

CHAPTER 13: CONDUCT OF OPERATIONS

This chapter describes the framework within which Fermi 2 will be operated. It summarizes the organizational structure, the training program, review and audit procedures, plant procedures, plant records, and industrial security.

13.1 ORGANIZATIONAL STRUCTURE

The DTE Electric Company (DTE) is providing the operational organization for operating Fermi 2. This chapter describes the DTE organization as it pertains to testing and operation of the plant.

DTE Energy is an investor-owned public utility, incorporated and engaged in the generation, transmission, and sale of electrical energy in the State of Michigan.

DTE has had considerable experience in designing, constructing, and operating fossil-fueled facilities for generating electricity. Normally, the design engineering effort and the construction management for such facilities have been performed by DTE personnel with the assistance of design and construction contractors. Such contractors are guided and directed in their work by the responsible divisions that report through the DTE Corporate Organization. The corporate functions, responsibilities, and authorities related to Fermi 2 are described in this section. Figures 13.1-1 through 13.1-4 show the Corporate Organization; the Nuclear Generation Organization; and the Director – Nuclear Production's Organization, including the Operations organization.

NOTE: The titles of Plant Manager and Director – Nuclear Production have the same functional responsibility.

NOTE: When a position is not filled, reporting order will be to the next higher position.

13.1.1 Corporate Organization

See Figure 13.1-1 for reporting relationship.

13.1.1.1 Executive Board Chairman - DTE Energy

The Executive Board Chairman is subject to the control of the Board of Directors. DTE Electric Company is a wholly owned subsidiary of DTE Energy. The President and Chief Operating Officer, DTE Energy reports to the Executive Board Chairman, DTE Energy.

13.1.1.2 President and Chief Operating Officer – DTE Energy

The President and Chief Operating Officer, DTE Energy reports to the Executive Board Chairman, DTE Energy. This individual has responsibility for the company's DTE Electric subsidiary and other DTE Energy subsidiaries.

13.1.1.3 Senior Vice President and Chief Nuclear Officer (CNO)

The Senior Vice President and Chief Nuclear Officer reports to the President and Chief Operating Officer, DTE Energy. This individual has responsibility for the overall administration of DTE nuclear power. The CNO is the ultimate management authority for establishing QA policy and responsibility for the Quality Assurance function. Reporting to the CNO are the Manager – Nuclear Quality Assurance, the Director – Nuclear Support, the Director – Site Operations, the Site Vice-President – Nuclear Generation, and the Nuclear Safety Review Group (NSRG) Chairman.

13.1.1.3.1 Manager – Nuclear Quality Assurance

The responsibilities of the Manager – Nuclear Quality Assurance are discussed in Section 17.2.

13.1.1.3.2 Corporate Support

Corporate Support groups provide several functions to DTE nuclear organizations such as Information Technology Services, Supply Chain, Major Enterprise Projects (MEP), Human Resources, Communications and Controller Services.

Supply Chain supports procurement, warehouse and facilities and has a functional relationship to the Director – Nuclear Production. Information Technology Services and Controller Services have functional relationships to the Director – Nuclear Support. MEP has a functional relationship to the Senior Vice President and CNO for the development, management and execution of major projects. In that capacity, MEP performs these activities under delegation from the Manager – PSE who has the overall responsibility for modifications of the plant structures, systems and components as described in Subsection 13.1.2.3.2.

When corporate support groups perform quality-related activities for Fermi 2, such activities are performed under the Fermi 2 Quality Assurance Program.

13.1.1.3.2.1 Manager – Nuclear Projects and Modifications

The Manager – Nuclear Projects and Modifications is part of the MEP Corporate Organization. This position may be delegated the responsibility for the project management of large plant modifications and engineering support functions associated with modifications of plant structures, systems and equipment. This responsibility includes the planning and

management of the engineering scope and specifications, detailed design, procurement, installation and testing phases of the project. In this capacity, the MEP Manager – Nuclear Projects and Modifications has the responsibility and authority to utilize DTE personnel or retain qualified contract architects/engineers or consultants to implement the design development and control procedures under the jurisdiction of the Manager – Nuclear Plant Support Engineering.

#### 13.1.1.3.3 Director – Nuclear Support

The Director – Nuclear Support is responsible for strategic planning, and business support, including information and procedure management. Reporting to the Director – Nuclear Support is the Manager – Nuclear Strategy and Business Support.

##### 13.1.1.3.3.1 Manager – Nuclear Strategy and Business Support

The Manager – Nuclear Strategy and Business Support has functional and administrative responsibilities for nuclear strategy and business support and for information and procedures management.

#### 13.1.1.4 Director – Site Operations

The Director – Site Operations may be assigned responsibility for the functional management of any number of departments, programs or major projects to ensure strategies and goals of the station Business Plan are met. The focus areas and departments are identified based on gaps in plant performance and leadership developmental needs.

#### 13.1.1.5 Site Vice President - Nuclear Generation

The Site Vice President Nuclear Generation reports to the Senior Vice President and Chief Nuclear Officer and also has access to the President and Chief Operating Officer, DTE Energy for the reporting of nuclear safety problems. This individual has responsibility for the administration of the Fermi 2 plant, overall plant safety including operation, maintenance, modification, training, security, outage management, engineering and the fire protection program. This individual shall issue, on an annual basis, a management directive to all station personnel that specifies the Shift Manager (or a designated individual during the Shift Manager absence from the control room) as having control room command function. Refer to section 13.1.2 for the detailed description of the Nuclear Generation Organization.

#### 13.1.2 Nuclear Generation

Nuclear Generation refers collectively to all organizations reporting to the Site Vice President - Nuclear Generation. See Figure 13.1-2.

Reporting to the Site Vice President - Nuclear Generation are the Director – Organizational Effectiveness, Director – Nuclear Production, Director – Nuclear Work Management, Director – Nuclear Engineering and Manager – Nuclear Security.

13.1.2.1 Manager - Nuclear Security

The Manager - Nuclear Security is responsible for the physical security of DTE nuclear power plants and the facilities, material, equipment, and construction associated with them. The physical security responsibility includes developing and implementing the Physical Security Plan, the Safeguards Contingency Plan, the Security Personnel Training and Qualifications Plan, the Safeguards Information Protection Program, and security policy; conducting personnel screening for all personnel requiring unescorted access into the protected area; and implementing the access authorization and fitness for duty programs. The Manager - Nuclear Security also conducts investigations or initiates investigations of attempts to breach nuclear security, whether committed by a person employed at Fermi or a member of the public.

13.1.2.2 Director - Nuclear Production

The Director - Nuclear Production is responsible for the operation, maintenance, radiation protection, chemistry, plant administration and implementation of the fire protection program of Fermi 2. The Director - Nuclear Production shall delegate in writing the succession to this responsibility during any absence.

Reporting to the Director - Nuclear Production are the Assistant Plant Manager, the Manager – Nuclear Operations, the Manager – Nuclear Maintenance, the Manager - Radiation Protection, and the Manager – Chemistry. The Radiation Protection Manager reports directly to the Director - Nuclear Production regarding radiological control.

Figures 13.1-3 and 13.1-4 are the organization charts for the sections reporting to the Director - Nuclear Production; each classification in the figures represents a job position for one or more individuals. The functions, responsibilities, and authorities of plant personnel are described below.

13.1.2.2.1 Manager – Nuclear Operations

The Operations Section is responsible for the operation of plant equipment and systems, and implementation of the fire protection program. The Manager – Nuclear Operations is responsible for the activities of this section.

The Manager – Nuclear Operations exercises overall managerial and supervisory responsibility for the startup testing and safe, reliable, and efficient operation of the plant and all associated equipment. It is the Manager's responsibility to have a staff of trained and properly licensed personnel to accomplish the various plant responsibilities and to ensure that qualified personnel are available to fill the plant complement positions. Prior to operation, the Manager – Nuclear Operations was responsible for the Fermi 2 startup and testing activities. The Operations Section is shown in Figure 13.1-4.

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All operations, testing, or maintenance work must be approved either by the Manager or by an assigned delegate, as established in procedures.

In the absence of the Manager, the succession to the Manager's responsibilities is documented in the form of organizational charts, functional descriptions, job descriptions for key personnel or in equivalent forms of documentation.

Reporting to the Manager are the Operations Engineer and other support personnel as necessary. The Manager – Nuclear Operations may also assume the functions and responsibilities of the Operations Engineer. When assuming these responsibilities, the Manager – Nuclear Operations shall hold a senior reactor operator's license. The Operations Engineer is responsible for the overall operation of the plant equipment and systems. The Operations Engineer shall have a senior reactor operator's (SRO) license. As designated in procedures, the Operations Engineer or a delegate approves written work requests for equipment operation, maintenance, or tests. During the Operations Engineer's absence, a licensed SRO may be appointed to assume the duties and responsibilities of that position. Reporting to the Operations Engineer are the Shift Manager(s) and shift organization, including fire protection personnel.

The Shift Manager(s) is responsible for and exercises supervisory control over the operating personnel on shift. The Shift Manager is responsible for the overall operation of the plant during the absence of the Manager – Nuclear Operations, and the Operations Engineer. Each Shift Manager shall have an SRO license. Reporting to the Shift Manager is the Control Room Supervisor and Shift Technical Advisors.

The Control Room Supervisor assists the Shift Manager in duties as directed. Each Control Room Supervisor shall have an SRO license. Reporting to the Control Room Supervisor are the Nuclear Supervising Operators.

The Nuclear Supervising Operators manipulate the reactor controls and other controls and direct the activities of the Nuclear Operators. Normally, three Nuclear Supervising Operators are assigned to each operating shift. Each Nuclear Supervising Operator shall have a reactor operator's (RO) license.

The Nuclear Operators are responsible, under the direction of the Shift Manager, the Control Room Supervisor, or the Nuclear Supervising Operators, for operating auxiliary systems and for assisting in the refueling of the plant as directed. Among their regular duties are the operation of such plant equipment as pumps, turbine generator auxiliaries, blowers, radwaste systems, compressors, and auxiliary service equipment. Additional duties include radiation monitoring, recordkeeping, and general housekeeping.

Operations is responsible for implementing and coordinating the Fire Protection Program, including coordinating fire protection surveillances.

13.1.2.2.2 Manager – Nuclear Maintenance

The Manager – Nuclear Maintenance is responsible for the maintenance of the plant and all associated systems and equipment. Reporting to the Manager – Nuclear Maintenance are the Maintenance Superintendents.

The Manager – Nuclear Maintenance is responsible for the maintenance of plant structures, systems, and equipment. In this capacity, compliance with the Technical Specifications related to maintenance, written procedures, and work practices is ensured; and duties include the instrument spare parts, routine calibration, instrument and control troubleshooting, and the standards calibration program.

13.1.2.2.3 Manager - Radiation Protection

The Manager - Radiation Protection is responsible for the administration and supervision of the Radiation Protection Department. This department is responsible for radiological engineering, health physics, radiation protection, radiological effluents, ALARA programs, radwaste (radwaste shipping, decontamination, and Onsite Storage Facility), and industrial health and safety. Reporting to the Manager - Radiation Protection are the Radiation Protection Manager, and the General Supervisor – RP Technical Services and Support. The Manager may also assume the functions and responsibilities of the Radiation Protection Manager as described in subsection 13.1.2.2.3.1.

The Manager - Radiation Protection assists the Fermi 1 Custodian. On the average, this activity will not require more than 100 work hours of effort each year.

13.1.2.2.3.1 Radiation Protection Manager

The Radiation Protection Manager, as described in NRC Regulatory Guides 1.8, 8.8 and 8.10, has the responsibility and authority to formulate and administer plant programs and procedures which ensure radiation protection for plant personnel, members of the public, and the environment. This position receives delegated authority from the Director - Nuclear Production in the area of radiological control, which includes radiation protection, radioactive effluents, radioactive waste transportation and disposal, and radiological health. The Radiation Protection Manager has direct access to the Site Vice President - Nuclear Generation to resolve questions related to the conduct of the radiation protection program. In the event the Radiation Protection Manager function is assigned to the Manager - Radiation Protection an Assistant Radiation Protection Manager may be assigned to supervise the Radiation Protection Staff.

13.1.2.2.3.2 General Supervisor – RP Technical Services and Support

The General Supervisor – RP Technical Services and Support is responsible for maintaining the site within local, state, and federal environmental regulations, site industrial safety, radiological health, radiological instrumentation matters, and reporting Fermi 2 compliance with established site procedures, company policies, and governing regulations.

13.1.2.2.4 Manager – Chemistry

The Manager – Chemistry is responsible for maintaining the chemical parameters of the plant within the requirements of the Technical Specifications; UFSAR; fuel warranty and industry guidelines. The Manager – Chemistry evaluates results, reports, and laboratory techniques and is responsible for the following:

- a. Overseeing the operation, maintenance, and calibration of, and providing technical support for, the plant chemical processing and water treatment equipment,
- b. Directing the sampling of plant fluid systems, for the chemical laboratory, and for prescribing the procedures to be followed for sample preparation and analysis, and results reports.

13.1.2.2.5 Assistant Plant Manager

The Assistant Plant Manager is responsible for managing a portion of the Nuclear Production organization. The specific areas of responsibility are based on departmental performance and development needs. The Assistant Plant Manager coordinates and ensures that plant operation is in conformance with the plant operating license as specified by the Nuclear Regulatory Commission. The Assistant Plant Manager interfaces with industry and peers to establish and enforce standard plant operations in accordance with site procedures. The Assistant Plant Manager assumes the responsibilities of the Director – Nuclear Production during any absence.

13.1.2.3 Director – Nuclear Work Management

The Director – Nuclear Work Management is responsible for the on-line work control, outage management, and reactor services at Fermi 2.

Reporting to the Director – Nuclear Work Management are the Manager – Nuclear Work Control and the Manager – Nuclear Outage Management.

The functions, responsibilities, and authorities of these job positions are described below.

13.1.2.3.1 Manager – Nuclear Work Control

NOTE: The positions of Manager - Nuclear Work Control and Manager - Nuclear Outage Management may be combined.

The Manager – Nuclear Work Control is responsible for plant work management and planning services. Reporting to the Manager – Nuclear Work Control is the Supervisor(s) – Nuclear Planning and Scheduling.

The Work Control Group is responsible for assigning priority and planning, coordinating, and tracking all evaluation, design, and testing activities in support of plant operations. The Supervisor(s) – Nuclear Planning and Scheduling is responsible for reviewing and prioritizing all work requests, ensuring that work requests are completed as scheduled, and

reviewing completed work requests. Also included are managing the 30-day, 7-day, and 48-hr schedules and coordinating near-term outage support.

The Supervisor(s) – Nuclear Planning and Scheduling is responsible for plant cost engineering, engineering planning, maintenance planning, developing work request packages, preparing management tracking reports, and for the day-to-day operation of the surveillance and performance scheduling and tracking.

#### 13.1.2.3.2 Manager – Nuclear Outage Management

NOTE: The positions of Manager - Nuclear Work Control and Manager - Nuclear Outage Management may be combined.

The Manager – Nuclear Outage Management reports to the Director – Nuclear Work Management and is responsible for outage management including outage programs and schedules, cost engineering, engineering planning, estimating plant modifications and generating outage reports. Reporting to the Manager – Nuclear Outage Management are the Supervisor - Nuclear Outage Planning and Scheduling, Supervisor – Reactor Services, and a support staff.

The Supervisor – Nuclear Outage Planning and Scheduling is responsible for developing and maintaining outage programs and schedules and assuming the lead role during outages. Also included is work scheduling and database input. The Supervisor – Reactor Services is responsible for all activities related to reactor vessel refueling and maintenance, and dry storage loading campaigns. The support staff is responsible for the remainder of the Manager’s outage responsibilities.

#### 13.1.2.4 Director - Nuclear Engineering

The Director - Nuclear Engineering is responsible for design engineering, nuclear fuel design and management, system engineering, performance engineering, inservice inspection, modifications and configuration management, procurement engineering, and engineering industry interface. The Director - Nuclear Engineering is responsible for the formulation and effectiveness of the fire protection program. Reporting to the Director - Nuclear Engineering are Manager – Nuclear Industry Interface, Manager – Nuclear Plant Support Engineering, Manager - Nuclear System Engineering, Manager - Nuclear Performance Engineering, and Manager – Engineering First Team.

#### 13.1.2.4.1 Manager – Nuclear Industry Interface

The Manager – Nuclear Industry Interface is responsible for managing engineering initiatives or projects which align engineering functions, processes, or products towards industry standards. The Manager – Nuclear Industry Interface is also responsible for monitoring industry trends and initiatives for applicability and implementation into engineering functions, processes, or products.

13.1.2.4.2 Manager – Nuclear Plant Support Engineering

The Manager – Nuclear Plant Support Engineering (PSE) has the overall responsibility for the Fermi 2 plant configuration management program, equipment qualification program, and the fire protection program. The Manager – Nuclear PSE is responsible for Nuclear Projects and Modifications, and engineering support functions associated with modifications to plant structures, systems and equipment. This responsibility includes the planning and management of the engineering scope and specification, detailed design, procurement, installation and testing phases of the modification.

Within the context of Section 4.6.1 of ANSI N18.1-1971 (Selection and Training of Nuclear Power Plant Personnel), the Manager – Nuclear Plant Support Engineering is equivalent to the "Engineer in Charge." In this capacity, the Manager – Nuclear Plant Support Engineering has the responsibility and authority to assign DTE personnel or to retain qualified consultants to perform necessary design work, design reviews, incident evaluations, or safety analyses.

13.1.2.4.3 Manager – Nuclear System Engineering

The Manager – Nuclear System Engineering is responsible for the engineering functions related to the operation of the plant, including system engineering, preventive maintenance program, and technical and administrative procedures.

13.1.2.4.4 Manager – Nuclear Performance Engineering

The Manager – Nuclear Performance Engineering is responsible for the Inservice Inspection Program, equipment performance evaluation, performance and inservice testing. The Manager – Nuclear Performance Engineering is also responsible for nuclear fuel, including fuel cycle analysis, nuclear fuel accountability, uranium and enrichment accounting, core analysis, reactor dynamics, fuel design, fuel fabrication contract administration, fuel storage and shipment, fuel performance, and fuel burn-up.

The Manager – Nuclear Performance Engineering is also responsible for safe operating procedures as related to reactor core operating limits, fuel management, including maintaining records and specifying plant operations for maximum economic performance within the limits of the operating license, and procedures and documentation for fuel handling.

The Manager – Nuclear Performance Engineering is also responsible for all aspects of the Probabilistic Safety Assessment program including ownership and maintenance of the PSA model and the plant operating and plant shutdown risk assessment activities.

13.1.2.4.5 Manager - Engineering First Team

The Manager - Engineering First Team is responsible for procurement engineering.

13.1.2.5 Director – Organizational Effectiveness

The Director – Organizational Effectiveness is responsible for administrating the Corrective Action Program, organizational effectiveness activities, training, and licensing. Organizational Effectiveness is also responsible for monitoring plant performance in matters related to plant safety and for the review of internal and external operating experience to provide early detection of conditions potentially adverse to safety. Reporting to the Director – Organizational Effectiveness are the Manager - Nuclear Training, the Manager - Nuclear Licensing, the Manager – Performance Improvement, and the Manager – Radiological Emergency Response Preparedness..

13.1.2.5.1 Manager - Nuclear Training

The Manager - Nuclear Training is responsible for developing and implementing training and maintaining site medical programs in support of safe and efficient operation of the plant. The training program is described in Section 13.2.

13.1.2.5.2 Manager - Nuclear Performance Improvement

The Manager – Nuclear Performance Improvement is responsible for administration of the plant Corrective Action Program, including trending and tracking of corrective action documents; administration of root cause analysis program and administration of operating experience, human performance, self-assessment and benchmarking programs.

13.1.2.5.3 Manager - Nuclear Licensing

The Manager - Nuclear Licensing is responsible for licensing activities, including regulatory and compliance support, and nonradiological environmental monitoring. The Manager - Nuclear Licensing provides the interface and communications with the NRC and other outside agencies, as assigned.

13.1.2.5.4 Manager – Radiological Emergency Response Preparedness

The Manager – Radiological Emergency Response Preparedness is responsible for coordinating the activities of Emergency Planning.

13.1.2.6 Shift Crew Composition

NOTE: The titles Nuclear Shift Supervisor (NSS), Nuclear Assistant Shift Supervisor (NASS), and Nuclear Power Plant Operator (NPPO) have the same functional responsibilities as the titles Shift Manager (SM), Control Room Supervisor (CRS) and Nuclear Operator (NO), respectively.

During routine operations, the shift complement consists of one Shift Manager, one Control Room Supervisor, one Shift Technical Advisor/Operations Shift Engineer (OSE), three Nuclear Supervising Operators, five Nuclear Operators, and one Radiation Protection Technician. The Shift Manager, Control Room Supervisor, and Operations Shift Engineer

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must hold SRO licenses, and the Nuclear Supervising Operators must hold RO or SRO licenses. The Nuclear Operators are not licensed because they do not perform activities for which an RO license is required.

All core alterations shall be observed and directly supervised by either a licensed Senior Reactor Operator or licensed Senior Reactor Operator limited to fuel handling who has no other concurrent responsibilities during the operation. This is in addition to the normal Shift Crew Compliment during Mode 5.

The minimum crew composition of operators for normal routine operations consists of the following:

<u>Position</u>	<u>Number of Personnel per shift</u>	<u>NRC License Requirements</u>
Shift Manager (SM)	1	SRO
Control Room Supervisor (CRS)	1	SRO
Nuclear Supervising Operators (NSO)	3	RO or SRO
Nuclear Operators (NO)	5	None

The minimum shift crew requirements for the various modes is as follows:

<u>Positions</u>	<u>Number of individuals required to fill position</u>	
	<u>Mode 1, 2 or 3</u>	<u>Mode 4 or 5</u>
SM	1	1*
CRS	1	None
NSO	3	1
NO	5	1
STA/OSE	1	1

\* Does not include the supervision of core alterations by the licensed SRO or the SRO limited to fuel handling.

Except for the Shift Manager, the shift crew composition may be one less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

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The operating modes are the following:

<u>Mode</u>	<u>Title</u>	<u>Reactor Mode Switch Position</u>	<u>Average Reactor Coolant Temperature (°F)</u>
1	Power operation	Run	N/A
2	Startup	Refuel <sup>a</sup> or Startup/Hot Standby	N/A
3	Hot shutdown <sup>a</sup>	Shutdown	> 200
4	Cold shutdown <sup>a</sup>	Shutdown	≤ 200
5	Refueling <sup>b</sup>	Shutdown or Refuel	N/A

<sup>a</sup> All reactor vessel head closure bolts fully tensioned.

<sup>b</sup> One or more reactor vessel head closure bolts less than fully tensioned

The Shift Technical Advisors are required to have a Bachelor's Degree or equivalent in a scientific or engineering discipline from an accredited institution and 2 years of related nuclear experience. They complete an INPO-accredited Shift Technical Advisor training program. This program contains all of the SRO training materials and practical skills training that has been identified on a job task listing that is Fermi 2 specific. The Shift Technical Advisors are normally assigned to a shift and participate in the training cycle for licensed operator requalification.

The Operations Shift Engineers are required to meet the same qualifications as a Shift Technical Advisor and hold an SRO license.

The Operations Shift Engineer may be designated as the Control Room Supervisor on some shifts. This is in accordance with the NRC Policy Statement on Engineering Expertise on Shift (Reference 1).

The Shift Managers, Control Room Supervisors, Nuclear Supervising Operators, and Nuclear Operators are trained in the following areas of radiation protection:

- a. Use of portable radiation detectors
- b. Limits of exposure rates and accumulated doses
- c. Use of protective barriers and signs
- d. Use of protective clothing and breathing apparatus
- e. Limiting contamination
- f. Pertinent plant and federal regulations.

Shift chemistry technicians perform technical quantitative functions in chemistry, radiochemistry, and other areas. These technicians are qualified to meet the requirements of ANSI N18.1.

### 13.1.2.7 Qualification Requirements for Nuclear Plant Personnel

Regulatory Guide 1.8, Revision 1, September 1975, and ANSI N18.1 (1971) provide the regulatory criteria for the selection and training of Fermi 2 plant personnel. Regulatory Guide

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1.8 endorses the criteria of ANSI N18.1 (1971), with the exception of the Radiation Protection Manager whose requirements are defined in the Regulatory Guide. Training and retraining for NRC-licensed operators is in compliance with 10 CFR 55.

For the purposes of complying with these requirements, the Technical Specifications, and 10 CFR 55, the following definitions apply to Fermi 2 personnel:

<u>Plant Staff</u>	All personnel reporting to the Site Vice President, Nuclear Generation
<u>Unit Staff</u>	All personnel reporting to the Director – Nuclear Production and the Director – Nuclear Work Management, including the Director – Nuclear Production and the Director – Nuclear Work Management
<u>Operations Staff</u>	All personnel reporting to the Operations Engineer
<u>Technical Staff</u>	All personnel reporting to the Director - Nuclear Engineering

A Regulatory Qualifications List (RQL) is maintained and revised as required for changes in the regulatory requirements and plant staff personnel and titles. Using this list, qualified personnel can be selected for positions and the correct training and retraining programs can be maintained.

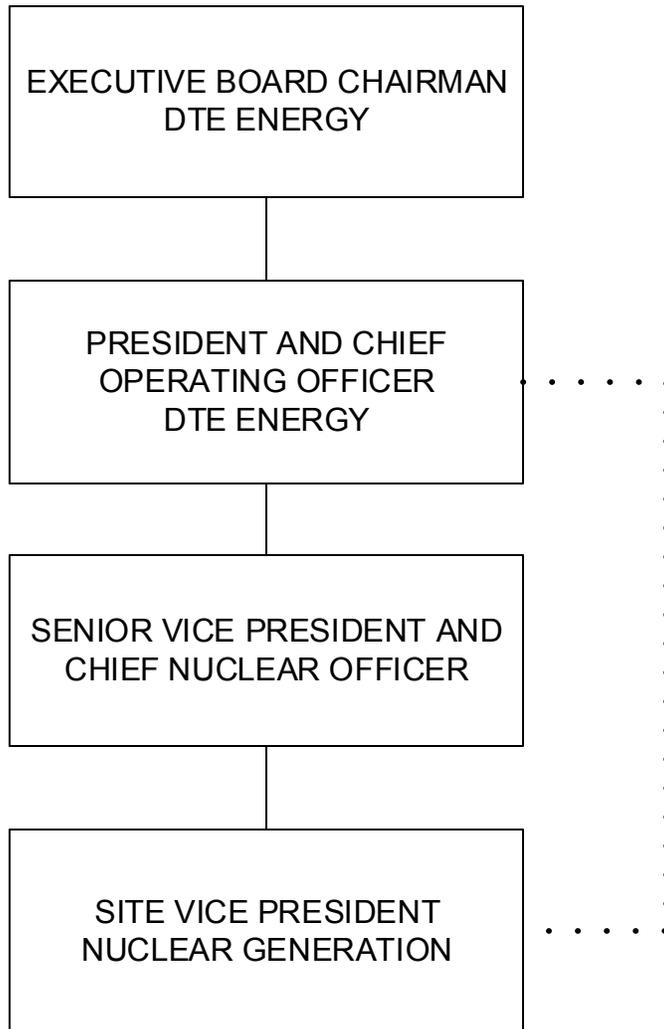
The qualification summaries, as required for plant staff affected by the RQL are maintained onsite and are available for review.

The resumes of the initial appointees to the managerial and supervising technical positions for Fermi 2 were included in the original FSAR.

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13.1 ORGANIZATIONAL STRUCTURE  
REFERENCES

1. U.S. Nuclear Regulatory Commission, Policy Statement on Engineering Expertise on Shift, Generic Letter 86-04, February 13, 1986.

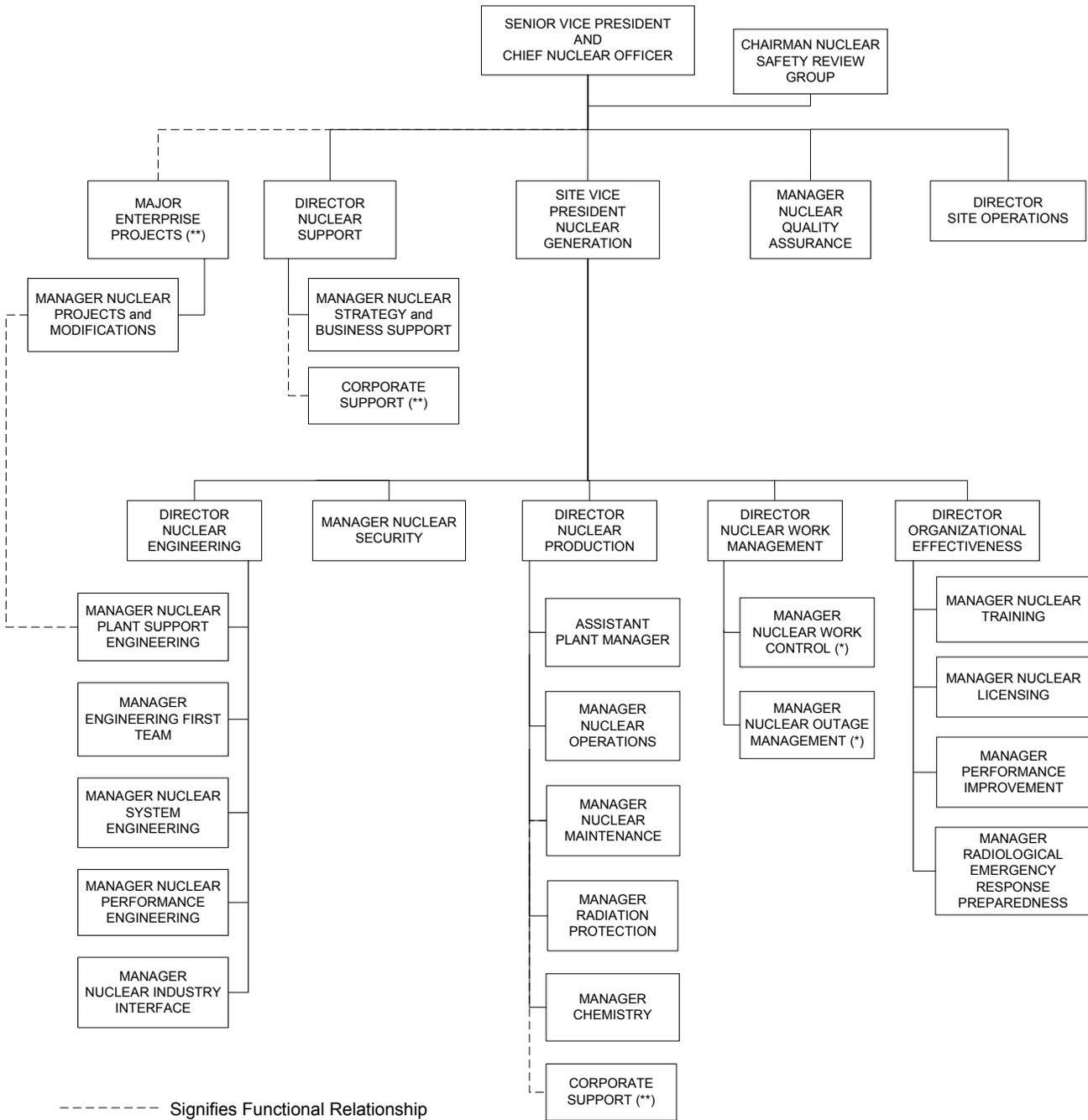
# Fermi 2 UFSAR



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<b>Fermi 2</b> UPDATED FINAL SAFETY ANALYSIS REPORT
<b>FIGURE 13.1-1</b> DTE ENERGY CORPORATE ORGANIZATION

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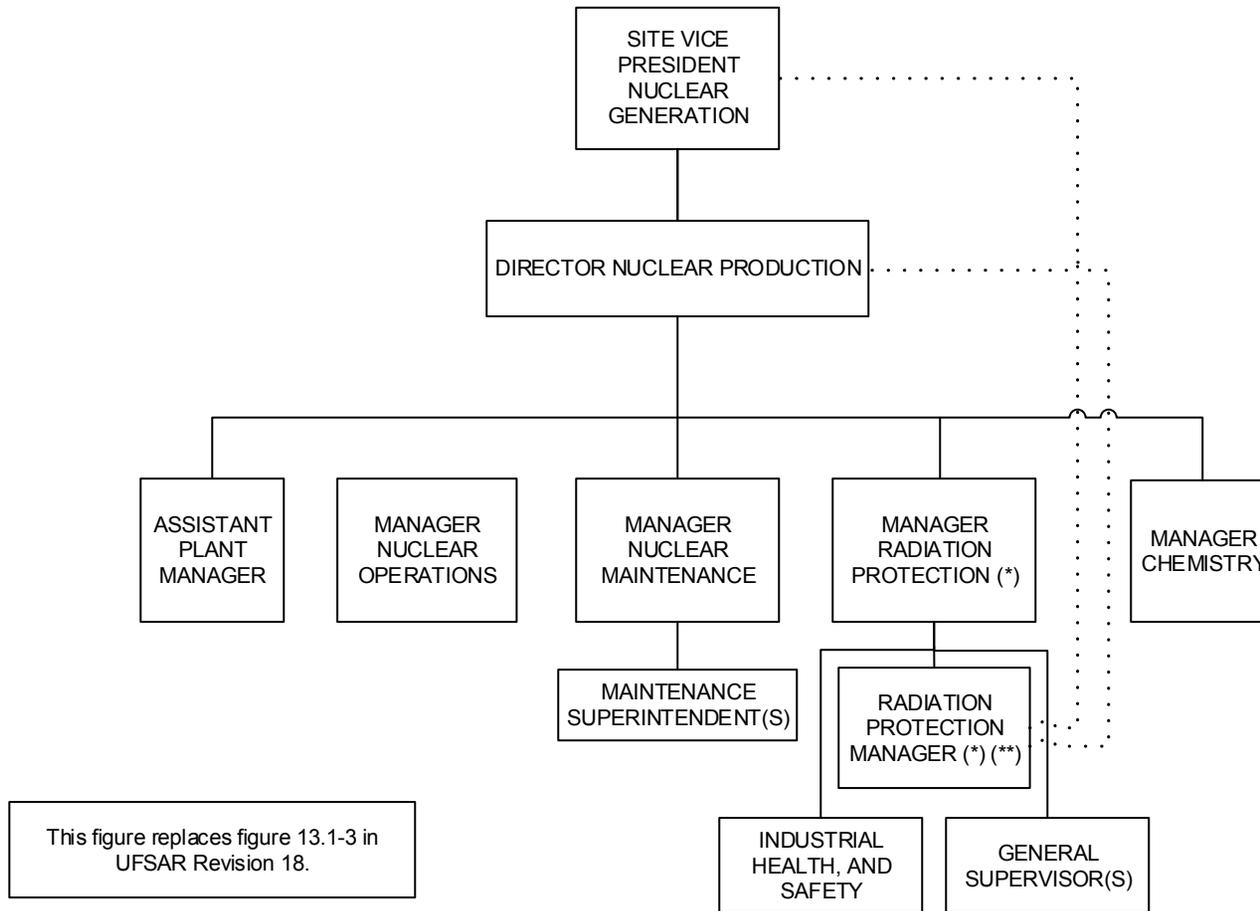
(\*) Manager – Nuclear Work Control and Manager – Nuclear Outage Management positions may be combined.

(\*\*) When corporate support organizations perform quality-related activities for Fermi 2, such activities are performed under the Fermi 2 Quality Assurance Program.

NOTE: When a position is not filled, reporting order will be the next higher position.

<b>Fermi 2</b> UPDATED FINAL SAFETY ANALYSIS REPORT
<b>FIGURE 13.1-2</b> <b>NUCLEAR GENERATION</b>

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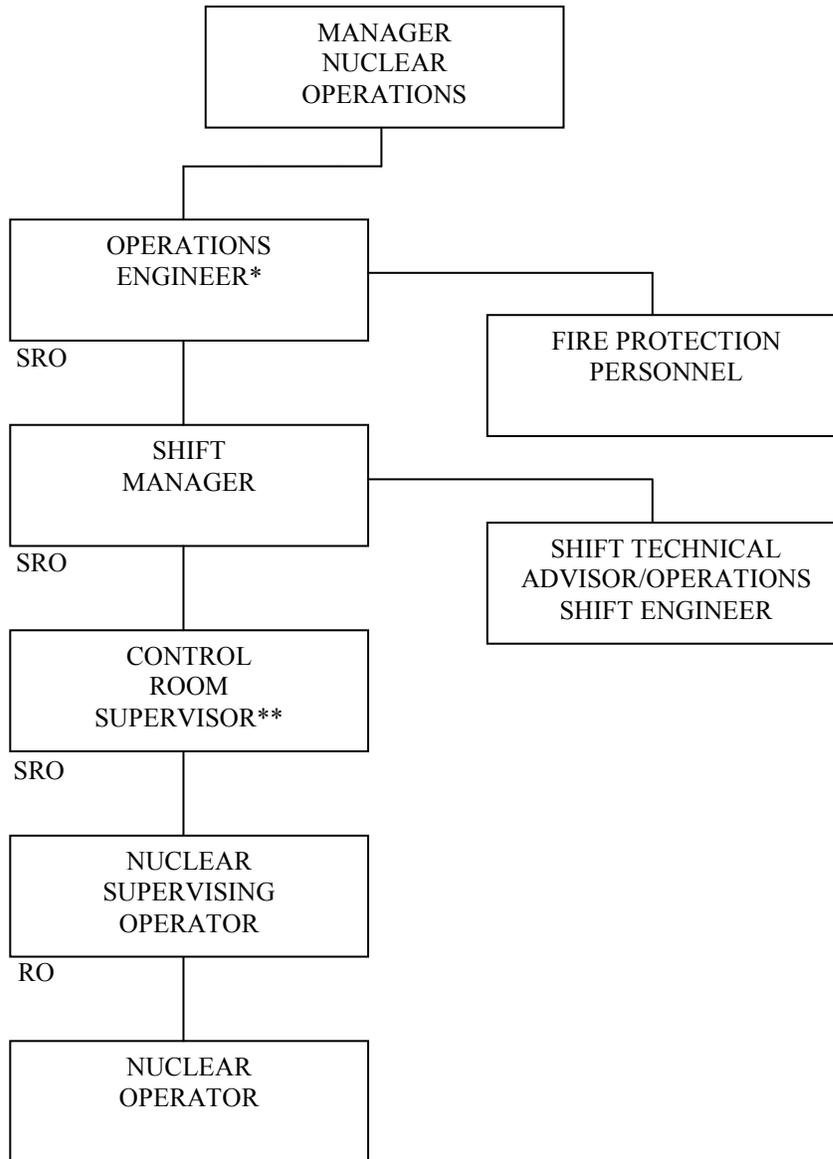
..... SIGNIFIES DIRECT ACCESS

(\*) MANAGER – RADIATION PROTECTION AND THE RADIATION PROTECTION MANAGER POSITIONS MAY BE COMBINED. SHOULD THIS OCCUR, AN ASSISTANT RADIATION PROTECTION MANAGER MAY BE ASSIGNED.

(\*\*) THE RADIATION PROTECTION MANAGER HAS DIRECT ACCESS TO THE SITE VICE PRESIDENT – NUCLEAR GENERATION TO RESOLVE QUESTIONS RELATED TO THE CONDUCT OF THE RADIATION PROTECTION PROGRAM. THE RADIATION PROTECTION MANAGER REPORTS DIRECTLY TO THE DIRECTOR – NUCLEAR PRODUCTION REGARDING RADIOLOGICAL CONTROL.

<b>Fermi 2</b> UPDATED FINAL SAFETY ANALYSIS REPORT
<b>FIGURE 13.1-3</b> PLANT MANAGER'S ORGANIZATION

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\* MANAGER – NUCLEAR OPERATIONS AND OPERATIONS ENGINEER POSITION MAY BE COMBINED.

\*\* CONTROL ROOM SUPERVISOR AND OPERATIONS SHIFT ENGINEER POSITION MAY BE COMBINED.

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UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 13.1-4

OPERATIONS ORGANIZATION

13.2 TRAINING PROGRAM

13.2.1 Program Description

13.2.1.1 General

The objective of the training program for Fermi 2 is to provide fully trained operating, maintenance, and technical personnel. To accomplish this objective, the nuclear training program for Fermi 2 has been designed, and is being implemented, to meet the needs of the individual staff members. Each person receives training on the basis of background, previous training, and staff assignment.

Training for the following positions is derived from a systems approach to training and satisfies 10 CFR 50.120 requirements:

- a. Non-licensed Operator
- b. Shift Manager
- c. Shift Technical Advisor/Operations Shift Engineer
- d. Instrument and Control Technician
- e. Electrical Maintenance Personnel
- f. Mechanical Maintenance Personnel
- g. Radiological Protection Technician
- h. Chemistry Technician
- i. Engineering Support Personnel

The overall training program for the plant staff is divided into the following four areas:

- a. Training programs for reactor operator and senior reactor operator license candidates, as described in Subsection 13.2.1.2
- b. Training programs for nonlicensed personnel, as described in Subsection 13.2.1.3
- c. General employee training (Fermi 2 orientation), as described in Subsection 13.2.1.4
- d. Fire-protection training, as described in Subsection 13.2.4.

The Manager - Nuclear Training has overall responsibility for the training program and is also in charge of simulator activities and simulator training.

13.2.1.2 Training Program for Operator License Candidates

The training program for operator license candidates has been implemented in accordance with 10 CFR 55. The licensed operator training program was initially accredited by the Institute of Nuclear Power Operations (INPO) on December 18, 1985. This training program was developed using a systems approach to training.

### 13.2.1.3 Training Programs for Nonlicensed Personnel

#### 13.2.1.3.1 General

Training suited to individual needs and backgrounds is given to nonlicensed personnel, such as supervisors, engineers, operators, technicians, and repairmen. Each course is described in more detail in the sections that follow. In all cases, various sections of the training for nonlicensed personnel may be omitted for those who have applicable experience.

#### 13.2.1.3.2 Training of Chemistry Personnel

Selected chemical or chemical engineering personnel obtain specialized training presented by qualified personnel. In classroom and laboratory sessions, students receive instruction and practical experience that enable them to complete both radiochemical and chemical analyses for process control, waste disposal, effluent monitoring, and process and laboratory instrument calibrations and evaluations. The course work also covers material on interpreting and complying with the chemical and radiochemical aspects of the Technical Specifications, procedures, licenses, and plant warranties.

#### 13.2.1.3.3 Training of Instrumentation and Control Personnel

Training for instrumentation and control personnel is divided into two portions: (1) classroom and (2) practical exercises. Classroom courses include instrumentation theory, procedures, and plant specific systems training. During the practical exercises portion, the trainee receives specific hands-on training that is most beneficial to his/her position on the staff. In addition, personnel will demonstrate the ability to use plant and maintenance administrative procedures.

#### 13.2.1.3.4 Training for Mechanical and Electrical Maintenance Personnel

Mechanical and electrical journeymen for the plant are selected from other DTE facilities or from outside the company and have a minimum of 3 years of experience in one or more crafts. Their dexterity and ability in the basic skills of mechanical and electrical maintenance repair are shown by their previous experience.

As needed, personnel receive training in those skills required for the performance of work in radiological areas, the use of respiratory protection equipment, the use and/or maintenance of specific equipment, plant systems, and general employee training. In addition, personnel will demonstrate the ability to use plant and maintenance administrative procedures.

#### 13.2.1.3.5 Training for Shift Technical Advisors

Training for shift technical advisors is designed to provide the knowledge to effectively perform assigned duties. Included is theoretical training in the sciences related to nuclear power plant operations and practical training in the design and procedures used at Fermi 2. In addition, simulator training is used to develop experience in transient responses.

13.2.1.3.6 Training for Radiation Protection Personnel

The Radiation Protection Technician Program provides training and qualification in the duty areas of dosimetry, instrument calibration, effluent monitoring, and radiation protection operations. Trainees receive training as needed in general employee training, position-required training, and continuing training. Personnel will also demonstrate the use of plant and/or Radiation Protection administrative procedures, as applicable.

13.2.1.3.7 Training for Quality Assurance Personnel

Quality assurance personnel must be certified in accordance with the applicable codes, regulations, and standards for the positions they hold.

As needed, personnel receive training in those skills required for the performance of work in radiological areas, the use of respiratory protection equipment, the use and/or maintenance of specific equipment, plant systems, and general employee training. In addition, personnel will demonstrate the ability to use plant and quality assurance administrative procedures.

13.2.1.3.8 Training for Nonlicensed Operators

The training program for nonlicensed operators provides the necessary knowledge and skills for the operators to perform their jobs. Included in the program are systems training course(s) and area qualifications. This training facilitates ensuring the reliability of plant systems and equipment. The training program consists of two phases as described below.

System Training. System training increases the nonlicensed operator's knowledge of the function and operation of plant systems. It ensures the safety and reliability of plant operation as a result of the integrated activities performed by licensed and nonlicensed operators. The objective of system training, which is provided in addition to area qualifications, is to give the non-licensed operator a concept of the overall operation of the system, the purpose of systems, the interrelationships of systems, and the operator's responsibilities relative to each system. Emphasis is placed on systems that can affect the safe operation or the safe shutdown of the plant. System training uses examinations to verify qualifications in each system. Examinations are used for requalification purposes to ensure that an optimum level of proficiency is maintained by the nonlicensed operator.

Area Qualifications. Checklists are developed and established by plant area and by job classification to familiarize the operators with the specific job tasks expected to be performed as part of the normal shift functions. Area qualifications are based on the following plant areas:

- a. Turbine building
- b. Reactor building
- c. Radwaste building
- d. Outside areas, consisting of:
  1. Residual heat removal building
  2. General service water and circulating water pump houses

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3. Auxiliary boiler house
4. 120 KV and 345 KV switchyards

Satisfactory completion of each checklist item by each operator is documented by a fully qualified nuclear operator, a nuclear supervising operator, a control room supervisor, or a shift manager. Final completion of each area qualification checklist is approved by the Operations Engineer or his designee.

### 13.2.1.3.9 Training for Engineer Support Personnel

Technical personnel receive training to improve their overall knowledge of Fermi 2. This includes fundamental science topics, plant systems, and plant operations. They also receive general employee training. As needed, engineer support personnel receive training on job-specific tasks and demonstrate a knowledge of organization specific procedures.

### 13.2.1.4 General Employee Training

#### 13.2.1.4.1 Permanent Plant Personnel Training

All DTE employees permanently assigned (those assigned on a day-to-day basis) to the plant are trained as necessary in the following areas.

- a. Appropriate plans and procedures, including plant procedures for security, radiological emergency, and reporting fires
- b. Radiological health and safety, including applicable portions of 10 CFR 19 and 10 CFR 20
- c. Industrial safety
- d. Use of protective clothing and equipment
- e. Quality assurance
- f. Evacuation signals and routes
- g. Fitness for duty

#### 13.2.1.4.2 Temporary Plant Personnel Training

Temporary maintenance and service personnel (those who are not assigned to the plant on a day-to-day basis) are trained in the areas listed in Subsection 13.2.1.4.1 to the extent necessary to ensure the safe execution of their duties, or they are escorted by properly trained personnel as required.

#### 13.2.1.4.3 Consultant, Vendor, and Contract Personnel

Consultant, vendor, and contract personnel who are required to perform duties at the plant receive indoctrination training in the areas listed in Subsection 13.2.1.4.1 to the extent necessary for the safe execution of their normal duties, or they are escorted by properly trained personnel as required.

#### 13.2.1.4.4 General Employee Training Periodicity

Training is provided for employees on an annual basis, not to exceed 13 months. Subsections 13.2.1.4.1, 13.2.1.4.2 and 13.2.1.4.3 include the types of employees and the general training topics that may be included.

Nuclear Security personnel are trained in accordance with Section 13.7.

#### 13.2.1.5 Responsible Individual

The Site Vice President - Nuclear Generation is responsible for ensuring that all plant staff members are trained appropriately to do their jobs. Authority is delegated to the individual managers of Nuclear Generation, who are responsible for specifically defining training requirements and for ensuring that their personnel have been trained according to said requirements.

The Manager - Nuclear Training is responsible for administering, designing, developing, and implementing all training that has been determined to be required by the Site Vice President - Nuclear Generation or his delegate.

#### 13.2.2 Retraining Program

A continuing requalification program for licensed operators and senior operators has been implemented in accordance with 10 CFR 55. The licensed operator requalification program was initially accredited by the Institute of Nuclear Power Operations (INPO) on December 18, 1985. This requalification program was developed using a systems approach to training.

#### 13.2.3 Replacement Training

The purpose of the plant replacement training program is to ensure that replacement personnel satisfy the training requirements stipulated in ANSI N18.1-1971 for the various plant positions.

##### 13.2.3.1 Licensed Personnel Replacement

Personnel selected to be in training for a reactor operator's or senior reactor operator's license are given formal technical training and practical on-the-job training. Subsection 13.2.1.2 identifies replacement training requirements.

##### 13.2.3.2 Nonlicensed Personnel Replacement

Personnel filling positions not requiring an NRC reactor operator's or senior reactor operator's license receive training as outlined in Subsection 13.2.1.3.8.

##### 13.2.3.3 Program Administration

The program is administered as described in Subsection 13.2.1.5.

13.2.4 Fire-Protection Training

13.2.4.1 Fire Brigade Training

13.2.4.1.1 General

The fire brigade (five 5-member teams) is trained in accordance with the NRC staff supplemental guidance, "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance," dated August 29, 1977. Fire brigade members will receive instruction in the following topics:

- a. Identification of the fire hazards and associated types of fires that could occur in the plant and an identification of the location of the hazards, including areas where breathing apparatuses are required, regardless of the size of the fire
- b. Identification of the location of installed and portable fire-fighting equipment in each area and familiarization with plant layout, including access and egress routes to each area
- c. Proper use of available equipment and the correct method of fighting each type of fire (electrical fires, fires in cables and cable trays, hydrogen fires, flammable liquids, waste debris fires, and record file fires)
- d. Indoctrination in the plant fire-fighting plan, with coverage of each employee's responsibilities, including changes thereto
- e. Proper use of breathing equipment, and communication, lighting, and ventilation equipment
- f. Detailed review of the procedures, with particular emphasis on what equipment must be used in particular areas
- g. Review of the latest modifications, additions, or changes to the plant, procedures, fire-fighting equipment, and the fire-fighting plan
- h. Proper method of fighting fires inside buildings and tunnels.

Special instruction in directing and coordinating fire-fighting activities will be provided for fire brigade leaders.

Qualified personnel, experienced in fighting the types of fires that could occur in the plant and in using the types of equipment available in the plant, provide the instruction. Classroom training is repeated at a frequency of at least every 2 years.

13.2.4.1.2 Practice Sessions

Practice sessions are held at regular intervals not to exceed 1 year (Subsection 13.2.4.1.4). These sessions are held at a location sufficiently remote from the plant so as not to endanger safety-related equipment. These sessions provide practice in extinguishing actual fires and are conducted by DTE or other qualified personnel.

Practice sessions are also conducted that require fire brigade members to use protective equipment, including emergency breathing apparatus. These sessions need not include fire fighting. They are provided at regular intervals not to exceed 1 year (Subsection 13.2.4.1.4).

#### 13.2.4.1.3 Fire Drills

Fire brigade drills are performed at the plant so that the fire brigade can practice as a team. Drills include the following.

- a. The simulated use of equipment for the various situations and types of fires that could reasonably occur in each safety-related area
- b. Conformance, where possible, to the established plant fire-fighting plans
- c. Operating fire-fighting equipment where practical; this also includes self-contained breathing apparatus, communication equipment, and portable or installed ventilation equipment, when applicable.

The drills are performed at regular intervals not to exceed 3 months for each fire brigade. The minimum number of fire brigade drills conducted within a period of 3 months shall be equal to the number of operating shifts at the station. At least one drill per year will be performed on a backshift for each brigade. At least one drill per year for each fire brigade will be unannounced.

The drills are preplanned, evaluated, and critiqued to assess the effectiveness, the response time, the selection, the placement, and the use of equipment. An assessment is also made of the leaders' direction of the effort and each member's response.

At 3-year intervals, a randomly selected unannounced drill must be critiqued by qualified individuals independent of the Fermi 2 staff.

#### 13.2.4.1.4 Periodicity of Fire Brigade Training

All training shall be performed within the time interval specified with

- a. A maximum allowable extension not to exceed 25 percent of the training interval, but
- b. The combined time interval for three consecutive training intervals shall not exceed 3.25 times the specified training interval.

#### 13.2.4.1.5 Periodicity of Fire Drills Including the Offsite Fire Department

Periodically (once per calendar year) these drills will include offsite fire department personnel and will conform with the Fermi 2 plan for coordination with offsite fire departments.

#### 13.2.4.1.6 Offsite Fire Departments

Training for the offsite fire departments is made available and includes training in basic radiation principles and practices, typical radiation hazards that may be encountered when fighting fires, and related plant procedures.

13.3 EMERGENCY PLANNING

Information for this section is contained in the Fermi 2 Radiological Emergency Response Preparedness Plan, submitted separately to the NRC on the Fermi 2 docket. This plan is periodically updated and current revisions are submitted to the NRC.

## 13.4 REVIEW AND AUDIT

### 13.4.1 General

During the construction of Fermi 2, the Edison quality assurance (QA) review and audit program complied with and exceeded the requirements of 10 CFR 50, Appendix B, QA Criteria for Nuclear Power Plants. The review and audit functions that Edison performed during construction are briefly addressed in Subsection 13.4.2 and more completely described in Section 17.1.

DTE uses a formal committee method to review and audit testing and operation at Fermi 2. The review and audit functions are carried out at two levels: one at the plant operations level and the second at the corporate level. The organizations responsible for reviews and audits at these two levels are the Onsite Review Organization (OSRO) and the Nuclear Safety Review Group (NSRG), respectively. The OSRO reviews plant operations, administrative procedures, and tests and plans for future activities to assist and advise the Director - Nuclear Production on the safe operation of the plant. The NSRG functions to provide an independent review and audit of plant activities and reports to and advises the Senior Vice President and Chief Nuclear Officer as described in Subsection 13.4.3.2. In developing the essential elements of DTE's review and audit program for tests and operations, which is discussed more fully in Subsection 13.4.3, DTE was guided by ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants.

### 13.4.2 Review and Audit - Construction

Reviews and audits during the construction of Fermi 2 were part of the QA program described in Section 17.1. This program used a designated organizational unit to provide review and audit, the Project Management Organization, which met at least monthly for a review of construction work in progress. The Assistant Project Manager - Engineering was specifically assigned responsibility for design review. The Edison administrative and technical staffs reviewed design documentation (e.g., specifications, drawings, and design changes) for compliance with applicable codes, standards, good engineering practice, and overall design intent. Quality assurance for the project was the responsibility of the Director-Project Quality Assurance, who reported functionally to the Manager - Enrico Fermi 2 Project and administratively to the Manager - Quality Assurance. Quality Assurance performed vendor surveillance and review by witnessing significant check-points and overall vendor performance. Edison QA also systematically audited activities at the plant site to ensure that the required standards of quality were attained in all construction and installation work performed at the job site. These owner activities complied with the requirements of 10 CFR 50, Appendix B. The review and audit functions during the construction phase are more fully described in Section 17.1.

### 13.4.3 Review and Audit - Test and Operation

A review and audit program has been established to ensure that the operation of the plant is in conformance with established requirements. Independent audits by the Nuclear Safety

Review Group (NSRG) and reviews by the Onsite Review Organization (OSRO) are described in detail in Subsection 17.2.1.7.

#### 13.4.3.1 Administration of the Onsite Review Organization

The OSRO is responsible for advising the Director – Nuclear Production on all matters related to nuclear safety.

Onsite Review Organization membership, meeting frequency, meeting minutes, and subjects requiring OSRO review are described in Section 17.2 and covered in a written charter.

Procedure - The Director – Nuclear Engineering, who is the chairman of the OSRO, has the authority to approve or disapprove proposals by the OSRO for nuclear-related matters that do not have safety implications. The OSRO Chairman, or designated alternate, may make a temporary change or authorize interim remedial action involving matters related to nuclear safety, as deemed necessary, provided the intent of the operating license or the Technical Specifications is not altered and the provisions of Subsection 13.5.2 are met.

In the review process, the item for review by the OSRO is placed on the agenda by the staff member initiating the item, who has seen that all necessary preliminary actions, such as the design review, and all necessary 10 CFR 50.59 reviews have been completed. The OSRO considers the item and votes approval or disapproval. The action taken by the OSRO is recorded in the minutes of the meeting. Should the proposed change require a license amendment prior to implementation, it is then forwarded to the NSRG for review, together with a report from the OSRO giving the basis for the findings.

Subjects that require the use of special technical skills may be handled by a subcommittee or task force composed of specialists in that field. When necessary, consultants are obtained to assist the subcommittee or task force in its deliberation. The members of the subcommittee or task force and the consultants are appointed by the OSRO Chairman.

#### 13.4.3.2 Administration of the Nuclear Safety Review Group

The purpose of the NSRG is to provide independent review and audit of facility operations as specified in Section 17.2. The NSRG reports to the Senior Vice President and Chief Nuclear Officer and acts for him in the review and audit of the safety aspects of nuclear power plant operation.

Details concerning the membership requirements, areas of expertise, quorum requirements, review responsibilities and other administrative functions of the NSRG are given in Section 17.2.

#### 13.4.3.3 Review of Operating Experience

Internal and external operating experience is reviewed and assessed to ensure that information pertinent to plant safety is supplied continually to operators and other appropriate personnel and is used for effecting design and procedural changes to correct generic or specific deficiencies and to enhance plant safety when warranted.

The review of externally generated operating experience shall be coordinated primarily by individuals in Organizational Effectiveness and Nuclear Plant Support Engineering. These

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reviews include, but are not limited to, GE nuclear steam supply system (NSSS) reports; INPO Significant Event Evaluation Information Network (SEEIN) reports such as SOERs and SERs, and NRC Bulletins, and Generic Letters.

The operating experience that is considered as warranting further evaluation is evaluated through the Corrective Action Program. The conclusions and recommendations are reviewed and documented. Recommendations, hardware and software modifications, procedures revisions, design changes, etc., resulting from the reviews are then implemented by the responsible groups within Nuclear Generation. Procedural changes are reviewed and approved by OSRO as applicable.

The Director – Nuclear Production is responsible for ensuring that evaluations are performed for internally generated operating experience events. LERs are reviewed by OSRO and are distributed to appropriate groups for implementation or for information and to the NRC.

## 13.5 PROCEDURES

### 13.5.1 General

All safety-related operations at Fermi 2 are conducted in accordance with detailed written procedures. These procedures include the topics specified by Regulatory Guide 1.33 for compliance with the quality assurance (QA) requirements of 10 CFR 50, Appendix B and the applicable procedures required to implement the Fermi 2 commitments made in response to requirements of NUREG-0737. The procedures are implemented following the guidance provided in ANSI N18.7. The procedures related to nuclear safety are reviewed and approved prior to the initial use and periodically thereafter as described in Section 17.2.

The types of procedures used include the following:

- a. Administrative Procedures
- b. Technical Procedures, including:
  - 1. Operating Procedures
  - 2. Maintenance Procedures
  - 3. Reactor Engineering Procedures
  - 4. Radiation Protection
  - 5. Radiochemistry Procedures
  - 6. Fuel-Handling and Special Nuclear Materials Control and Accountability Procedures
  - 7. Fire Protection Implementing Procedures
  - 8. Radioactive-Materials-Handling Radwaste Procedures
  - 9. Environmental Procedures.
  - 10. Maintenance, Calibration, and Testing Procedures
  - 11. Surveillance Procedures
- c. Radiological Emergency Response Preparedness Plan Procedures
- d. Security Plan Procedures

Contract personnel were used to prepare the initial Fermi 2 procedures. Available plant personnel assisted with this work when training and preoperational testing workload permitted. The ultimate responsibility for the content and accuracy of the final operation procedures and any updating that becomes necessary is as shown below for the various documents. The Director – Nuclear Support is responsible for the distribution and upkeep of procedures.

The format varies with the different procedures, but each procedure generally contains the following.

- a. Purpose

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- b. References
- c. Description of the equipment involved
- d. Prerequisites
- e. Safety precautions
- f. Valve status and checkoff
- g. Step-by-step actions
- h. Normal reactions
- i. Monitoring requirements
- j. Emergency actions or hold instructions.

A complete list of titles of all procedures is included in a procedure control system.

### 13.5.2 Temporary Changes

A temporary change to a procedure may be made provided that

- a. The intent or format of the original procedure is not altered
- b. The change is approved by two members of the plant management staff, at least one of whom holds a senior reactor operator's license
- c. The change is documented, reviewed by the OSRO when required, and approved by the Director – Nuclear Production or delegate within 14 days of implementation.

### 13.5.3 Conduct Manuals (Administrative Procedures)

The conduct manuals establish rules and instructions pertaining to the following:

- a. Procedure adherence
- b. Plant responsibilities and authorities
- c. Review and audit programs
- d. Reports and records
- e. Equipment control and work permit procedures
- f. Procurement and warehousing
- g. Surveillance program
- h. Plant security and visitor control
- i. Standing or special orders (plant orders)
- j. Radiation control standards procedures
- k. Chemical-radiochemical procedures.
- l. Shift and relief turnover procedure

Administrative Procedures are prepared under the direction of the appropriate director, or manager, who has the responsibility for their content and implementation. These procedures apply to all site activities and to all personnel at the site.

The procedure for shift and relief turnover consists in part of a checklist that is completed and signed by the oncoming and off-going Shift Managers and control room nuclear supervising operators.

The shift relief checklist is maintained in the control room by the control room operators.

#### 13.5.4 Technical Procedures

Technical procedures shall be used to provide step-by-step sequences for performing technical work activities. The following subsections describe various types of technical procedures used at Fermi 2.

##### 13.5.4.1 Operating Procedures

The preparation of the Operating Procedures is under the direction of the Manager – Nuclear Operations. The implementation of these procedures mainly falls to the operating group and is performed under the direction of a licensed senior reactor operator or reactor operator. Procedures that are prepared include, but are not limited to, those in Regulatory Guide 1.33, Appendix A.

##### 13.5.4.1.1 General Operating Procedures

The General Operating Procedures provide the necessary instructions for the integrated operation of all plant systems. Sign-offs are provided to ensure that necessary operating instructions, tests, and calibrations have been completed and are also used for confirming the completion of major steps in the proper sequence. General Operating Procedures are prepared under the direction of the Manager – Nuclear Operations and implemented by Operations personnel.

##### 13.5.4.1.2 System Operating Procedures

System Operating Procedures provide the necessary sequence of steps to properly operate a particular system, including the following, as necessary:

- a. Normal operation
- b. Startup operation
- c. Shutdown operation
- d. Standby operation
- e. Automatic initiation
- f. Manual initiation.

#### 13.5.4.1.3 Alarm Response Procedures

Alarm Response Procedures provide guidance on actions to be taken by the control room operator when the alarm annunciators actuate. Each procedure contains the following:

- a. The title of the annunciator
- b. The actuating device
- c. The setpoint(s) of the actuating device
- d. The possible causes of the actuation
- e. The immediate action to be taken by the operator and those actions which occur automatically
- f. The subsequent action to be taken to return the system to its normal mode of operation, if necessary.

#### 13.5.4.1.4 Abnormal Operating Procedures

Abnormal Operating Procedures provide operator guidance for stabilizing the plant or for restoring normal operating conditions following a perturbation.

#### 13.5.4.1.5 Emergency Operating Procedures

Emergency Operating Procedures provide operator guidance to mitigate, reduce, or eliminate the consequence of an accident or potentially hazardous condition that has already occurred, to implement the emergency plan, or to prepare for possible hazardous natural occurrences.

#### 13.5.4.2 Maintenance Procedures

Maintenance activities that affect the performance of safety-related equipment are preplanned and performed in accordance with written procedures, documented instructions, and drawings appropriate to the activity. Procedures for performing various categories of maintenance are prepared following the guidelines contained in Regulatory Guide 1.33, Appendix A. The Manager – Nuclear Maintenance is responsible for these procedures. Maintenance receives permission from the Shift Manager before performing maintenance on plant equipment. This ensures that the operability of redundant safety-related systems is maintained as required by the Technical Specifications.

#### 13.5.4.3 Maintenance, Calibration, and Testing Procedures

Technical Procedures include the procedures necessary to provide periodic maintenance, calibration, and testing of plant instrumentation and components. These procedures have provisions for meeting surveillance schedules and for ensuring that measurement accuracies are adequate to keep parameters within operational and safety limits. Procedures for these tests and the control of measuring and test equipment used in conducting these tests are prepared in accordance with Regulatory Guide 1.33, Appendix A. The Manager – Nuclear System Engineering, Manager – Nuclear Performance Engineering, and the Manager – Nuclear Maintenance are responsible for these procedures.

#### 13.5.4.4 Reactor Engineering Procedures

Reactor Engineering Procedures provide guidance for activities associated with fuel and core management and nuclear performance evaluation. The Manager - Nuclear Performance Engineering is responsible for these procedures.

#### 13.5.4.5 Radiation Protection Procedures

Procedures for personnel Radiation Protection are consistent with the requirements of 10 CFR Part 20 and are approved, maintained, and adhered to for all operations involving personnel radiation exposure. Radiation Protection Procedures describe the methods for personnel exposure control and monitoring; area radiation surveys; portable radiation surveys; portable radiation-monitoring equipment operation and calibration; emergency plan implementation; receipt, storage, and shipment of radioactive materials; and Radiation Protection training. The Manager - Radiation Protection is responsible for these procedures.

#### 13.5.4.6 Radiochemistry Procedures

Radiochemistry Procedures describe the plant chemistry and radiochemistry program, the calibration and operation of plant chemistry and radiochemistry equipment, and the methods of analysis to implement this program. The Manager - Chemistry is responsible for these procedures.

#### 13.5.4.7 Fuel-Handling and Special Nuclear Material Control and Accountability Procedures

Fuel-Handling Procedures specify all actions for core alterations and partial or complete refueling operations. Special Nuclear Material Control and Accountability Procedures define the methods for the control, accountability, and inventory of special nuclear material. The Manager - Nuclear Performance Engineering is responsible for ensuring that the requirements of the special nuclear material accountability program are implemented including the procedures governing special nuclear material greater than one gram. The Manager – Nuclear Operations is also responsible fuel handling procedures.

#### 13.5.4.8 Fire Protection Implementing Procedures

Fire Protection Implementing Procedures are developed to control the activities associated with the Fire Protection Program. These procedures include fire prevention, fire detection, confinement, suppression, extinguishment, and administrative controls. Procedures are available for fire brigade organization and training, fire inspection procedures, maintenance, and testing. The Manager – Nuclear Operations is responsible for the implementation of the Fire Protection Program and ensures that the requirements for the Fire Protection Program are met.

13.5.4.9 Radioactive-Materials-Handling Radwaste Procedures

The Radioactive-Materials-Handling Radwaste Procedures describe the methods of operation and handling of liquid and solid radioactive waste. Radioactive waste from the floor, equipment, and chemical drains is included, plus the processing of sludges and liquids that result. The handling of dry compactible and noncompactible wastes is also included. Procedures for the implementation of the Process Control Program are also included in this group. The Manager – Nuclear Operations and Manager - Radiation Protection are responsible for these procedures.

13.5.4.10 Environmental Procedures

The Environmental Procedures describe the environmental control programs, including whom to notify and what actions to take in the event of environmental incidents. Permits for the National Pollutant Discharge Elimination System are discussed, as are oil and chemical spills. The Manager – Nuclear Licensing is responsible for these procedures.

13.5.4.11 Surveillance Procedures

Surveillance Procedures provide the necessary steps to perform the required periodic testing of safety-related structures, systems, and components in accordance with Technical Specification requirements and/or the ASME Boiler and Pressure Vessel (B&PV) Code Section XI. Surveillance procedures require the Shift Manager's approval before performance of the surveillance. After completion of operability tests, the Shift Manager also reviews tests to verify that they have been successfully performed and meet the acceptance criteria cited in the surveillance procedure.

13.5.5 Radiological Emergency Response Preparedness Implementing Procedures

The Radiological Emergency Response Preparedness (RERP) Plan and Implementing Procedures are the responsibility of the Supervisor - RERP. The RERP Plan establishes and defines the criteria and concepts that are necessary to respond to and mitigate the consequences of radiological emergencies to safeguard plant personnel and protect the health and safety of the public. The RERP Implementing Procedures establish the organization, direction and control, overall response, and protective actions for an emergency at Fermi 2. RERP Implementing Procedures may be either administrative or technical procedures, depending upon content. The RERP Plan and Implementing Procedures are on file with the NRC.

13.5.6 Security Plan Procedures

Security Plan Procedures are the responsibility of the Manager -Nuclear Security working in conjunction with the Manager – Nuclear Operations. Security procedures may be either administrative or technical, depending upon content. The implementation of the Security Plan Procedures is performed by Nuclear Security personnel under the direction of the Manager - Nuclear Security.

13.6 PLANT RECORDS

13.6.1 Plant History

The Director – Nuclear Support has overall responsibility for documents. Specific individuals within the Fermi Organization are assigned responsibility for the generation and control of documents within their purview. The preparation of written procedures and revisions thereto, and of other administrative records, is also included in the responsibilities of these individuals.

A recorded history of Fermi 2 documenting the design, engineering, construction, testing, operation, maintenance, and modification of the plant is maintained in accordance with 10 CFR 50, Appendix B, Section XVII, Quality Assurance Records.

13.6.2 Operating Records

Operating records and documents include appropriate log books, log sheets, data log output, and recorder charts covering the operation of the plant. These records are to include data sufficient to prepare operational information reports as required.

13.6.3 Events Records

In addition to the operating records that are maintained on a continuing basis, records of other occurrences that may be required to reconstruct significant events or satisfy statutory requirements are maintained for the life of the plant.

## 13.7 INDUSTRIAL SECURITY

### 13.7.1 Personnel and Plant Design

The Manager - Nuclear Security is directly responsible for the security at Fermi 2. This section describes, in general terms, the security measures that are in effect at Fermi 2 for protection against radiological sabotage. A detailed security plan, not for public disclosure, is made available to the NRC. The Fermi 2 Security Plan conforms to the requirements of 10 CFR 73.55, Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage.

The security program is generally outlined in the Fermi 2 Physical Security Plan and is administered by the Manager - Nuclear Security. The security program at the plant is implemented by compliance with the criteria outlined in the Physical Security Plan.

The consequences of acts of radiological sabotage are minimized by the plant protective systems, including the nuclear safety features and engineered safety feature (ESF) systems incorporated in the plant design. The redundant protective systems and redundant ESF systems are described in detail in Chapters 6, 7, and 8. Also, fire protection equipment is located throughout the plant to minimize the effects of fire or explosion.

Plant operating, security, and staff personnel are screened to minimize potential security risks and to help ensure that reliable and emotionally stable personnel are selected for assignment in the plant. A background investigation, fitness for duty testing, and a psychological evaluation are performed for each employee who requires unescorted access to the Fermi 2 protected area. In addition, other DTE personnel and certain vendors or contractors, who have a need to be at the plant on a frequent basis, and whose personnel require unescorted access, are subject to the same pre-access screening. These people are issued photo-identification badges that permit unescorted access into the protected area. All other persons infrequently entering the protected area, such as certain subcontractors, vendor personnel, or visitors, are issued special badges that will provide limited and escorted access during their authorized visits.

Plant personnel in a management or supervisory capacity are advised of the necessity to recognize emotionally unstable personnel and to report abnormal behavior. A behavior observation program is established as required by 10 CFR 26.

A security training and qualification program is established for the purpose of developing and maintaining maximum proficiency of the Security Force personnel. In general, the guidelines in 10 CFR 73, Appendix B, are followed by the program. Security Force personnel are to be thoroughly familiar with all plant security procedures and are responsible for their implementation.

### 13.7.2 Security Plan

A detailed Physical Security Plan, Safeguards Contingency Plan, and Security Training and Qualification Plan are on file with the NRC.

Security procedures are issued to provide additional information for use by both the plant operating personnel and the plant security personnel in implementing the Physical Security Plan.

#### 13.7.2.1 Access Control

The control of access into the protected area is accomplished with perimeter barriers and intrusion detection/assessment devices. An industrial-type security fence, properly lighted and cleared on both sides and contiguous with certain site buildings, forms the boundary of the protected area. The protected area barrier serves as a physical and psychological deterrent to entry. In addition, the protected area has intrusion detection alarms to detect entry into this area. Electronic equipment is used for the surveillance of the protected area perimeter fence. A vehicle barrier system is also in place to protect the plant from malevolent use of vehicles. A description of the vehicle barrier system is included in the Physical Security Plan.

Manned alarm stations are established to control and monitor alarms, personnel, vehicles, and materials entering and leaving the protected area. Specific responsibilities are assigned in the Physical Security Plan and by written procedures for the operation of these manned stations.

The control of materials into the protected area is covered by written procedures, which provide controls for articles carried by personnel as well as loads carried by vehicles.

Personnel access to vital buildings, rooms, and spaces, including the main control room, is controlled by a computer-based access control system. Access is granted by the need to enter specific areas. Portal protection of vital rooms, buildings, and structures is provided by locking devices and alarms. All alarms are self-checking and tamper-indicating.

The surveillance of vital areas is accomplished by periodic security patrols and by authorized operating personnel.

#### 13.7.2.2 Control of Personnel by Categories

The control of authorized entry and movement is accomplished by a color-coded, conspicuously worn, photo-identification badge system. For permanent plant personnel and DTE employees who enter the plant frequently, a current access list is maintained and given to the Central Alarm Station and Secondary Alarm Station operators. Admission is granted to those persons who are positively identified and whose names appear on the approved access list. Access lists are reviewed and approved by a cognizant DTE manager or supervisor to ensure personnel on the list have a continued need for access.

For contractor, vendor, service personnel, or other authorized personnel not on the access authorization list, a visitor's badge is issued and an escort required. A visitor's log is maintained to show the name, date, time, purpose of visit, employment affiliation, citizenship, and name of individual to be visited.

13.7.2.3 Access Control During Emergencies

Requests for emergency aid are made either by site security personnel or by authorized plant operating personnel with such requests coordinated with security personnel to permit the required rapid access needed in emergency conditions. Procedures covering emergency access are referred to in the Physical Security or Safeguards Contingency Plans and are compatible with the Fermi 2 Radiological Plan.

13.7.2.4 Surveillance and Monitoring

Surveillance and monitoring of vital equipment, components, and areas are accomplished in accordance with administrative procedures and controls by the use of electronic equipment and remote-reading instruments to detect changes in ESF equipment. The inspection of nuclear fuel and radioactive materials upon receipt is in accordance with administrative controls and procedures.

13.7.2.5 Potential Security Threats

Nuclear security officers are armed and trained to respond as necessary as outlined in the site's Safeguards Contingency Plan in the event of situations affecting the security of the Fermi 2 plant. Fermi 2 security personnel have two independent means of communicating with local law enforcement agencies in order to summon aid. In addition, all on duty members of the security force are equipped with two-way portable radios if other means of communication are not available.

For any civil disorder, bomb threat, or other type of security threat, the Monroe County Sheriff's office and/or the Michigan State Police are notified and provide the necessary assistance. Any incidents involving attempted or actual breach of security controls or attempted acts of sabotage are reported to the NRC, in accordance with 10 CFR 73.71.

The Nuclear Security Organization evaluates all security incidents to determine if they are reportable to the NRC in accordance with 10 CFR 73.71. Those incidents found to be reportable are investigated and a report is developed. The report is reviewed by the Manager - Nuclear Security and the Site Vice President - Nuclear Generation before it is submitted to the NRC.

13.7.2.6 Administrative Procedures

The Physical Security Plan and implementing procedures are reviewed and approved and periodic reviews are performed according to the Physical Security Plan.