

- Facility FMHS operational evaluations shall be evaluated by an SS and/or the ZPPR Facility Manager.
- An SS qualification checklist shall specify the requirements for qualification as an SS. Prerequisites shall be satisfied before the qualification can be approved. A greater in depth and more detailed knowledge than that of an NFO is required for this position.
- Satisfactory completion of the supervisor training requirements does not classify the candidate as a supervisor, but only allows the individuals to be considered, along with other eligible candidates, for a supervisor position when a vacancy occurs. Until the person is given a supervisory position, the prospective supervisor shall complete a quarterly proficiency watch.

For the SS position, the following requirements apply:

- In addition to the entry-level requirements specified in Appendix B, Table B-1, an SS shall have been a ZPPR NFO.
- A candidate for an SS position who meets the entry-level requirements specified in Appendix B, Table B-1, shall complete additional training, a written examination and performance demonstration/walkthrough. However, the ZPPR Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification. The supervisor candidate is then eligible to be selected and assigned to the SS position.
- The SS performance demonstration/walkthrough must be evaluated by an SS and/or the ZPPR Facility Manager.
- To maintain qualified status, a supervisor shall complete the requirements specified in Appendix L.

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14.5 Control Manipulations

Personnel who certify as FMH and FMHS shall perform all control manipulations listed on their qualification checklists for initial training. Biennially, FMHs shall perform all control manipulations listed on the proficiency sheet as part of their continuing training. FMHSs need only supervise or direct the performance of control manipulations listed on the proficiency sheet as part of their continuing training. If an FMHS is also certified as an FMH, then he/she shall also perform the required control manipulations for that position.

[O 426.2, Chapter II, Section 3]

14.6 Proficiency

To maintain active status, FMHs and FMHSs shall demonstrate proficiency by performing (simulating as applicable) fuel handling, transfer, or storage activities at least once every three months. Proficiency will be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management, and the employee shall not be assigned certification duties. The training organization shall be informed so the TRAIN system can be updated to reflect the suspension. **[O 426.2, Chapter II, Section 5.b]**

Prior to a worker's resuming duties associated with certification, the ZPPR Manager shall ensure that:

- Certification is otherwise current and valid.
- The FMH or FMHS has performed certification duties for a minimum of six hours under the direct supervision of a certified FMH or FMHS. While performing the certification duties, perform or simulate a minimum of one fuel handling, transfer, or storage activity. Certification duties must also include a complete tour of the facility and all required shift turnover procedures. **[O 426.2, Chapter II, Section 5.b.(2)]**

15. MATERIAL SECURITY AND CONSOLIDATION FACILITY (CPP-651)

15.1 Material Security and Consolidation Facility Training Progression

The initial and continuing training requirements of qualifications/certifications for Material Security and Consolidation Complex (MSCC) positions are specified in Appendixes I and M.

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The MSCC facilities include both radiological and nuclear facilities with limited project scope and activity. CPP-1634 and CPP-653 are radiological facilities (see Chapter III for a description of training requirements). CPP-651 (Material Security and Consolidation Facility) is a Hazard Category II nuclear facility with long term material security and consolidation missions.

Qualification requirements for the MSCF are described below:

- Operators and SSs shall be qualified MFC BOQ.
- Operations personnel may also qualify as Limited FMH, FMH and FMHS.

To become an SS, the candidate must be qualified as a Facility Operator.

15.2 Operations Personnel Initial Training - General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

15.3 Operations Personnel Initial Training – Facility Technician

The MSCF Facility Operator is a qualified position. Qualification checklists are used to complete the requirements for qualification as a Facility Operator.

15.4 Operations Personnel Initial Training – Limited Fissionable Material Handler

Personnel holding the Limited FMH will perform specific FMH administrative tasks and operational activities associated with the receipt, storage, and repackaging of SFTP Storage Containers at MSCF. A pre-requisite to the MSCF Limited FMH is to hold a current FMH certification from another MFC facility.

The Limited FMH position is a certified position. Qualification checklists shall be used to complete the requirements for certification. A Limited FMH trainee shall perform OJT under the direct supervision of a certified FMH/FMH Supervisor.

The Limited FMH operational evaluation shall be evaluated by a certified FMH/FMHS.

15.5 Operations Personnel Initial Training – Fissionable Material Handler

The FMH is a certified position. Qualification checklists shall be used to complete the requirements for certification. An FMH trainee shall perform OJT under the direct supervision of a certified FMH/FMH Supervisor.

The FMH operational evaluation shall be evaluated by a certified FMH/FMHS.

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15.6 Operations Personnel Initial Training – Fissionable Material Handler Supervisor

For the FMH Supervisor (FMHS) position, an FMHS qualification checklist shall be used to complete the requirements for certification. Prerequisites shall be satisfied before the certification can be approved. A greater in depth and more detailed knowledge than that of an FMH is required for this position.

For the FMHS position, the following requirements apply:

- A candidate for an FMHS position who meets the entry level requirements specified in Appendix B, Table B 1, shall complete additional training, a written and oral examination and an operational evaluation.

NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the MSCF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

- Facility FMHS operational evaluations shall be evaluated by an FMHS and/or SS and/or the MSCF Manager.

15.7 Operations Personnel Initial Training – Shift Supervisor

For the Shift Supervisor position, the candidate must complete the MFC NT Supervisor Core qualification. In addition, the candidate must also complete the MSCF Shift Supervisor qualification checklist.

The Shift Supervisor Qualification Checklist shall specify the requirements for qualification as an SS. Prerequisites shall be satisfied before the qualification can be approved. A greater in depth and more detailed knowledge than that of a Facility Technician is required for this position.

Satisfactory completion of the supervisor training requirements does not classify the candidate as a supervisor, but only allows the individuals to be considered, with other eligible candidates, for a supervisor position when a vacancy occurs. Until the person is given a supervisory position, the prospective supervisor shall complete a quarterly proficiency watch.

For the SS position, the following requirements apply:

- In addition to the entry level requirements specified in Appendix B, Table B 1, an SS shall have been an MSCF Facility Technician.

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- Complete additional training, a written examination and performance demonstration/walkthrough. The MSCF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification. The supervisor candidate is then eligible to be selected and assigned to the SS position.
- The SS performance demonstration/walkthrough must be evaluated by an SS and/or the MSCF Manager.

To maintain qualified status, a supervisor shall complete the requirements specified in Appendix M.

15.8 Control Manipulations

Personnel who certify as FMH Limited, FMH and FMHS shall perform all control manipulations listed on their qualification checklists for initial training. Biennially, Limited FMHs and FMHs shall perform all control manipulations listed on the proficiency sheet as part of their continuing training. FMHSs need only supervisor or direct the performance of control manipulations listed on the proficiency sheet as part of their continuing training. If an FMHS is also certified as an FMH Limited or FMH, then he/she shall also perform the required control manipulations for that position. **[O 426.2, Chapter II, Section 3]**

15.9 Proficiency

To maintain active status, Limited FMHs, FMHs and FMHSs shall demonstrate proficiency by performing (simulating as applicable) fuel handling, transfer, or storage activities at least once every three months. Proficiency will be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management, and the employee shall not be assigned certification duties. The training organization shall be informed so the TRAIN system can be updated to reflect the suspension. **[O 426.2, Chapter II, Section 5.b]**

Prior to a worker's resuming duties associated with certification, the MSCF Manager shall ensure that:

- Certification is otherwise current and valid.
- The Limited FMH, FMH or FMHS has performed certification duties for a minimum of six hours under the direct supervision of a certified FMH or FMHS. While performing the certification duties, perform or simulate a minimum of one fuel handling, transfer, or storage activity. Certification duties must also include a complete tour of the facility and all required shift turnover procedures. **[O 426.2, Chapter II, Section 5.b.(2)]**

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16. IRRADIATED MATERIALS CHARACTERIZATION LABORATORY (IMCL)

16.1 IMCL Training Progression

The initial and continuing training requirements of qualifications/certifications for IMCL positions are specified in Appendix N.

At IMCL there are Laboratory Technician (a.k.a. Researcher), operator (NFO) and SS qualifications. Operations personnel also certify as FMH and FMHSs. An NFO may simultaneously qualify to the MFC BOQ qualification and certify as an FMH. Note that Research Staff personnel may qualify as Laboratory Technician and also certify as FMH/FMHS. These personnel may also complete non-formal training associated with use and operation of research equipment. This training is typically conducted utilizing a mentoring checklist.

16.2 Laboratory Technician Training

A trainee for the Laboratory Technician position who meets the entry level requirements shall use qualification checklists to complete requirements for qualification.

Laboratory Technician trainees shall perform all OJT activities under the direct supervision of a qualified technician or technical staff member qualified as an OJT Instructor; trainee evaluation methods can include performance demonstrations and walkthroughs. Completion of these activities shall be documented via signature in the appropriate section of the qualification checklist.

There are no specific proficiency requirements for the Laboratory Technician position, unless specifically directed by the IMCL NFM. There are no annual requalification requirements for technicians.

All prerequisites, initial qualification requirements, and biennial continuing training requirements for technicians are addressed in Appendix N.

16.3 Operations and Research Personnel Initial Training – General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

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16.4 Operations and Research Personnel Initial Training - Fissionable Material Handler

The FMH position is a certified position. Qualification checklists shall be used to complete the requirements for certification. An FMH trainee shall perform OJT under the direct supervision of a certified FMH/FMHS. The FMH operational evaluation shall be evaluated by a certified FMH/FMHS.

16.5 Operations Personnel Initial Training – Nuclear Facility Operator

The NFO position is a qualified position. Qualification checklists shall be used to complete the requirements for qualification. An NFO trainee shall perform OJT under the direct supervision of a qualified NFO/SS. The NFO performance demonstration/walkthrough shall be evaluated by a qualified NFO/SS.

16.6 Operations and Research Personnel Initial Training – Fissionable Material Handler Supervisor

For the FMH Supervisor (FMHS) position, an FMHS qualification checklist shall be used to complete the requirements for certification. Prerequisites shall be satisfied before the certification can be approved. A greater in depth and more detailed knowledge than that of an FMH is required for this position.

For the FMHS position, the following requirements apply:

- A candidate for an FMHS position who meets the entry level requirements specified in Appendix B, Table B 1, shall complete additional training, a written and oral examination and an operational evaluation.

NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the IMCL Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.*

- Facility FMHS operational evaluations shall be evaluated by an FMHS and/or SS and/or the IMCL Manager.

16.7 Operations Personnel Initial Training – Shift Supervisor

An SS qualification checklist shall specify the requirements for qualification as an SS. Prerequisites shall be satisfied before the qualification can be approved. A greater in depth and more detailed knowledge than that of an NFO is required for this position.

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Satisfactory completion of the supervisor training requirements does not classify the candidate as a supervisor, but only allows the individuals to be considered, with other eligible candidates, for a supervisor position when a vacancy occurs. Until the person is given a supervisory position, the prospective supervisor shall complete a quarterly proficiency watch.

For the SS position, the following requirements apply:

- In addition to the entry level requirements specified in Appendix B, Table B 1, an SS shall have been an IMCL Facility Technician.
- A candidate for an SS position who meets the entry level requirements specified in Appendix B, Table B 1, shall complete additional training, a written examination and performance demonstration/walkthrough. However, the IMCL Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification. The supervisor candidate is then eligible to be selected and assigned to the SS position.
- The SS performance demonstration/walkthrough must be evaluated by an SS and/or the IMCL Manager.

To maintain qualified status, a supervisor shall complete the requirements specified in Appendix N.

16.8 Control Manipulations

Personnel who certify as FMH and FMHS shall perform all control manipulations listed on their qualification checklists for initial training. Biennially, FMHs shall perform all control manipulations listed on the proficiency sheet as part of their continuing training. FMHSs need only supervisor or direct the performance of control manipulations listed on the proficiency sheet as part of their continuing training. If an FMHS is also certified as an FMH, then he/she shall also perform the required control manipulations for that position.

[O 426.2, Chapter II, Section 3]

16.9 Proficiency

To maintain active status, FMHs and FMHSs shall demonstrate proficiency by performing (simulating as applicable) fuel handling, transfer, or storage activities at least once every three months. Proficiency will be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management, and the employee shall not be assigned certification duties. The training organization shall be informed so the TRAIN system can be updated to reflect the suspension.

[O 426.2, Chapter II, Section 5.b]

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Prior to a worker's resuming duties associated with certification, the IMCL Manager shall ensure that:

- Certification is otherwise current and valid.
- The FMH or FMHS has performed certification duties for a minimum of six hours under the direct supervision of a certified FMH or FMHS. While performing the certification duties, perform or simulate a minimum of one fuel handling, transfer, or storage activity. Certification duties must also include a complete tour of the facility and all required shift turnover procedures. [O 426.2, Chapter II, Section 5.b.(2)]

17. HAZARD CATEGORY 2/CATEGORY B REACTOR SPECIFIC REQUIREMENTS

This section provides additional position-specific training requirements for Hazard Category 2/Category B reactor (NRAD) personnel. [O 426.2, Chapter II, Section 7]

The initial and continuing training requirements of qualifications/certifications for NRAD positions are specified in Appendix H.

17.1 Reactor Operator and Senior Reactor Operator Training

NOTE: *The NRAD Reactor Supervisor (RS) is also designated as a Senior Reactor Operator (SRO). The RS training program meets the requirements specified in the Order for the SRO position. To ensure consistency with the Order requirements, a description of the SRO qualification requirements are provided within this document and are incorporated within the NRAD RS qualification.*

- Training for reactor operators and senior reactor operators should take into account the previous experience, training, and level of responsibility of the candidate.
- Senior reactor operator training must be sufficiently comprehensive to develop the knowledge and skills commensurate with the position and cover areas which are fundamental to the candidate's job duties.
- Initial and continuing training must include topics addressed in Subsections 15.3 and 15.4 below.

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- The qualification program must include classroom-type and OJT to assure familiarity with all required aspects of reactor operation, including anticipated transients and accident conditions. Where construction precludes OJT, practical experience at similar reactors, training on simulators, and other appropriate training is acceptable.
[O 426.2, Chapter II, Section 7.a]

17.2 Fuel Handling Operations

All fuel handling operations must be performed by or under the direct supervision of a person certified to perform the required functions. The requirements below are not necessary if fuel handling is performed by persons trained for such as part of reactor operator and senior reactor operator certification programs.

- A specific training program must be established to certify fuel handling operators and supervisors. The program must include training for their assigned tasks.
- The program for fuel handling operators and supervisors must consist of initial and continuing training. Training and examination may be limited to that needed for fuel handling safety, the impact of fuel handling on safety, and actions to be taken during abnormal and emergency conditions.
[O 426.2, Chapter II, Section 7.b]

17.3 Reactor Operator Written Examination Contents

Written examinations must be administered to reactor operator candidates. These examinations must contain a representative selection of questions on the knowledge and skills identified from learning objectives developed from the analysis of the job and from information in Documented Safety Analysis, TSRs, system description manuals, and operating procedures, lessons learned from Occurrence Reports, and other applicable sources. The examination must include a representative sampling from the following items, as appropriate to the position and to the facility:

- Facility design and operating characteristics, including features of facility design, design and operating characteristics and limitations, safety and emergency systems, experiment and test facilities, engineered safety features, and shielding
- Principles of facility operation, including principles of reactor operation, radiological protection, effects of experiments, basic reactor theory, and heat transfer, fluid flow and thermodynamics, as necessary, for the specific design of the reactor

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- Instrumentation and control, including nuclear instruments, process instruments, control systems, radiation monitoring systems and survey equipment, experiment and test facility instrumentation, and manipulation of reactivity controls
- Procedures and TSRs including normal, abnormal, emergency, radiological and hazardous materials control and administrative procedures, and operational limitations.
[O 426.2, Chapter II, Section 7.c]

17.4 Senior Reactor Operator Written Examination Contents

Written examinations must also be administered to senior reactor operator candidates. These examinations must be based on the sources discussed in Subsection 15.3. The examination must include a representative sampling from the following items, in addition to those required for reactor operators, as appropriate to the position and to the facility:

- Radioactive materials handling, including special nuclear material (SNM) and radioactive materials hazards, handling, disposal, and safe practices
- Advanced theory and operation, including reactivity effects during experimental and maintenance activities, fuel handling, fuel burnup and reactivity worth, alterations in-core configuration, TSRs bases, and administrative responsibilities associated with the facility and appropriate for the senior reactor operator's level of responsibility. **[O 426.2, Chapter II, Section 7.d]**

Facility-specific training instructions and requirements are in addition to those described in Chapter I, Sections 1 through 10 and Chapter II, Sections 1 through 5 and do not supersede them.

17.5 NRAD Training Progression

The initial and continuing training requirements for qualifications/certifications for NRAD positions are specified in Appendix H.

At NRAD there are three operator areas and a reactor supervisor position, two of which are certified positions.

Operations personnel also certify as FMHs and FMHSs. The FMH position is included in the reactor operator (RO) certification. The FMHS position is included in the RS certification.

There are no restrictions on the order or the path of area qualification.

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17.6 Operations Personnel Initial Training – General

Minimum entry level education and experience requirements and prerequisites shall be satisfied prior to final approval of the specified qualification or certification.

17.7 Operations Personnel Initial Training - Operator

The RO is a certified position. A reactor operator qualification checklist (FMH is included in the RO position) shall be used to complete the requirements for certification. The checklist identifies the specific knowledge and skills that shall be demonstrated for the certification. The training program shall include the categories specified in the Order for RO and FMH to the extent to which they are applicable. [**O 426.2, Chapter II, Section 7.a &.b**]

A Neutron Generator Operator (NGO) and Neutron Radiographer (NR) are qualified positions. Qualification checklists shall be used to complete the requirements for qualification. The checklist identifies the specific knowledge and skills that shall be demonstrated for qualification. The training program shall include the categories specified in the Order and other regulatory requirements.

The nature of the work performed by the NRAD NR requires that qualified personnel working in that position hold the Neutron Radiographer Technician (NRT) certification, which is a quality assurance (QA) nondestructive evaluation (NDE) technician who is certified in accordance with MCP-13425, Inspection and NDE Personnel Certification.” NRT certification (Level I, II, or III) is tracked in TRAIN and with a certificate (filed in the individual’s MFC Training Record) showing completion of the requirements.

17.8 Operations Personnel Initial Training - Reactor Supervisor

A reactor supervisor qualification checklist (FMHS is included in the Reactor Supervisor position) shall be used to complete the requirements for certification as an RS and identifies the specific knowledge and skills that shall be demonstrated for certification. Prerequisites shall be satisfied before the certification can be approved. Greater in-depth, more detailed knowledge is required for this position.

For the Reactor Supervisor position, the following requirements apply:

- In addition to the entry-level requirements specified in Appendix B, Table B-2, a reactor supervisor shall have been an NRAD RO.

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- A candidate for the reactor supervisor position who meets the entry-level requirements specified in Appendix B, Table B-2, shall complete additional training, which includes written examination, oral examination (oral board), and operational evaluation.

NOTE: *At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the NRAD Reactor Manager may stipulate that an oral board be conducted for initial certification or recertification. The reactor supervisor candidate is then eligible to be selected and assigned to the reactor supervisor position.*

- Satisfactory completion of the reactor supervisor training requirements does not classify the candidate as a reactor supervisor, but only allows the individual to be considered, along with other eligible candidates, for the reactor supervisor position when a vacancy occurs. Until the person is given a supervisory position, the prospective supervisor shall complete a quarterly supervisor-proficiency watch.
- To maintain certification status, a reactor supervisor shall complete the requirements specified in Appendix H.
- The training program shall include the categories specified in the Order for SRO, RS and, and FMHS to the extent to which they are applicable.
[O 426.2, Chapter II, Section 7.a &.b]

17.9 Control Manipulations

Personnel who certify as NRAD RO/RS shall perform a minimum of five significant reactivity manipulations (for example, reactor startup, reactor shutdown, >10% change in reactor power) for the respective certification. Control manipulations for initial certification are listed on the RO qualification checklist.

Annually, ROs shall perform a minimum of one reactor startup, one reactor shutdown, and a >10% change in reactor power, such that biennially they have performed a minimum of two each. These control manipulations are recorded within the NRAD proficiency log.

Biennially ROs shall perform all remaining control manipulations listed on the proficiency log sheet as part of their continuing training. Following initial certification, the NRAD RS need only supervise or direct control manipulations listed on the proficiency log sheet to meet continuing training requirements.
[O 426.2, Chapter II, Section 3.b.(1) &. (2)]

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17.10 Proficiency

To maintain active status, ROs and the RS shall demonstrate proficiency by performing certification duties of at least four hours per calendar quarter. To meet this requirement after initial certification, the RS needs only supervise and direct the evolution. The proficiency shall be documented and tracked by the facility. If proficiency is not maintained, certification shall be suspended by facility management and the employee shall not be assigned certification duties. The training organization shall be informed so the TRAIN system can be updated to reflect the suspension. **[O 426.2, Chapter II, Section 5.b]**

Prior to resuming duties associated with certification, the NRAD Reactor Manager shall ensure that:

- Certification is otherwise current and valid.
- The RO or SRO has performed certification duties, for a minimum of 6 hours, under the direct supervision of a certified RO or SRO, as appropriate, to the position and must include a complete tour of the facility and all required shift turnover procedures.
[O 426.2, Chapter II, Section 5.a.(2)]

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CHAPTER III – MFC RADIOLOGICAL, AND OTHER NON-NUCLEAR FACILITY TRAINING REQUIREMENTS

1. PURPOSE

This chapter describes training requirements for personnel who support radiological and other non-nuclear facilities at MFC.

Training requirements are documented in Individual Training Plans which are reviewed periodically to ensure required safety, organizational, and functional area training is defined for employees per LWP-12003 “New and Transferred Employee Training Requirements.”

Refresher training and re-examination shall be conducted as required.

2. MFC Radiological Facilities (EFF, EML, FASB, RCL, ORSA, CPP-653 and CPP-1634)

2.1 General

The initial and continuing training requirements for qualification for MFC radiological facility positions are specified in Appendix I. MFC radiological facilities include EFF, EML, FASB, RCL, ORSA, CPP-653, and CPP-1634.

All radiological FOs shall complete the MFC BOQ qualification.

Personnel assigned to EFF and ORSA who perform activities regulated under 40 CFR 264.16 must also complete training requirements described in PDD-162, “MFC HWMA/RCRA TSDF Personnel Training Program.”

2.2 Operations Personnel Initial Training – Facility Operator/Technician

A qualification checklist is used to complete the requirements for qualification as radiological FO/technician.

2.3 Operations Personnel Initial Training – Supervisor

A supervisor candidate must complete the operator training requirements for the facility to which the individual will be assigned.

A qualification checklist shall be used to complete the requirements for qualification as SS.

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3. Facility Manager Training Requirements

3.1 General

The facility manager is a qualified position; this position provides support to MFC radiological and other non-nuclear facility operations. Qualification is achieved through completion of the Facility Project Manager or Facility Complex Manager qualifications (Forms 361.A02 or 361.A03). Candidates who have completed the NFM qualification meet or exceed the requirements of the above referenced facility manager qualifications.

Newly-hired facility manager candidates have 1 year from their start date to complete the qualification program. In the interim, manager candidates may perform work under the following restrictions: For each manager candidate authorized to perform unsupervised work, the facility manager shall complete Form 361.A13 'Provisional Competency Commensurate with Responsibility (CCR),' indicating what work will require direct supervision until applicable training is completed. This decision will be based on the review of the candidate's experience and background. Tasks shall be performed under the supervision of a qualified facility manager until applicable training has been completed.

Facility manager performance shall be documented in personal performance appraisals. As part of the appraisal process, the facility manager shall review past performance and training records to ensure required continuing training was completed and performance was adequate. Corrective actions shall be documented on the appraisal form.

Other managers and support personnel are considered qualified by virtue of meeting entry-level requirements listed within Employee Position Descriptions and by completing applicable position-specific training identified within Individual Training Plans.

A comprehensive examination is not administered to determine manager qualification. Continuing training programs are established to meet the needs of the individual and the position. Satisfactory performance is documented in personal performance appraisals.

3.2 Facility Manager Continuing Training

Training requirements for facility managers are documented in Individual Training Plans which are reviewed periodically to ensure required safety, organizational, and functional area training is defined for employees per LWP-12003, "New and Transferred Employee Training Requirements."

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4. REFERENCES

10 CFR 835, "Occupational Radiation Protection"

40 CFR 264.16, "Environmental Protection Agency; Personnel Training"

ANSI/ANS 8.20 – 1991, "Criticality Safety Training"

ANSI/ANS 15.4-2007, "Selection and Training of Personnel for Research Reactors"

DOE HDBK-1078-94, "A Systematic Approach to Training"

DOE-HDBK-1074-95, "Alternative Systematic Approaches to Training"

DOE O 426.2 "Personnel Selection, Training, Qualification, and Certification Requirements for Doe Nuclear Facilities"

DOE Order 420.1C, "Facility Safety"

DOE-STD-1070-94, "Guidelines for Evaluation of Nuclear Facility Training Programs"

DOE-STD-1122-2009, "Safeguards & Security General Technical Base Qualification Standard Reference Guide"

Form 325.01, "Employee Position Description"

Form 361.A13, "Provisional Competency Commensurate with Responsibility (CCR)"

Form 361.57, "New Employee Checklist"

Form 361.A02, "INL Facility Complex Manager Checklist"

Form 361.A03, "INL Building Specialist Qualification Checklist"

Form 361.77, "Remedial Training Plan"

Form 361.92, "Education and Experience Verification"

Form 5850, "Medical Examination Report"

Form 5860, "Injury/Illness Evaluation"

GDE-9001, "Conduct of Operations Guidance for Training and Qualifications"

LST-483, "Performer Controlled Activity List for Laboratory and Hot Cell Services"

Laboratory-wide Manual 10B, "Nuclear Safety Engineering"

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Laboratory-wide Manual 12, "Training and Qualification"

LWP-1201 "Document Management"

LWP-12003, "New and Transferred Employee Training Requirements"

LWP-12004, "Training Exceptions, Exemptions, and Extensions"

LWP-12009, "Develop, Conduct, and Evaluate On-the-Job Training"

LWP-12029, "Training Staff Qualification"

LWP-12035, "Training Needs Analysis"

LWP-12057, "Delivery of Training"

LWP-12064, "Performance Examinations"

LWP-12065, "Written Examinations"

LWP-12066, "Oral Examinations"

LWP-13750, "Performing Management Assessments"

MCP-36, "Job Analysis"

MCP-42, "Designing Courses"

MCP-45, "Examination Items/Examination Banks"

MCP-48, "Instructional Material Development, Revision, and Entry into TRAIN"

MCP-52, "On-The-Job Training Material Development"

MCP-68, "Training Program Evaluation"

MCP-72, "Incorporating Change Actions into Training"

MCP-73, "Incorporating Lessons Learned into Training"

MCP-79, "Instructional Materials Control"

MCP-85, "Training Records Administration"

PDD-162, "MFC HWMA/RCRA TSDF Personnel Training Program"

PDD-1004, "Integrated Safety Management System"

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PDD-1073, “Radiological Control Training and Qualification Program”

PDD-10600 “System and Plant Engineering Program”

R2A2-10005, “Criticality Safety Engineer”

R2A2-10008, “Safety Analyst”

STD-1145, “Operations Drill Program Manual”

TSR-400, 5.400.5, “INL Standardized Technical Safety Requirements; Qualification and Training”

5. APPENDIXES

Appendix A, MFC Certified and Qualified Positions

Appendix B, Education and Experience Requirements

Appendix C, MFC General Qualification Requirements

Appendix D, AL Qualification Requirements

Appendix E, FCF/TREAT Warehouse Qualification/Certification Requirements

Appendix F, FMF Qualification/Certification Requirements

Appendix G, HFEEF Qualification/Certification Requirements

Appendix H, NRAD Qualification/Certification Requirements

Appendix I, Non Nuclear Facility Qualification Requirements

Appendix J, SSPSF Qualification/Certification Requirements

Appendix K, TREAT Qualification/Certification Requirements

Appendix L, ZPPR Qualification/Certification Requirements

Appendix M, Material Security and Consolidation Facility – CPP-651 Qualification Requirements

Appendix N, Irradiated Materials Characterization Laboratory (IMCL) Qualification/Certification Requirements

Appendix O, Acronyms

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Appendix A

MFC Certified and Qualified Positions

| MFC Certified Positions | |
|-------------------------|----------------------------|
| Facility | Position |
| FCF | FMHS FMH |
| FMF | FMHS FMH |
| HFEF | FMHS FMH |
| NRAD | RS/(FMHS) RO(FMH) |
| RSWF | None |
| SSPSF | FMHS FMH |
| TREAT | FMHS FMH |
| ZPPR | FMHS FMH |
| IMCL | FMHS FMH |
| MSCF | FMHS FMH LIMITED FMH |

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| MFC QUALIFIED POSITIONS | |
|--|---|
| Managers | Supervisors |
| Engineering Manager ES&H Manager Nuclear Facility Manager Facility Manager Maintenance Manager Quality Assurance Manager Radiological Control Manager Training Manager Reactor Manager Operations Manager | Shift Supervisor FCF Foreman HFEF Foreman SSPSF Foreman Maintenance Foreman/Leadman HPT Supervisor FMF AFCI Glovebox Supervisor |
| Operators | |
| Operations Specialist AL NFO FCF NFO FMF NFO HFEF NFO NRAD NGO NRAD Neutron Radiographer NRAD Neutron Radiography Technician (QA NDE Certified as Level I, Level II, or Level III) | SSPSF NFO TREAT NFO TSD Facility NFO ZPPR NFO MSCF NFO IMCL NFO QFMH |
| Technicians and Maintenance Personnel | |
| Lab Technician Electrician Heavy Equipment Operator/Equipment Operator Instrument and Control Technician HPT Heating, Ventilation, and Air Conditioning (HVAC)/Refrigeration Technician | Manipulator Repair Technician Mechanic Quality Inspector QFMH |

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MFC QUALIFIED POSITIONS

Technical Support Personnel (Technical Staff)

| | |
|----------------------------------|-----------------------------------|
| Nuclear Laboratory Scientist | Quality Engineer |
| Criticality Safety Engineer | Radiological Engineer |
| Criticality Safety Officer | Safety Analyst |
| Facility Engineer | Software Engineer |
| Process Engineer | System Engineer |
| Staff Specialist | SSPSF Lead Engineer |
| Fire Protection Engineer | SSPSF SME |
| FMF Material-at-Risk Coordinator | ZPPR Material-at-Risk Coordinator |
| Industrial Safety Engineer | Industrial Hygienist |

Training Staff
Training Instructor

| |
|--------------------------|
| Training Instructor |
| OJT Instructor |
| Instructional Specialist |

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Appendix B

Education and Experience Requirements

Table B-1. Education and experience requirements for AL, FCF, FMF, HFEF, IMCL, MSCF, RSWF, SSPSF, TREAT, and ZPPR (nonreactor nuclear facilities)

[O 426.2, Chapter II, Section 2, Table 1]

| Position | Education (Degree) | Experience | |
|---|-----------------------|----------------------|----------------------|
| | | Job Related | Nuclear |
| Managers | BS ¹ | ⁸ | 4 years ² |
| Operations Management | BS | 3 years ⁸ | 2 years |
| Supervisors | HS | | 3 years ³ |
| Operators | HS | | |
| Technicians | | 1 year | |
| Maintenance Personnel | | 1 year | |
| Technical Support Personnel | BS | 2 years | 1 year |
| Instructional Analyst/Developer (Instructional Specialist) | BA ⁴ | 1 year | |
| Training Instructors | HS | ⁵ | ^{6,7} |

Notes:

- The training manager must have a baccalaureate degree. The training manager must have courses in education or training that focus on instructional analysis, design, development, delivery and testing as well as evaluation of training programs if not included in the baccalaureate course material (baccalaureate need not be in engineering or related science).
- Education or experience that is job related may be substituted on a case basis. The degree may fulfill 3 of the 4 years of nuclear experience on a one-for-one time basis.
- Full-time related academic training (for example, degree programs, trade schools, vocational programs, etc.) may be substituted on a one-for-one basis for 2 of the 3 years nuclear experience.
- Instructional Analysts/Developers should have a baccalaureate degree in Training or Education. The Instructional Analyst/Developer must have courses in education or training that focus on instructional analysis, design, development, delivery and testing, as well as evaluation of training programs, if not included in the baccalaureate course material.
- Experience consistent with the material being presented.
- Instructors who are responsible for instruction on subjects such as TSRs must have successfully completed training on facility operating characteristics and principles, and operating limits (Safety Limits, Limiting Control Settings, and Limiting Conditions for Operation) and their bases or have had significant involvement in writing the TSRs.
- Instructors must have demonstrated knowledge of instructional techniques through basic instructor or equivalent training or experience approved by the training manager. Instructors must have knowledge and/or expertise for the material being presented.
- Managers must receive facility-specific training based upon a comparison of the individual's background and abilities with the responsibilities and duties of the position.

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Table B-2. Education and experience requirements for NRAD (Category B reactor).

[O 426.2, Chapter II, Section 2, Table 3]

| Position | Education (Degree) | Experience | | Special Requirements |
|---|-----------------------|----------------|------------------------|-------------------------|
| | | Job Related | Nuclear | |
| Managers | BS ¹ | — ⁸ | 6 years ^{2,3} | — |
| Supervisors | HS | — | 3 years ^{3,9} | SRO |
| Senior Reactor Operator (RSs)/SRO | HS | — | 3 years ³ | SRO |
| Reactor Operator (RO) | HS | — | — | RO |
| Technicians | — | 1 year | — | — |
| Maintenance Personnel | — | 1 year | — | — |
| Technical Support Personnel | BS | 2 years | 1 year | — |
| Instructional Analyst/Developer (Instructional Specialist) | BA ⁴ | 2 years | — | — |
| Training Instructors | HS | — ⁵ | — | — ^{6,7} |

Notes:

- The training manager must have a baccalaureate degree. The training manager must have courses in education or training that focus on instructional analysis, design, development, delivery and testing as well as evaluation of training programs if not included in the baccalaureate course material (baccalaureate need not be in engineering or related science).
- Education or experience that is job related may be substituted on a case basis. The degree may fulfill 4 of the 6 years of nuclear experience on a one-for-one time basis.
- Experience acquired at nuclear power, test, research, or production reactors or a critical facility counts on a one-for-one time basis.
- Instructional Analysts/Developers should have a baccalaureate degree in Training or Education. The Instructional Analyst/Developer must have courses in education or training that focus on instructional analysis, design, development, delivery and testing, as well as evaluation of training programs, if not included in the baccalaureate course material.
- Experience consistent with the material being presented.
- Instructors who are responsible for instruction of subjects such as TSRs, reactor operating principles and characteristics, and control manipulations must have received senior reactor operator (or equivalent) training.
- Instructors must have demonstrated knowledge of instructional techniques through training or experience and be qualified by the training manager (or equivalent) for the material being presented.
- Managers must receive some facility specific training based upon a comparison of the individual's background and abilities within the responsibilities and duties of the position.
- Full time academic training may be substituted on a one for one basis for 2 of the 3 years of required nuclear experience.

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Table B-3. Examples of documentation satisfying education and experience requirements.

| | | |
|-------------------|------------------------------------|--|
| Education | Degree(s) | <ul style="list-style-type: none"> • Transcript • Copy of diploma |
| | Specialized training | <ul style="list-style-type: none"> • Copy of certificate of completion • Company training records • Military training records • Transcript |
| | Professional license/certification | <ul style="list-style-type: none"> • Copy of license or certificate • Official letter of award |
| Experience | Experience | <ul style="list-style-type: none"> • Position description • Training records associated with position • Personnel record of job assignments • Documentation of previous employment • Military records |
| | Quality of job performance | <ul style="list-style-type: none"> • Copy of performance review • Copy of award or other recognition |

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Table B-4. DOE O 426.2 positions and equivalent MFC positions.

| DOE O 426.2 Positions | Equivalent MFC Positions |
|-------------------------|--|
| Managers | Maintenance Manager Engineering Manager ES&H Manager Reactor Manager Radiological Controls Manager Training Manager Quality Assurance Manager |
| Operations Management | Nuclear Facility Manager Operations Manager |
| Supervisors | Shift Supervisor Fissile Material Handler Supervisor Maintenance Foremen/Lead HPT Supervisor Foreman AFCI Glovebox Supervisor (FMF) |
| Senior Reactor Operator | NRAD Senior Reactor Operator |
| Reactor Operator | NRAD Reactor Operator |
| Operators | Analytical Laboratory Nuclear Facility Operator ¹ Qualified Fissile Material Handler |
| | FCF/TREAT Warehouse Fissile Material Handler Facility Systems Operator Process Operator Process Prep Operator Basic Facility Operator Cell Support Operator RSWF Operator |
| | FMF Fissile Material Handler Process Equipment Operator AFCI Glovebox Operator Internal AFCI Glovebox Operator External Facility Operator |
| | HFEF Fissile Material Handler General Area Operator Nuclear Facility Operator ¹ Nuclear Process Operator |
| | NRAD Neutron Generator Operator Fissile Material Handler |

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| DOE O 426.2 Positions | Equivalent MFC Positions |
|---------------------------------|--|
| | SSPSF Fissile Material Handler General Area Operator Facility Operator Process Equipment Operator |
| | TREAT Fissile Material Handler Nuclear Facility Operator ¹ |
| | MSCF Limited Fissile Material Handler Fissile Material Handler Facility Operator |
| | IMCL Nuclear Facility Operator Fissionable Material Handler |
| | Operations Specialist |
| Technicians | Lab Technician HPT Quality Inspector AL Worker |
| Maintenance Personnel | Electrician Mechanic HVAC/Refrigeration Technician Instrument and Control Technician Manipulator Repair Technician HEO/EO |
| Technical Support Personnel | Technical Staff to include: Criticality Safety Engineer Criticality Safety Officer Facility Engineer Fire Protection Engineer Process Engineer Quality Engineer Radiological Engineer Safety Analyst Software Engineer Staff Specialist System Engineer Industrial Safety Engineer Industrial Hygienist |
| Instructional Analyst/Developer | Instructional Specialist |
| Training Instructor | Training Instructor OJT Instructor |

1. Nuclear Facility Operator is a general title used to describe operators who hold one or many facility specific operator qualifications.

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Appendix C

MFC General Qualification Requirements

1. MFC MANAGERS (WHO SUPPORT NUCLEAR FACILITIES)

1.1 Initial Qualification Prerequisite

Meet the entry-level education and experience requirements for the position prior to qualification.

1.2 Initial Qualification Requirements

- Appointment Letter to the position by the Laboratory and Hot Cells Services Director which documents any facility-specific training requirements and/or other required training
- 00INL896, Supervisory Skills training
- Completion of the Nuclear Support Manager qualification checklist
- Approval of qualification by the Laboratory and Hot Cells Services Director.

1.3 Continuing Training Requirement

As defined within the employee's Individual Training Plan.

2. MFC NUCLEAR FACILITY MANAGERS

2.1 Initial Qualification Prerequisite

Meet the entry-level education and experience requirements for the position prior to qualification.

2.2 Initial Qualification Requirements

- Appointment to the position by the Laboratory and Hot Cells Services Director
- Completion of INL Nuclear Facility Manager (NFM) Qualification Checklist (Form 361.A01)
- 00INL896 Supervisory Skills training
- Approval of qualification by the Laboratory and Hot Cells Services Director.

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2.3 Continuing Training Requirement

As defined within the employee's Individual Training Plan.

3. MFC TECHNICAL STAFF

3.1 Initial Qualification Prerequisite

Meet the entry-level education and experience requirements for the position prior to qualification.

3.2 Initial Qualification Requirements

- Completion of any Laboratory-level discipline training
- Completion of the applicable technical staff qualification checklist(s)
- Approval of qualification by the appropriate Technical Staff Manager.

3.3 Continuing Training Requirements

- Attend applicable continuing training
- Satisfactory job performance, as documented in performance appraisals
- Completion of requalification requirements is documented by signature of the individual's manager.

4. MFC MAINTENANCE PERSONNEL

4.1 Initial Qualification Prerequisite

Meet the entry-level education and experience requirements for the position prior to qualification.

4.2 Initial Qualification Requirements

- Complete applicable safety-related systems training
- Complete any required company training
- Completion of the applicable qualification checklist(s)
- Approval of qualification by the MFC Nuclear Maintenance Manager.

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4.3 Continuing Training Requirements

- Specified continuing training
- Satisfactory job performance, as documented in performance appraisals
- Completion of requalification requirements is documented by signature of the individual's manager.

5. HEALTH PHYSICS TECHNICIAN/HEALTH PHYSICS TECHNICIAN SUPERVISOR

5.1 Initial Qualification Prerequisite

Meet the entry-level education and experience requirements for the position prior to qualification.

5.2 Initial Qualification Requirements

- Complete training as described in PDD-1073, "Radiological Control Training and Qualification Program"
- 00INL896, INL Supervisor Skills (HPT Supervisor only).

5.3 Continuing Training Requirements

- Complete continuing training in accordance with PDD-1073
- Approval of requalification by the MFC Radiological Control Manager.

6. MFC TRAINING INSTRUCTOR

6.1 Initial Qualification Prerequisite

Meet the entry-level education and experience requirements for the position prior to qualification.

6.2 Initial Qualification Requirements

- Completion of initial instructor training program in accordance with Manual 12
- Approval of qualification by MFC Training Manager.

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6.3 Continuing Training Requirements

- Participation in the continuing instructor training program
- Biennial evaluation of trainer in a setting in which they perform instruction
- Documentation of required in-plant time in accordance with LWP-12029, “Training Staff Qualification”
- Biennial review and approval of qualification by the MFC Training Manager.

7. MFC INSTRUCTIONAL SPECIALIST

7.1 Initial Qualification Prerequisite

Meet the entry-level education and experience requirements for the position prior to qualification. *(Note: Job related experience requirements for NRAD requires 2 years of experience versus 1 year for all other MFC nuclear facilities.)*

7.2 Initial Qualification Requirements

- Complete initial instructor training program in accordance with Manual 12
- Complete Instructional Specialist initial training in accordance with Manual 12.
- Approval of qualification by MFC Training Manager.

7.3 Continuing Training Requirements

- Participation in the continuing instructor training program
- Biennial review and approval of qualification by the MFC Training Manager.

8. MFC MAINTENANCE FOREMAN/LEADMAN

8.1 Initial Qualification Prerequisite

Meet the entry-level education and experience requirements for the position prior to qualification.

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8.2 Initial Qualification Requirements

- 00INL896, Supervisory Skills training
- Complete applicable safety-related systems training
- Complete any required company training
- Completion of the applicable qualification checklist(s)
- Approval of qualification by the MFC Nuclear Maintenance Manager.

8.3 Continuing Training Requirements

- Mandatory continuing training sessions (approved by the manager)
- Periodic written examinations or evaluations
- Requalification will be automatically granted in TRAIN following completion of scheduled continuing training and a lack of negative feedback on the individual's job performance.

9. MFC OPERATIONS SPECIALIST

9.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1).

9.2 Initial Qualification Requirements

- Completion of the applicable qualification checklist
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by each MFC NFM (required for each building in which the Operations Supervisor will operate).

9.3 Continuing Training Requirements

- Specified continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of requalification by each MFC NFM (required for each building in which the Operations Supervisor will operate).

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Appendix D

AL Qualification Requirements

1. QUALIFIED FISSIONABLE MATERIAL HANDLER

1.1 Initial Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1).

1.2 Initial Qualification Requirements

- Criticality theory (course 00INL189, INL Criticality Safety Principles)
- QFMH qualification checklist
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 1)
- Approval of qualification by the AL Operations Manager.

1.3 Annual Continuing Training Requirements

- Applicable continuing training

1.4 Biennial Continuing Training Requirements

- Criticality theory (course 00INL189, INL Criticality Safety Principles)
- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the AL Operations Manager.

2. LABORATORY TECHNICIAN

2.1 Initial Qualification Prerequisite

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1).

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2.2 Initial Qualification Requirements

- Applicable qualification checklist
- Approval of qualification by the AL Operations Manager.

2.3 Annual Continuing Training Requirements

None.

2.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Satisfactory job performance, as documented in performance appraisals
- Requalification will be automatically granted in TRAIN following completion of scheduled continuing training and a lack of negative feedback on the individual's job performance.

3. NUCLEAR FACILITY OPERATOR/FACILITY OPERATOR

3.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- MFC BOQ qualification.

3.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 1)
- Approval of qualification by the AL Operations Manager.

3.3 Annual Continuing Training Requirement

- Applicable continuing training.

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3.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 1)
- Approval of qualification by the AL Operations Manager.

4. SHIFT SUPERVISOR

4.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- AL NFO qualification and QFMH qualification.
- MFC NT Supervisor Core – QNMFCNTS.

4.2 Initial Qualification Requirements

- SS qualification checklist
- 00INL896, INL Supervisor Skills
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 1)
- Approval of qualification by the AL Operations Manager.

4.3 Annual Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position)

4.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination

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- Performance Demonstration/Walkthrough (see Note No. 1)
- Approval of qualification by the AL Operations Manager.

Note No. 1: At MFC, the Performance Demonstration is normally conducted as a walkthrough. However, the AL Operations Manager may stipulate that a separate oral examination/board be conducted in addition to the Performance Demonstration/Walkthrough for initial qualification or requalification. The walkthrough examination contains performance demonstration elements.

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Appendix E

FCF/TREAT Warehouse Qualification/Certification Requirements

1. FISSIONABLE MATERIAL HANDLER (FMH)

1.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- MFC BOQ qualification.

1.2 Initial Certification Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- FMH qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the FCF Operations Manager.

1.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

1.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements

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- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the FCF Operations Manager.

2. FISSIONABLE MATERIAL HANDLER SUPERVISOR (FMHS)

2.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- FMH certification.

2.2 Initial Certification Requirements

- Medical examination
- Supervisory skills training
- 00INL189, INL Criticality Safety Principles
- FMHS qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

2.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

2.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises

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- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

3. BASIC FACILITY OPERATOR

3.1 Initial Qualification Prerequisites

- Meet the entry level education and experience requirements for the position prior to qualification (see Appendix B, Table B 1)
- MFC BOQ qualification
- FMH certification (not required for RSWF).

3.2 Initial Qualification Requirements

- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FCF Operations Manager.

3.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises.

3.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FCF Operations Manager.

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4. FACILITY SYSTEMS OPERATOR, PROCESS OPERATOR, PROCESS PREP OPERATOR, CELL SUPPORT OPERATOR, AND RSWF OPERATOR

4.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- MFC BOQ qualification
- BFO qualification and FMH certification (not required for RSWF).

4.2 Initial Qualification Requirements

- Applicable qualification checklist (for RSWF, includes RCRA topics in accordance with PDD-162)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FCF Operations Manager.

4.3 Annual Continuing Training Requirements

- Applicable continuing training (for RSWF, includes RCRA topics in accordance with PDD-162)
- Applicable drills and/or exercises.

4.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FCF Operations Manager.

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5. FOREMAN - PROCESS/FACILITY

5.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- Applicable qualification (PO, PPO (Process) or FSO, CSO (Facility))
- MFC NT Supervisor Core – ONMFCTS
- FMH/FMHS certification.

5.2 Initial Qualification Requirements

- Applicable qualification checklist
- Supervisory skills training
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the FCF Operations Manager.

5.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned to a foreman position).

5.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned to a foreman position)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FCF Operations Manager.

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6. SHIFT SUPERVISOR

6.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- MFC NT Supervisor Core – ONMFCTS.

6.2 Initial Qualification Requirements

- Applicable qualification checklist
- 00INL896, INL Supervisor Skills
- FMH/FMHS certification
- Comprehensive written examination
- Performance Demonstration/Walkthrough (See Note #2)
- Approval of qualification by the FCF Operations Manager.

6.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned to a supervisor position).

6.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned to a supervisor position)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FCF Operations Manager.

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7. FCF TSD (RCRA) FACILITY OPERATOR (SSB AND SCMS)

7.1 Initial Qualification Prerequisite

MFC BOQ qualification.

7.2 Initial Qualification Requirements

- Applicable qualification checklist (includes RCRA topics in accordance with PDD-162)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the Facility Manager.

7.3 Annual Continuing Training Requirement

Applicable continuing training (includes RCRA topics in accordance with PDD-162).

7.4 Biennial Continuing Training Requirements

- Performance Demonstration/Walkthrough
- Approval of qualification by the Facility Manager.

8. FCF RCRA FACILITY SHIFT SUPERVISOR

8.1 Initial Qualification Prerequisite

- Radiological Facility Operator (RFO) trained, RSWF NFO
- MFC NT Supervisor Core – QNMFCNTS.

8.2 Initial Qualification Requirements

- Applicable qualification checklist (includes RCRA topics in accordance with PDD-162)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the Facility Manager.

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8.3 Annual Continuing Training Requirement

- Applicable continuing training (includes RCRA topics in accordance with PDD-162).

8.4 Biennial Continuing Training Requirements

- Performance Demonstration/Walkthrough
- Approval of qualification by the Facility Manager.

Note No. 1: The Order requires that a comprehensive written, oral examination/oral board and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the FCF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

Note No. 2: The FCF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS/Foreman qualification.

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Appendix F

FMF Qualification/Certification Requirements

1. FMF FISSIONABLE MATERIAL HANDLER (FMH)

1.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- MFC BOQ qualification.

1.2 Initial Certification Requirements

- Medical examination
- Criticality theory (course 00INL189)
- FMH qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the FMF Manager.

1.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

1.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training

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- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the FMF Manager.

2. FISSIONABLE MATERIAL HANDLER SUPERVISOR (FMHS)

2.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- FMH certification.

2.2 Initial Certification Requirements

- Medical examination
- 00INL896, INL Supervisor Skills
- 00INL189, INL Criticality Safety Principles
- FMHS qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

2.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises

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- Proficiency requirements
- Abnormal and emergency written examination.

2.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

3. PROCESS EQUIPMENT OPERATOR, ADVANCED FUEL CYCLE INITIATIVE GLOVEBOX OPERATOR INTERNAL, ADVANCED FUEL CYCLE INITIATIVE GLOVEBOX OPERATOR EXTERNAL OR FACILITY OPERATOR

3.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- FMH certification
- MFC BOQ qualification.

3.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination

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- Performance Demonstration/Walkthrough
- Approval of qualification by the FMF Manager.

3.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises.

3.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FMF Manager.

4. ADVANCED FUEL CYCLE INITIATIVE GLOVEBOX SUPERVISOR

4.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- AFCI GB Operator qualifications
- FMH and FMHS certification.

4.2 Initial Qualification Requirements

- Applicable qualification checklist
- Supervisory skills training
- Comprehensive final written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the FMF Manager.

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4.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned a supervisory position).

4.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned a supervisory position)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FMF Manager.

5. SHIFT SUPERVISOR

5.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- PEO and FO qualifications
- FMH and FMHS certification
- MFC NT Supervisor Core – QNMFCNTS.

5.2 Initial Qualification Requirements

- Applicable qualification checklist
- 00INL896, INL Supervisor Skills
- Comprehensive final written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the FMF Manager.

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5.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned a supervisory position).

5.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned a supervisory position)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the FMF Manager.

Note No. 1: The Order requires that a comprehensive written, oral examination/oral board, and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the FMF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

Note No. 2: The FMF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS/AFCI GB Supervisor qualification.

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Appendix G

HFEF Qualification/Certification Requirements

1. FISSIONABLE MATERIAL HANDLER (FMH)

1.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)

1.2 Initial Certification Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- FMH qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the HFEF Operations Manager.

1.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

1.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises

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- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the HFEF Operations Manager.

2. FISSIONABLE MATERIAL HANDLER SUPERVISOR (FMHS)

2.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- FMH certification.

2.2 Initial Certification Requirements

- Medical examination
- 00INL896, INL Supervisor Skills
- 00INL189, INL Criticality Safety Principles
- FMHS qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Operations Manager.

2.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises

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- Proficiency requirements
- Abnormal and emergency written examination.

2.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Operations Manager.

3. GENERAL AREA OPERATOR

3.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)

3.2 Initial Qualification Co-requisites

- FMH certification
- MFC BOQ qualification.

3.3 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the HFEF Operations Manager.

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3.4 Annual Continuing Training Requirement

Applicable continuing training.

3.5 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the HFEF Operations Manager.

4. NUCLEAR FACILITY OPERATOR

4.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- FMH certification
- GAO.

4.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the HFEF Operations Manager.

4.3 Annual Continuing Training Requirement

- Applicable continuing training.

4.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the HFEF Operations Manager.

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5. NUCLEAR PROCESS OPERATOR

5.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualifications (see Appendix B, Table B-1)
- FMH Certification
- GAO is a prerequisite for any of the five process areas, CHO, MPO, PEO, RDO, and DHO.

5.2 Initial Qualification Requirements

- Process Areas shall be completed as directed by management
- Applicable qualification checklist
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approved of qualifications by the HFEF Operations Manager.

5.3 Annual Continuing Training Requirement

- Applicable continuing training.

5.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by HFEF Operations Manager.

6. FOREMAN

6.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- HFEF GAO Qualification

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- NFO training
- Training in all five process areas (CHO, PEO, MPO, RDO, DHO)
- MFC NT Supervisor Core – QNMFCNTS.

6.2 Initial Qualification Requirements

- Applicable qualification checklist
- 00INL896, INL Supervisor Skills
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the HFEF Operations Manager.

6.3 Annual Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position).

6.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the HFEF Operations Manager.

7. SHIFT SUPERVISOR

7.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- HFEF GAO Qualification

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- NFO training
- Training in all five process operator areas (CHO, PEO, MPO, RDO, DHO)
- Foreman training
- MFC NT Supervisor Core – QNMFCNTS.

7.2 Initial Qualification Requirements

- Applicable qualification checklist
- 00INL896, INL Supervisor Skills
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the HFEF Operations Manager.

7.3 Annual Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position).

7.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the HFEF Operations Manager.

Note No. 1: The Order requires that a comprehensive written, oral examination/oral board, and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

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At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the HFEF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

Note No. 2: The HFEF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS/Forman qualification.

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Appendix H

NRAD Qualification/Certification Requirements

1. NEUTRON GENERATOR OPERATOR

1.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-2)
- MFC BOQ qualification.

1.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the NRAD Reactor Manager.

1.3 Annual Continuing Training Requirement

Applicable continuing training.

1.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the NRAD Reactor Manager.

2. NEUTRON RADIOGRAPHER

2.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- MFC BOQ qualification.

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2.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the NRAD Reactor Manager.

2.3 Annual Continuing Training Requirement

- Applicable continuing training.

2.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the NRAD Reactor Manager.

3. NRAD REACTOR OPERATOR (RO) (CERTIFICATION INCLUDES FMH)

3.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- MFC BOQ qualification.

3.2 Initial Certification Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- RO qualification checklist (includes control manipulations)
- Comprehensive final written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the NRAD Reactor Manager.

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3.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Abnormal and emergency written examinations.

3.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the NRAD Reactor Manager.

4. REACTOR SUPERVISOR (CERTIFICATION INCLUDES FMHS)

4.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- RO certification.

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4.2 Initial Certification Requirements

- Medical examination
- 00INL896, INL Supervisor Skills
- 00INL189, INL Criticality Safety Principles
- RS qualification checklist (includes control manipulations)
- Comprehensive final written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Hot Cell Services Department Manager.

4.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Supervisory proficiency watch (for those not assigned a supervisory position)
- Abnormal and emergency written examinations.

4.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements

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- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Hot Cells Services Department Manager.

Note No. 1: The Order requires that a comprehensive written, oral examination/oral board, and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the NRAD Reactor Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

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Appendix I

Non Nuclear Facility Qualification Requirements

1. **RADIOLOGICAL FACILITY OPERATOR (EFF, EML, FASB, RCL, ORSA, CPP-653 and CPP-1643)**

1.1 **Initial Qualification Prerequisite**

MFC BOQ qualification.

1.2 **Initial Qualification Requirements**

- Applicable qualification checklist (for personnel assigned to EFF or ORSA, includes RCRA topics in accordance with PDD-162)
- Performance Demonstration/Walkthrough
- Approval of qualification by the Facility Manager.

1.3 **Annual Continuing Training Requirement**

Applicable continuing training per employee Individual Training Plans (for personnel assigned to EFF or ORSA, includes RCRA topics per PDD-162).

2. **RADIOLOGICAL FACILITY SHIFT SUPERVISOR**

2.1 **Initial Qualification Prerequisite**

- RFO trained
- MFC NT Supervisor Core – QNMFCNTS.

2.2 **Initial Qualification Requirements**

- Applicable qualification checklist (for personnel assigned to EFF or ORSA, includes RCRA topics in accordance with PDD-162)
- Performance Demonstration/Walkthrough
- Approval of qualification by the Facility Manager.

2.3 **Annual Continuing Training Requirement**

Applicable continuing training per employee Individual Training Plans (for personnel assigned to EFF or ORSA, includes RCRA topics per PDD-162).

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Appendix J

SSPSF Qualification/Certification Requirements

1. FISSIONABLE MATERIAL HANDLER (FMH)

1.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- MFC BOQ qualification
- GAO qualification.

1.2 Initial Certification Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- FMH qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the SSPSF Manager.

1.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

1.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles

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- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the SSPSF Manager.

2. FISSIONABLE MATERIAL HANDLER SUPERVISOR (FMHS)

2.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- FMH certification.

2.2 Initial Certification Requirements

- Medical examination
- 00INL896, INL Supervisor Skills
- 00INL189, INL Criticality Safety Principles
- FMHS qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

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2.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

2.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

3. NUCLEAR FACILITY OPERATOR — GENERAL AREA OPERATOR

NOTE: *The SSPSF GAO qualification shall be completed first and is a prerequisite for all other SSPSF qualification areas.*

3.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- MFC BOQ qualification.

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3.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the SSPSF Manager.

3.3 Annual Continuing Training Requirement

- Applicable continuing training.

3.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the SSPSF Manager.

4. NUCLEAR FACILITY OPERATOR — FACILITY OPERATOR

4.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- GAO qualification.

4.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the SSPSF Manager.

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4.3 Annual Continuing Training Requirements

- Applicable continuing training
- FO watch for those not assigned to SSPSF.

4.4 Biennial Continuing Training Requirements

- Applicable continuing training
- FO watch for those not assigned to SSPSF
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the SSPSF Manager.

5. NUCLEAR FACILITY OPERATOR — PROCESS EQUIPMENT OPERATOR

5.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- GAO qualification
- FMH certification.

5.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the SSPSF Manager.

5.3 Annual Continuing Training Requirement

- Applicable continuing training.

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5.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the SSPSF Manager.

6. FOREMAN

6.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- PEO qualification
- FMHS certification (co-requisite).

6.2 Initial Qualification Requirements

- Foreman qualification checklist
- 00INL896, INL Supervisor Skills
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the SSPSF Manager.

6.3 Annual Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position).

6.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position)

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- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the SSPSF Manager.

7. SHIFT SUPERVISOR

7.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- NFO SSPSF Facility Operator qualification
- FMHS certification (co-requisite)
- MFC NT Supervisor Core – QNMFCNTS.

7.2 Initial Qualification Requirements

- SS qualification checklist
- 00INL896, INL Supervisor Skills
- Comprehensive written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the SSPSF Manager.

7.3 Annual Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position).

7.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Supervisory proficiency watch (for those not assigned a supervisory position)
- Comprehensive written examination

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- Performance Demonstration/Walkthrough
- Approval of qualification by the SSPSF Manager.

Note No. 1: The Order requires that a comprehensive written, oral examination/oral board, and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the SSPSF Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

Note No. 2: The SSPSF Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial CS/SS qualification.

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Appendix K

TREAT Qualification/Certification Requirements

1. FISSIONABLE MATERIAL HANDLER (FMH)

1.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- MFC BOQ qualification.

1.2 Initial Certification Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- FMH qualification checklist (including control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the TREAT Facility Manager.

1.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

1.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training

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- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the TREAT Facility Manager.

2. FISSIONABLE MATERIAL HANDLER SUPERVISOR (FMHS)

2.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- FMH certification.

2.2 Initial Certification Requirements

- Medical examination
- 00INL896, INL Supervisor Skills
- 00INL189, INL Criticality Safety Principles
- FMHS qualification checklist (including control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

2.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises

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- Proficiency requirements
- Abnormal and emergency written examination.

2.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

3. NUCLEAR FACILITY OPERATOR

3.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- FMH certification.

3.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the TREAT Facility Manager.

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3.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises.

3.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the TREAT Facility Manager.

4. SHIFT SUPERVISOR

4.1 Initial Qualification Prerequisites

- Meet the entry level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- NFO qualification
- FMHS certification
- MFC NT Supervisor Core – QNMFCNTS.

4.2 Initial Qualification Requirements

- SS qualification checklist
- 00INL896, INL Supervisor Skills
- Comprehensive final written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the TREAT Facility Manager.

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4.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned a supervisory position).

4.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned a supervisory position)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the TREAT Facility Manager.

Note No. 1: The Order requires that a comprehensive written, oral examination/oral board, and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the TREAT Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

Note No. 2: The TREAT Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification.

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Appendix L

ZPPR Qualification/Certification Requirements

1. ZPPR FISSIONABLE MATERIAL HANDLER (FMH)

1.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- MFC BOQ qualification.

1.2 Initial Certification Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- FMH qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the ZPPR Manager.

1.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

1.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises

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- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the ZPPR Manager.

2. FISSIONABLE MATERIAL HANDLER SUPERVISOR (FMHS)

2.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- FMH certification.

2.2 Initial Certification Requirements

- Medical examination
- 00INL896, INL Supervisor Skills
- 00INL189, INL Criticality Safety Principles
- FMHS qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

2.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

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2.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Department Manager.

3. NUCLEAR FACILITY OPERATOR

3.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- FMH certification
- MFC BOQ qualification.

3.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the ZPPR Manager.

3.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises.

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3.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the ZPPR Manager.

4. SHIFT SUPERVISOR

4.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- NFO qualification
- FMHS certification
- MFC NT Supervisor Core – QNMFCNTS.

4.2 Initial Qualification Requirements

- Applicable qualification checklist
- 00INL896, INL Supervisor Skills
- Comprehensive final written examination
- Performance Demonstration/Walkthrough (see Note No. 2)
- Approval of qualification by the ZPPR Manager.

4.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned a supervisory position).

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4.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Supervisory proficiency watch (for those not assigned a supervisory position)
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the ZPPR Manager.

Note No. 1: The Order requires that a comprehensive written, oral examination/oral board, and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the ZPPR Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

Note No. 2: The ZPPR Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification.

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Appendix M

Material Security and Consolidation Facility – CPP-651 Qualification Requirements

1. MSCF NUCLEAR FACILITY OPERATOR

1.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B-1)
- MFC BOQ qualification.

1.2 Initial Qualification Requirement

- MSCF Nuclear Facility Operator qualification checklist
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the MSCF Manager.

1.3 Annual Continuing Training Requirement

- Applicable continuing training

1.4 Biennial Continuing Training Requirement

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the MSCF Manager.

2. LIMITED FISSIONABLE MATERIAL HANDLER

2.1 Initial Certification Prerequisites

- Meet the entry level education and experience requirements for the position prior to certification (see Appendix B, Table B 1)
- Current FMH certification from another MFC facility

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2.2 Initial Certification Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Limited FMH qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the MSCF Manager.

2.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

2.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the MSCF Manager.

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3. FISSIONABLE MATERIAL HANDLER (FMH)**3.1 Initial Certification Prerequisites**

- Meet the entry level education and experience requirements for the position prior to certification (see Appendix B, Table B 1)

3.2 Initial Certification Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- FMH qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the MSCF Manager.

3.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

3.4 Biennial Continuing Training Requirements

- Medical examination
- 00INL189, INL Criticality Safety Principles
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements

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- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the MSCF Manager.

4. FISSIONABLE MATERIAL HANDLER SUPERVISOR

4.1 Initial Qualification Prerequisite

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B-1)
- FMH certification.

4.2 Initial Qualification Requirements

- Medical examination
- FMHS qualification checklist (includes control manipulations)
- 00INL896, INL Supervisory Skills
- 00INL189, INL Criticality Safety Principles
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of qualification by the MSCF Manager.

4.3 Annual Continuing Training Requirement

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

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4.4 Biennial Continuing Training Requirement

- Medical examination
- Applicable continuing training
- 00INL189, INL Criticality Safety Principles
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of qualification by the MSCF Manager.

5. SHIFT SUPERVISOR

5.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B 1)
- MSCF Nuclear Facility Technician Qualification Checklist
- MFC NT Supervisor Core – QNMFCNTS.

5.2 Initial Qualification Requirement

- MSCF Shift Supervisor qualification checklist
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the MSCF Manager.

5.3 Annual Continuing Training Requirement

- Applicable continuing training.

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5.4 Biennial Continuing Training Requirement

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the MSCF Manager

Note No. 1: The Order requires that a comprehensive written, oral examination/oral board, and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the MSCF Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

Note No. 2: The MSCF Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification.

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Appendix N

Irradiated Materials Characterization Laboratory (IMCL) Qualification/Certification Requirements

1. LABORATORY TECHNICIAN

1.1 Initial Qualification Prerequisite

Meet the entry level education and experience requirements for the position prior to qualification (see Appendix B, Table B 1).

1.2 Initial Qualification Requirements

- Applicable qualification checklist
- Approval of qualification by the IMCL Operations Manager.

1.3 Annual Continuing Training Requirements

None.

1.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Satisfactory job performance, as documented in performance appraisals
- Requalification will be automatically granted in TRAIN following completion of scheduled continuing training and a lack of negative feedback on the individual's job performance.

2. FISSIONABLE MATERIAL HANDLER (FMH)

2.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B 1)

2.2 Initial Certification Requirements

- Medical examination
- Criticality theory (course 00INL189)
- FMH qualification checklist (includes control manipulations)

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- Comprehensive written examination
- Oral examination/board (see Note No. 1 at the end of this section)
- Operational evaluation (see Note No. 1)
- Approval of certification by the IMCL Operations Manager.

2.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

2.4 Biennial Continuing Training Requirements

- Medical examination
- Criticality theory (course 00INL189)
- Applicable continuing training
- Applicable drills and/or exercises
- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the IMCL Operations Manager.

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3. FISSIONABLE MATERIAL HANDLER SUPERVISOR (FMHS)

3.1 Initial Certification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B 1)
- FMH certification.

3.2 Initial Certification Requirements

- Medical examination
- 00INL896, INL Supervisory Skills
- 00INL189, INL Criticality Safety Principles
- FMHS qualification checklist (includes control manipulations)
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Nuclear Facility Manager.

3.3 Annual Continuing Training Requirements

- Applicable continuing training
- Applicable drills and/or exercises
- Proficiency requirements
- Abnormal and emergency written examination.

3.4 Biennial Continuing Training Requirements

- Medical examination
- Criticality theory (course 00INL189)
- Applicable continuing training
- Applicable drills and/or exercises

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- Control manipulations
- Proficiency requirements
- Comprehensive written examination
- Oral examination/board (see Note No. 1)
- Operational evaluation (see Note No. 1)
- Approval of certification by the Nuclear Facility Manager.

4. NUCLEAR FACILITY OPERATOR

4.1 Initial Qualification Prerequisites

- Meet the entry-level education and experience requirements for the position prior to qualification (see Appendix B, Table B 1)
- FMH certification
- MFC BOQ qualification.

4.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the IMCL Operations Manager.

4.3 Annual Continuing Training Requirements

- Applicable continuing training.

4.4 Biennial Continuing Training Requirements

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the IMCL Operations Manager.

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5. SHIFT SUPERVISOR

5.1 Initial Qualification Prerequisite

- Meet the entry-level education and experience requirements for the position prior to certification (see Appendix B, Table B 1)
- NFO qualification
- FMHS certification
- MFC NT Supervisor Core – QNMFCNTS.

5.2 Initial Qualification Requirements

- Applicable qualification checklist
- Comprehensive final written examination
- Performance Demonstration/Walkthrough (See Note #2)
- Approval of qualification by the IMCL Operations Manager.

5.3 Annual Continuing Training Requirement

- Applicable continuing training.

5.4 Biennial Continuing Training Requirement

- Applicable continuing training
- Comprehensive written examination
- Performance Demonstration/Walkthrough
- Approval of qualification by the IMCL Operations Manager.

Note 1: The Order requires that a comprehensive written, oral examination/oral board, and operational evaluation must be administered for certification/recertification. The Order also allows the operational evaluation and oral examination to be combined as a walkthrough at Hazard Category 2 and 3 nuclear facilities (Category B reactors and non-reactor nuclear facilities).

At MFC, the operational evaluations and oral examinations are normally combined as a walkthrough. However, the IMCL Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the operational evaluation for initial certification or recertification.

Note 2: The IMCL Facility Manager may stipulate that a separate oral examination/board be conducted in addition to the performance demonstration/walkthrough for initial SS qualification.

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Appendix O

Acronyms

| | |
|--------|---|
| AFCI | Advanced Fuel Cycle Initiative |
| ALARA | as low as reasonably achievable |
| BFO | Basic Facility Operator |
| CCR | competence commensurate with responsibility |
| CESB | Contaminated Equipment Storage Building |
| CHEA | Council for Higher Education Accreditation |
| CHO | Cask Handling Operator |
| DHO | Drum Handling Operator |
| DOE-ID | DOE Idaho Operations Office |
| DSA | Documented Safety Analysis |
| EIT | Engineer in Training |
| EPD | Employee Position Description |
| FCF | Fuel Conditioning Facility |
| FMF | Fuel Manufacturing Facility |
| FMH | Fissionable Material Handler |
| FMHS | Fissionable Material Handler Supervisor |
| FO | Facility Operator |
| GAO | General Area Operator |
| GB | Glovebox |
| GED | General Education Development |
| GERT | General Employee Radiological Training |
| GET | General Employee Training |

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- HFEF Hot Fuel Examination Facility
- HPT Health Physics Technician
- HVAC heating, ventilation, and air conditioning
- IMCL Irradiated Materials Characterization Laboratory
- INTEC Idaho Nuclear Technology and Engineering Center
- ITP Individual Training Plans
- MFC Materials and Fuels Complex
- MPO Metallographic/Photographic Operator
- MSCC Material Security and Consolidation Complex
- MSCF Material Security and Consolidation Facility
- NDE nondestructive evaluation
- NFM Nuclear Facility Manager
- NFO Nuclear Facility Operator
- NGO Neutron Generator Operator
- NR Neutron Radiographer
- NRAD Neutron Radiography Reactor
- NRT Neutron Radiographer Technician
- OJT on-the-job training
- OMP Occupational Medical Program
- PDD Program Description Document
- PEO Process Equipment Operator
- PO Process Operator
- PPO Process Preparation Operator
- PRA Probabilistic Risk Assessment

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|-------|---|
| QA | quality assurance |
| QFMH | Qualified Fissionable Material Handler |
| RDO | Post-Irradiated Equipment Operator |
| RFO | Radiological Facility Operator |
| RO | Reactor Operator |
| RPS | radioisotope-power-system |
| RS | Reactor Supervisor |
| RSWF | Radioactive Scrap and Waste Facility |
| SAT | systematic approach to training |
| SME | subject-matter expert |
| SNM | special nuclear material |
| SRO | Senior Reactor Operator |
| SS | Shift Supervisor |
| SSPSF | Space and Security Power Systems Facility |
| TIM | Training Implementation Matrix |
| TSD | treatment, storage, and/or disposal |
| TSDF | Treatment, Storage, and Disposal Facility |
| TSR | Technical Safety Requirement |
| USDOE | United States Department of Education |
| ZPPR | Zero Power Physics Reactor |