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CHAPTER 12 – CONDUCT OF OPERATIONS

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12.0 CONDUCT OF OPERATIONS

12.1 ORGANIZATIONAL STRUCTURE

Exelon Generation Company, LLC is a limited liability company responsible for the safe, reliable, and efficient operation of its nuclear facilities. In addition, Exelon is responsible for appropriate standards, programs, processes, management controls, and support for the nuclear facilities. In keeping with these responsibilities, Exelon is committed to providing sufficient personnel having appropriate qualifications to both operate and technically support the facility.

12.1.1 Offsite Organization

The Exelon corporate organization and its functions and responsibilities are described in Chapter 1 of the Quality Assurance Topical Report NO-AA-10, as revised.

12.1.2 OPERATING ORGANIZATION

Three Mile Island Unit 1 is under the direction of the Vice President - TMI Unit 1 who is accountable to the Exelon Nuclear Chief Operating Officer. The Vice President - TMI Unit 1 has direct, onsite responsibility for the safe, reliable, and economic operation and maintenance of TMI Unit 1. The Vice President - TMI Unit 1 is responsible to operate and maintain TMI Unit 1 in a safe, environmentally sound, reliable, and efficient manner, in accordance with Exelon policies and all applicable laws. The Vice President - TMI Unit 1 is the senior Exelon representative at the TMI site and, as such, assures consistent implementation of policies and procedures at the site and at Exelon offsite facilities in the TMI area. All station organizations are accountable to the Vice President - TMI Unit 1 except for those organizations involved in the independent corporate assessment and oversight activities described in the Quality Assurance Topical Report.

The station organization for TMI Unit 1 is shown in Figure 12.1-3. This figure shows the title of each position and the positions for which reactor operator and senior reactor operator licenses are required. The requirements for selection, qualification, and training of TMI Unit 1 personnel are specified in Section 12.1.3, Qualification of Nuclear Plant Personnel.

Succession of Authority

The Vice President - TMI Unit 1 has overall responsibility for station activities. The Plant Manager is the Vice President's deputy and, in that capacity, is responsible for day-to-day plant operations, maintenance and technical support. The Plant Manager assumes responsibility for all station activities in the absence or unavailability of the Vice President. If both the Vice President and the Plant Manager are unavailable, absent, or incapacitated, a senior member of the site staff is designated as responsible for all station activities.

12.1.2.1 Plant Division

The Plant Division is under the direction of the Plant Manager who is accountable to the Vice President - TMI Unit 1. The Plant Manager is responsible for operating the plant safely, reliably, and efficiently in compliance with all applicable Technical Specifications, quality assurance requirements, procedures, and federal, state, and local requirements.

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The authority of the Plant Manager to act on behalf of the Vice President - TMI Unit 1 is inherent in the position and is commensurate with the assigned responsibilities. It includes the authority to order the shutdown of the unit whenever the health and safety of the public are endangered or when, in his judgment, a shutdown is warranted. It also includes the authority to issue procedures, orders, and other directives required in the execution of the assigned responsibilities. Necessarily included in the responsibility for plant operation and compliance with Technical Specifications, is the authority to assign and prioritize requirements to the Plant and Work Management Divisions. Similarly, the authority of the Plant Manager includes the initiation and prioritization of corrective maintenance and preventive maintenance in the execution of his responsibilities. The Plant Manager may delegate his authority to the Director - Operations, or other senior member of his staff during absences.

Reporting to the Plant Manager are the Director - Operations, Director- Maintenance, Director - Work Management, Manger- Radiation Protection, and Manager - Chemistry

12.1.2.1.1 Operations Department

The Operations Department is under the direction of the Director - Operations who reports to the Plant Manager. The Director - Operations has the responsibility for the actual day-to-day operation of the unit. The Director - Operations coordinates operations and related maintenance activities with the Director - Maintenance.

The Director - Operations is responsible for the day-to-day direction of Operations personnel, to ensure compliance with the conditions of the plant operating license and the Technical Specifications.

The Director - Operations has the authority to shut down and cool down the unit whenever the health and safety of the public are endangered or when, in his judgment, such action is warranted. The Director - Operations sets operations plans, policies and procedures through his direct reports.

The Director - Operations oversees the coordination of the plant procedure program.

The Director - Operations has the following direct reports:

- Shift Operations Superintendent
- Reactor Engineering Manager
- Senior Manager Operations Support and Services

The Shift Operations Superintendent is responsible for the day-to-day direction of Operations personnel, to ensure compliance with the conditions of the plant operating license and the Technical Specifications.

The Shift Operations Superintendent shall hold an SRO license.

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Shift Managers

The Shift Managers report through the Shift Operations Superintendent to the Director - Operations. The Shift Managers direct the activities on their shift, and are cognizant of operations, maintenance, construction, and radiologically controlled maintenance activities being performed on their shift. They are responsible for the approval and assurance that all activities involving nuclear safety related systems and components are accomplished in accordance with properly approved procedures.

The Shift Managers have the primary command and control responsibility for the management and direction of all operation and maintenance activities, including the manipulation of any controls, equipment, or components in physical plant systems on their shift. Administrative functions that detract from their primary responsibility for safe operation of the plant are delegated to other personnel. The Shift Managers are responsible for Technical Specification compliance regarding operations and maintenance activities occurring on their shift.

The Shift Managers have the authority and obligation to shut down the unit if, in their judgment, conditions warrant this action. The Shift Managers also have the authority to refuse or halt any activity, requested or in process, on any plant system if, in their judgment, the safety of plant systems, the public, or plant personnel is endangered.

The Shift Managers must be SRO licensed.

Control Room Supervisors

The Control Room Supervisors report directly to the Shift Manager on their shift. They direct the activities of the unit operators on their shift and are cognizant of all in-plant activities being performed on their shift.

The Control Room Supervisors are responsible for the actual operation of the unit on their assigned shift. They are responsible for ensuring that all Control Room activities, including control panel monitoring, processing of radiation work permit (RWP) and tagging applications, operational log and recording functions, and interplant communications, are executed in accordance with prescribed guidelines and correct operating practices. They are responsible for the orderliness, correctness, and proper decorum of Control Room operations and related activities.

Control Room Supervisors have the authority and the obligation to shut down the unit if, in their judgment, conditions warrant this action.

Control Room Supervisors must be SRO licensed.

Shift Technical Advisors/In-Plant Supervisors

The Shift Technical Advisors (STAs) provide direct technical review of plant performance and safety and advise the Shift Manager in these matters. The STAs report to the Operations Support Manager. The STAs are key members of the Operations organization in that they are intimately involved with monitoring the condition of the plant and have the authority to initiate the application of appropriate resources to plant problems.

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The STAs are responsible for monitoring reactor plant operations to ensure safe, reliable, and efficient performance. The STAs evaluate the technical performance of the reactor plant during power, startup/shutdown, heatup/cooldown, and refueling modes, as well as periods of cold shutdown when special maintenance evolutions or tests are in progress.* The STAs monitor the response of the plant during transients and accidents, determine if the plant is responding within expected limits, and advise the Shift Managers of an abnormal status and the corrective actions needed to prevent adverse consequences.

The STAs are responsible for advising the Shift Manager or his alternate of any abnormal plant conditions in a timely manner appropriate to the condition, but do not interfere with the safe operation of the plant.

The STAs are responsible for notifying Site Engineering management any time the plant responds in a manner significantly different from normal or design response. Notification should take place as soon as practical after the event but should not interfere with the STA function of assisting the Shift Manager in achieving stable plant conditions. If the STAs have concerns regarding the safe operation of the plant which cannot be resolved, the Director - Operations or his alternate will take the appropriate action to resolve the concern.

The STAs act in a monitoring/advisory capacity to the Operations Shift Managers and Control Room Supervisors. They advise and assist the Shift Managers in matters of reactor safety. They also advise the Shift Managers whenever they believe it necessary to call for outside technical support.

During normal plant operation, STAs function as the Operations In-Plant Supervisor, directing the Auxiliary Operators. The In-Plant Supervisor reports to the Shift Manager.

Control Room Operators

The Control Room Operators report to the Control Room Supervisor on their shift. They are responsible for operating the reactor, turbine, generator, switchboards, and other equipment required to operate the plant in a safe and reliable manner in accordance with the operating license and approved procedures.

The Control Room Operators are responsible for operation of all assigned equipment, and for reporting any unusual performance of this equipment. They are responsible for the correct manipulation of plant controls from the Control Room in accordance with the provisions of their RO licenses.

The Control Room Operator has the authority to shut down the unit when conditions in the unit warrant such action. They also have the authority to direct the Auxiliary Operators in the performance of approved procedures and normal activities.

The Control Room Operators must be RO licensed.

* The Shift Technical Advisors shall support the shift by either 'on-shift' assignment or presence on-site and be available in the Control Room within 10 minutes of contact. The STA may be directed by emergency procedures to go to other locations to ensure personnel protection and be directed to the Control Room at a later time.

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Auxiliary Operators

The Auxiliary Operators are responsible for operating and inspecting equipment from their position outside the Control Room in the nuclear power station as required to support day-to-day operation. They are directed in the performance of their duties by the Operations In-Plant Supervisor. They are responsible for reporting any unusual performance of equipment.

The Auxiliary Operators are responsible for the operation and inspection of plant equipment. They are responsible for notifying the appropriate supervisor if any portion of the unit exceeds established radiological control limits. They assist in the receipt, storage, loading, and unloading of fuel, shipment of irradiated materials, and disposal of radioactive wastes as directed.

The Auxiliary Operators have the authority to execute company-approved procedures as directed by Control Room Operators or Control Room Supervisors.

Operations Support Manager

The Senior Manager Operations Support and Services reports to the Director - Operations and is responsible for providing on-site technical support and coordination for the Operations Department.

Reactor Engineering Manager

The Reactor Engineering Manager reports to the Director - Operations and is responsible for reactivity management of the fuel and reactor core through core monitoring, maneuvering plans, fuel movement, and fuel performance.

12.1.2.1.2 Maintenance Department

The Maintenance Department is under the direction of the Director – Maintenance, who reports to the Plant Manager. The Director – Maintenance is responsible for maintaining TMI Unit 1 in a safe, environmentally sound, reliable and efficient manner in accordance with company policies and all applicable laws, regulations, licenses, technical requirements and procedures. In addition, the Director – Maintenance is responsible for implementing modification, maintenance, and inspection activities; and execution of maintenance and planning. The Maintenance Department consists of the Mechanical Section, the Electrical Section, the Instrumentation and Controls (I&C) Section, the Planning Section, the Component Maintenance Optimization (CMO) Section, and the Support Section.

12.1.2.1.2.1 Mechanical Section

The Mechanical Section is supervised by the Manager - Mechanical Maintenance, who reports to the Director - Maintenance. The Manager - Mechanical Maintenance is responsible for the planning, assignment, supervision, and coordination of activities performed by Mechanical Section craftsmen and supervisors.

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12.1.2.1.2.2 Electrical Section

The Electrical Section is supervised by the Manager - Electrical Maintenance, who reports to the Director - Maintenance. The Manager - Electrical Maintenance is responsible for the planning, assignment, supervision, and coordination of activities performed by Electrical Section craftsmen and supervisors.

12.1.2.1.2.3 Instrumentation and Controls Section

The I&C Section is supervised by the Manager - Instrumentation and Controls, who reports to the Director - Maintenance. The Manager - Instrumentation and Controls is responsible for the planning, calibration, surveillance testing, maintenance, record keeping, and troubleshooting of instruments and controls, radiation monitoring equipment, fire detection and suppression systems, portable measuring equipment, and plant computers.

12.1.2.1.2.4 Planning Section

The Planning Section is supervised by the Manager - Planning, who reports to the Director - Maintenance. The Manager - Planning is responsible for the day-to-day and Outage-related planning for all work performed at the station that falls under the Planning-related procedures. The Manager-Planning is also responsible for the Fix-It-Now (FIN) team.

12.1.2.1.2.5 Component Maintenance Optimization Section

The Component Maintenance Optimization Section is supervised by the Manager – Component Maintenance Optimization, who reports to the Director - Maintenance. The Manager - Component Maintenance Optimization is responsible for optimization and standardization of the Preventive Maintenance Program by providing recommendations based on trend analyses obtained through predictive maintenance technology; optimization of the Predictive Maintenance Program (PDM) through condition monitoring and diagnostic technology applications; and for trending data obtained through PDM to provide equipment and system assessments.

12.1.2.1.2.6 Support Section

The Support Section is supervised by the Manager - Support, who reports to the Director - Maintenance. The Manager - Support is responsible for management of the Supplement Work Force, department learning programs implementation oversight, department budget, and support facilities maintenance.

12.1.2.1.3 Work Management Department

The Work Management Department is under the direction of the Director - Work Management, who reports to the Plant Manager. The Director - Work Management is responsible for maintaining TMI Unit 1 in a safe, environmentally sound, reliable, and efficient manner in accordance with company policies and all applicable laws, regulations, licenses, technical requirements, and procedures using sound work management tools. The Work Management Department consists of the following sections: Outage Section, Online Section, and Supply Chain Section.

12.1.2.1.3.1 Outage Section

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The Manager - Outage reports to the Director - Work Management. The Outage Section is responsible for performing Refueling Outage planning, scheduling and planning/execution of forced and planned maintenance outages, and continued development of the online work management process. This section is also responsible for maintaining the shutdown risk program.

12.1.2.1.3.2 Online Section

The Manager - Online reports to the Director - Work Management. The Online Section is responsible for the building and integration of worksheet schedules, determining and controlling work scope, and scheduling work duration and resources. The section is also responsible for performance of online risk assessment, performing of schedule changes, and providing schedule oversight.

12.1.2.1.3.3 Supply Chain Section

The Manager - Supply Chain reports to the Director - Work Management. The Manager - Supply Chain is responsible for providing responsive and cost-effective contracting and procurement, contract administration, materials receipt inspection, warehousing, and inventory control. This section is also responsible for receiving, storing, and issuing purchased material and equipment, and maintaining warehouse inventory levels while implementing effective preventive maintenance and shelf life programs; performs commercial grade dedications as required. The Manager - Supply Chain is responsible through the Procurement Engineering Group (PEG) for the commercial grade dedication program, stored material preventive maintenance program, component bill of materials; technical and logistical support for offsite repairs and development of QA requirements for procurement, contract and technical documents.

12.1.2.1.4 Radiological Health and Safety Department

The Radiological Health and Safety (RH&S) Department is under the direction of the Manager-Radiological Protection who reports to the Plant Manager. The Radiological Health and Safety Department is responsible for administering the site radiation protection, occupational safety, respiratory protection, radioactive waste packaging and radioactive materials shipping programs.

The Manager-Radiological Protection is the station radiation protection manager (RPM) and as such has technical responsibility for the radiation protection program. Additionally, this position provides overall direction for the site occupational safety program. The RPM and associated staff has authority for direct termination of any activity that is not being accomplished in accordance with appropriate radiological and safety practices or procedures. The Manager-Radiological Protection has the following direct reports:

- Radiological Engineering Manager
- Front Line Supervisors
- ARW/Decon Supervisor

The Radiological Engineering Manager is responsible for implementation of the internal and external dosimetry, respiratory protection, the industrial/occupational safety programs, for

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coordinating the station radiation exposure reduction activities, source term reduction and shielding programs, integration of dose reduction initiatives into the work planning and design review process, radiation work permit and ALARA review preparation, and coordination of the contamination control program. Additionally, implementation of the radioactive waste shipping program and technical oversight for the portable radiation detection and measurement instrumentation calibration program fall under the realm of this position. This position also provides subject matter expert support for the radiation protection training programs.

The Front Lines Supervisors are responsible for implementation of the radiation protection and radioactive material control programs in accordance with established procedures and to provide direct supervision the station radiation protection and instrumentation calibration technicians.

The ARW/Decon Supervisor is responsible for the implementation of DAW radwaste reduction initiatives, equipment/material/area decontamination, and execution of the radioactive material/waste packaging program. This position provides direct oversight of the radwaste workers and provides technical oversight and control of decontamination facilities maintained on site.

12.1.2.1.5 Chemistry Section Department

The Manager - Chemistry reports to the Plant Manager and is responsible for implementing radwaste operations, the hazardous waste management program, environmental chemistry, and the onsite chemistry program.

The Manager - Chemistry is responsible for:

- a. Managing radioactive waste systems to ensure waste is processed and packaged in accordance with plant procedures, NRC regulations, and state and federal laws;
- b. Oversight of the radwaste volume reduction programs that minimize radwaste generation; and
- c. Directing radioactive waste storage and disposal activities.

The Manager - Chemistry is responsible to ensure compliance with NRC and DOT packaging and shipping requirements, and NRC radioactive material storage requirements.

The Manager - Chemistry is responsible for hazardous waste management, spill response, and biological monitoring. This position is also responsible for implementing the Right-to-Know and SARA compliance programs.

The onsite chemistry program involves laboratory chemical analysis, primary and secondary system chemistry control, water treatment, waste treatment and radiochemistry. The Manager - Chemistry directly supervises the activities of the Chemistry Supervisor - Chemistry (Chemistry Foremen) and the Staff Chemists.

The Chemistry Supervisor is responsible for the direct supervision of the Chemistry Technicians including scheduling, laboratory operations, and data review.

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The Manager - Chemistry is also responsible for ensuring that appropriate management and administrative control systems and procedures are developed, implemented, and complied with, as necessary, to fulfill all listed responsibilities.

The Manager - Chemistry has the authority to stop the shipment of any radioactive material which does not comply with regulatory or management requirements, and stop any activity which unnecessarily generates radioactive waste.

The Manager - Chemistry is responsible for the environmental function and to ensure the requirements in the ODCM are met. The environmental function involves compliance with state and federal environmental regulations. Environmental activities include coordination of samples and reports necessary to comply with various air, water, and solid environmental programs. The environmental program also ensures that the site drinking water meets acceptable state and federal standards.

12.1.2.2 Security Department

The Security Department is managed by the Manager - Security who reports to the Vice President - TMI Unit 1. The Manager - Security is responsible for maintenance, implementation, and control of the site security program, the site access program, and the fitness for duty program.

12.1.2.3 Site Engineering Department

The Site Engineering Department is under the direction of the Director - Site Engineering who reports to the Vice President - TMI Unit 1. The Director - Site Engineering is responsible for planning, directing, and coordinating engineering and technical support activities in accordance with applicable regulations, policies and procedures. The Site Engineering Department consists of the Plant Engineering Section, Design Engineering Section, Programs Section.

12.1.2.3.1 Plant Engineering Section

The Plant Engineering Section is under the direction of the Sr. Manager - Plant Engineering who reports to the Director - Site Engineering. The Plant Engineering Section provides technical leadership to achieve optimum plant and equipment performance and reliability through performance monitoring, trending, evaluation, specification of maintenance requirements, and definition of appropriate plant upgrades. The Plant Engineering Section is responsible for supporting safe and reliable plant operation by maintaining a staff of qualified engineers and by providing expertise and support in areas such as reactivity management, process computer hardware and software, major components, and startup and test.

The Plant Engineering Section is composed of the BOP Systems Branch, Electrical Systems Branch, and the NSSS Systems Branch.

System Engineering Branches (BOP Systems, Electrical Systems, NSSS Systems)

Each System Engineering Branch is under the direction of a Manager - System Engineering who report to the Sr. Manager - Plant Engineering. The Manager(s) - System Engineering are responsible for providing daily support to the plant operations and maintenance organizations. The System Engineering Branches are responsible for the technical content of the plant design

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basis and preventive maintenance program, preparation of modification plans and testing, modification scope control, performance of system reliability, availability trending, and providing technical input for system procedures.

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12.1.2.3.2 Design Engineering Section

The Design Engineering Section is under the direction of the Sr. Manager - Design Engineering who reports to the Director - Site Engineering. The Design Engineering Section provides a disciplined approach to the control of the physical plant configuration to ensure that plant operation, maintenance, and configuration are maintained in accordance with the design basis. The Design Engineering Section is responsible for providing engineering for plant modifications; maintaining configuration control processes, procedures, and documentation; managing plant modifications through authorization, engineering, construction, turnover, and close-out; vendor document control; maintaining the engineering component databases; and providing design and drafting support for plant modifications and other engineering activities.

The Design Engineering Section is composed of the Electrical/I&C Branch, Mechanical/Structural Engineering Branch, and Engineering Response Branch.

Electrical/I&C Branch

The Electrical/I&C Branch is under the direction of the Manager - Electrical/I&C who reports to the Sr. Manager - Design Engineering. The Manager - Electrical/I&C is responsible for support systems engineering, design configuration changes, instrument setpoint error analysis, instrument and relay setpoint control, technical support on EQ issues, thermal overload sizing calculations, capacitor replacement, and fuse control.

Mechanical/Structural Engineering Branch

The Mechanical/Structural Engineering Branch is under the direction of the Manager - Mechanical/Structural Engineering who reports to the Sr. Manager - Design Engineering. The Manager - Mechanical/Structural Engineering is responsible for support systems engineering, design configuration changes, development of equipment technical specifications, configuration control (SQUG, hangers, supports and snubbers, NUREG-0612 heavy loads, and MOV weak link and valve factor analysis), equipment reliability (MIC and FAC, fatigue management, ISI supports and pressure boundary inspections, building and structural monitoring, snubber testing, tank inspections, drywell and containment structures, and tendon surveillance), management of the plant modifications in accordance with the project approval and management process, including control of budget, cost, and schedule, and nuclear coatings programs.

Engineering Response Branch

The Engineering Response Branch is managed by the Manager - Engineering Response, who reports to the Sr. Manager - Design Engineering. The purpose of the Engineering Response Team is to direct a significant portion of emergent plant issues, which require exigent resolution, to a dedicated group of engineers with multi-discipline experience.

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12.1.2.3.3 Programs Section

The Programs Section is under the direction of the Manager - Programs who reports to the Director - Site Engineering. The Manager - Programs is responsible for Maintenance Rule assessment, MOV, check valve and AOV programs, 10 CFR 50 Appendix J Containment Leakage Rate Testing program, 10 CFR 50 Appendix R Fire Protection program, ASME Section XI ISI & IST Program, Generic Letter 89-13 Service Water Program definition, Flow Assisted Corrosion, PSA, Generic Letter 96-01 surveillance and test matrix maintenance, thermal performance, welding, and "R" stamp program.

12.1.2.4 Training Department

The Training Department is under the direction of the Director - Training who is accountable to the Vice President - TMI Unit 1. The Director - Training is responsible for providing training for personnel to carry out their duties, identifying the programmatic training needs of all site personnel, ensuring the effectiveness of training programs, incorporating operating experience into training, and monitoring participation.

12.1.2.5 Business Operations Department

The Business Operations Department is under the management of the Manager - Business Operations who is accountable to the Vice President - TMI Unit 1. The Manager - Business Operations is responsible for providing management direction and accountability in the areas of budget and finance; general administrative coordination, business planning, performance indicators, and goals management. The Business Operations Department consists of the Plant Controller Section and the Records Management Section.

12.1.2.5.1 Plant Controller Section

The Plant Controller Section is supervised by a manager, who reports to the Manager - Business Operations. The Plant Controller is responsible for general accounting services.

12.1.2.5.2 Records Management Section

The Records Management Section is managed by the Manager - Records Management, who reports to the Manager - Business Operations. Records Management is responsible for document and records management and ensuring that records management systems meet information needs and legal and regulatory requirements for quality criteria, storage, retention periods, controlled distribution, and retrieval capability. Records Management establishes, implements, and maintains uniform policies, procedures, and programs to support document and records management and information resources activities to support achievement of company objectives in accordance with corporate policies and all applicable laws, regulations, and licenses.

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12.1.2.6 Regulatory Assurance Department

The Regulatory Assurance Department is managed by the Manager - Regulatory Assurance who reports to the Vice President – TMI Unit 1. The Manager - Regulatory Assurance is responsible for providing the principal interface and control with all non-financial, non-environmental regulatory agencies including NRC, appropriate state agencies, and supporting legal services. This includes:

- managing licensing issues,
- coordinating Technical Specification reporting requirements,
- LER preparation and submittal,
- managing the corrective action process(CAP),
- providing maintenance of TMI environmental permits and licenses
- the industry operating experience review program, and
- implementing the site emergency preparedness plan
 - administration
 - maintenance
 - providing qualified personnel to conduct training
- safety review process
 - manages Plant Operations Review Committee (PORC) activities
 - development and implementation of standards and process procedures,
 - common curriculum for training personnel,
 - certification of Station Qualified Review and Plant Operations Review Committee personnel, and
 - periodic assessment of performance and ensuring corrective action is taken.

12.1.2.7 Manager - Human Resources

The Manager - Human Resources reports to the Vice President - TMI Unit 1. The Manager - Human Resources is responsible for ensuring that all human resources functional responsibilities are performed in accordance with company policies and all applicable laws, regulations, licenses, and technical requirements. The Manager - Human Resources is also responsible for directing and implementing the medical program.

12.1.2.8 Project Management Department

The Manager - Project Management reports to the Vice President - TMI Unit 1. The Project Management Department is responsible for maintaining current major milestone status of all projects, maintaining project management expertise methods (cost estimates and project plans), and providing full accountability for project related expense and capital modifications.

12.1.3 QUALIFICATION OF NUCLEAR PLANT PERSONNEL

Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI/ANS 3.1 - 1978, "Standard for Selection and Training of Nuclear Power Plant Personnel," for comparable positions unless otherwise noted in the Technical Specifications. Licensed operators shall also meet the requirements of 10 CFR 55. Individuals who do not meet ANSI/ANS 3.1 - 1978, Section 4.5, are not considered technicians or maintenance personnel for purposes of determining qualifications, but are permitted to perform work for which qualification has been demonstrated.

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The management position responsible for radiological controls shall meet or exceed the qualifications of Regulatory Guide 1.8 - 1977, "Personnel Selection and Training." Each radiological controls technician and supervisor shall meet or exceed the qualifications of ANSI N18.1 - 1971, paragraph 4.5.2/4.3.2, or be formally qualified through an NRC approved radiological controls training program. All radiological controls technicians will be qualified through training and examination in each area or specific task related to their radiological controls functions prior to their performance of those tasks.

The Shift Technical Advisors shall have a bachelor's degree or equivalent in a scientific or engineering discipline, with specific training in unit design, and response and analysis of transients and accidents.

Qualification requirements similar to those of other major engineering firms are used for staffing the Nuclear Services and Operations Support organizations. These organizations consist primarily of individuals having college degrees, or the equivalent, in appropriate science or engineering disciplines. In certain instances, technicians, who by virtue of formal education, training programs, or experience have acquired special expertise in particular areas are involved in providing technical support. In keeping with responsible management practices, the capabilities of individuals and supervisors are considered in making personnel assignments.

12.1.4 SAFETY REVIEWS

The safety review process defines how procedure changes, Technical Specification changes, Licensee Event Reports (LERs), plant modifications, and other documents are reviewed, approved, and implemented. This process spreads the responsibility for activity in these areas broadly across the organization. The process requires each director or manager to control the preparation, review, and reporting activities of each activity in their area which affects nuclear safety.

Each director or manager has the responsibility for ensuring that preparation, review and approval of procedures and other documents required by the activities within their area of responsibility are carried out properly. The subjects addressed include operating procedure changes, plant hardware modifications, security and radiological and environmental control activities, etc. In other words, all aspects of nuclear plant design and operation that are important to safe operation involve the safety review process. The main line of this preparation, review and approval process consists of a sequence of four (4) distinct activities: - preparation, technical review, independent safety review and implementing approval.

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Responsibilities and Qualifications of Preparers, Reviewers and Approvers

The person assigned to prepare the document (Procedure Change, Design Modification, LER, etc.) must be knowledgeable and experienced in that technical area. The person is responsible for providing thoughtful, well written language which can easily be interpreted by users and reviewers. The preparer is responsible for soliciting input from knowledgeable people in other organizations, as appropriate, and resolving their comments. The preparer makes an initial determination as to whether or not: (a) a cross disciplinary review is necessary; and, (b) prior NRC approval is required; or, (c) a Technical Specification change is needed.

Technical Review

"Station Qualified Reviewers*" are charged with reviewing the document for safety and technical adequacy. They must be knowledgeable and experienced individuals, different from the preparer, but may be from the same organization as the individual who prepared the document.

These people must be qualified in accordance with the provisions of the Quality Assurance Topical Report (QATR). The responsible technical reviewers must also review and concur on the determination of: (a) the necessity for a cross disciplinary review, (b) prior NRC approval is required, and (c) the need for a Technical Specification change. This review and concurrence must be documented.

"Implementing approvers/Site Functional Area Managers" are responsible for releasing the document for its intended use (NRC Report, permanent procedure change, etc).

Independent Safety Review

Independent safety review must be performed by an individual or group not having direct responsibility for the performance of the activities under review and, in most cases, may be performed after implementation. The Plant Operations Review Committee is typically responsible for independent safety review. The purpose of the independent safety review process is to assess the adequacy of the preparation and documentation provided on the need for prior NRC approval and the need for Technical Specification changes.

The function of the Plant Operations Review Committee (PORC) is to perform an independent verification of a document to the extent necessary to verify safety adequacy. Personnel performing PORC duties must satisfy the provisions of the QATR.

* The "Station Qualified Reviewer" is so named to distinguish him/her from other people whom he or she might ask to provide cross-disciplinary assistance for the technical review. The "Station Qualified Reviewer" is accountable for the review; he/she is the one who must be qualified as specified in the QATR.

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Nuclear Safety Review Board (NSRB)

A collegial body that (1) conducts independent reviews of each licensed Exelon Nuclear Station performance and operations to determine if the station affairs are being conducted in a manner that promotes nuclear safety and (2) provides feedback to the organization on suggested improvements.

Summary of Accountabilities

The directors and managers maintain responsibility for ensuring the preparation, review and approval of documents required by activities within their functional area of responsibility. These activities include (1) procedures and procedure changes that affect nuclear safety, (2) proposed changes to Technical Specifications, (3) proposed modifications of unit structures, systems and components that affect nuclear safety, (4) proposed tests and experiments that affect nuclear safety, (5) investigation of violations of the Technical Specifications, (6) events reportable to the NRC, and (7) security and emergency plans and their implementing procedures.

The directors and managers maintain responsibility for ensuring periodic independent safety review of subjects within their assigned area of safety review responsibility.

These subjects include:

- a. Written safety evaluations of changes to the facility as described in the Safety Analysis Report (SAR), of changes in procedures as described in the SAR, and of tests or experiments not described in the SAR;
- b. Proposed changes in procedures, proposed changes in the facility, or proposed tests or experiments which involve a change in the Technical Specifications or require NRC approval;
- c. Proposed changes to Technical Specifications or license amendments related to nuclear safety;
- d. Violations and reportable events which require written reports to NRC;
- e. Written summaries of audit reports in certain areas involving safety related functions; and
- f. Any other matters involving safe operation deemed appropriate for consideration.

The directors and managers are also responsible for putting procedures in place for carrying out these activities, as well as providing for training for individuals involved in the process.

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12.2 TRAINING

12.2.1 TRAINING PROGRAMS

The training programs include development, conduct and maintenance, of engineering support personnel, technical training, training support and operator training programs. Additional training programs are presented as needed. Training programs are prepared to include formal objectives and written lesson plans. During development of programs, close liaison is maintained with appropriate line managers to ensure that content, test material, mode of presentation, and schedule are appropriate. As additional training needs are identified, new training programs are developed to meet requirements not covered by existing programs. Approved training programs are described in Reference 2.

12.2.2 TECHNICAL TRAINING

Technical training programs include maintenance training, radiological controls training, and chemistry training.

12.2.2.1 Maintenance Training

Maintenance technicians undergo training and retraining on a scheduled basis. Training programs are normally conducted by permanent employees. Contractor support is used as deemed necessary. Equipment training conducted by vendors is used where appropriate. Specialized training programs are presented as needed.

12.2.2.2 Radiological Controls/Chemistry Training Programs

Radiological Controls and Chemistry technicians undergo training and retraining on a scheduled basis.

Radiological Controls and Chemistry training programs are normally conducted by permanent employees. Contractor support is used where necessary. Equipment training conducted by vendors is used where appropriate. Specialized training programs, such as the Radwaste Supervisor initial and retraining programs, are presented by the appropriate section as needed.

12.2.3 OPERATIONS TRAINING

12.2.3.1 Replacement Operator Training Program (AO/CRO/SRO)

The purpose of Replacement Operator Training is to prepare operator candidates for licensed and non-licensed operator (auxiliary operator) positions by providing a sound theoretical and practical background to ensure that personnel understand how and why they perform specific tasks, understand how their jobs impact plant and public safety, and how they can correctly respond to situations they might encounter during normal and abnormal situations.

The Replacement Operator Training Programs are accredited by the National Nuclear Accrediting Board and detailed in training program descriptions.

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12.2.3.2 Licensed Operator Regualification Training Program (CRO/SRO)

The goal of the operator requalification program is to enhance nuclear plant safety and reliability by maintaining a high level of skill and knowledge in licensed senior operators and licensed operators.

The operator requalification program is designed to be sufficiently broad in scope to review areas of knowledge necessary for safe plant operation and flexible enough to cover recent operating experience and operational changes so that proficiency can be enhanced and operational safety maintained. This program satisfies the requirements of 10CFR55.59, "Requalification," and is described in a training program description.

The Licensed Operator Regualification Training program is accredited by the National Nuclear Accrediting Board and was developed using the "systematic approach to training."

12.2.3.3 Shift Technical Advisor (STA) Training Program

The purpose of the STA training program is to prepare candidates for the STA job by providing a sound theoretical and practical background to ensure that personnel understand how and why they perform specific tasks, understand how their jobs impact plant and public safety and how they can correctly advise the operating crew during situations they might encounter during normal and abnormal situations.

Following completion of the initial training program, incumbents are provided with continuing training designed to maintain their knowledge and skills.

The STA Training Program is accredited by the National Nuclear Accrediting Board and was developed using the "systematic approach to training."

12.2.3.4 Auxiliary Operator (AO) Regualification Training Program

The goal of the auxiliary operator requalification program is to enhance nuclear plant safety and reliability by maintaining a high level of skill and knowledge in the auxiliary operators.

The auxiliary operator requalification program is designed to be sufficiently broad in scope to review areas of knowledge necessary for safe plant operation and flexible enough to cover recent operating experience and operational changes so that proficiency can be enhanced and operational safety maintained. This program is described in a training program description.

The auxiliary operator Regualification Training Program is accredited by the National Nuclear Accrediting Board and was developed using the "systematic approach to training."

12.2.4 TRAINING SUPPORT

Training Support programs include General Employee Training (GET), fire protection training, and emergency preparedness training.

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12.2.4.1 General Employee Training Programs

General Employee Training is conducted for all non-visitor personnel (company and contractors) at Three Mile Island Unit 1. All personnel receive instruction on topics such as use of procedures, security, emergency preparedness, quality assurance, industrial safety, worker and community right to know laws, fitness for duty, radiation effects and risks and basic radiation protection. Employees who enter radiation work permit required areas receive additional training on topics such as federal standards, and radiological protection practices and procedures. Employees required to wear respiratory protection devices receive training in respiratory protection.

Practical factors training is conducted for radiation workers and for wearers of respiratory protection devices. In order to maintain continuing access to the specified areas of the station, all workers must successfully complete an appropriate refresher program.

12.2.4.2 Fire Protection Training Program

The Fire Protection Training Program is designed to meet the requirements of Section 600 of the NFPA Code-1996, and the Fire Protection Program as described in Section 9.9. All fire protection training evolutions shall be performed within the specified time interval with a maximum allowable extension not to exceed 25% of the training interval.

The Fire Brigade Training Program consists of initial training, retraining, practical training, fire brigade team leader training, and drills. Participants in this program include designated members of the Unit I Operations and Work Management Divisions.

The initial training program includes subjects such as fire fighting procedures, fire chemistry and behavior, fire fighting equipment pre-plans, detection and suppression systems, fire hazards and practical hands on training, including extinguishing actual fires. The retraining program is scheduled to provide quarterly instruction and is designed to repeat the classroom portion of the initial program over a two year period. Practical hands-on training is conducted annually and includes extinguishing actual fires using portable extinguishers and hoses. Quarterly instruction also includes topics such as plant modifications, drill problems, pre-plan changes, and other fire related subjects.

Fire Brigade Team Leaders receive additional training on managing fire control operations.

Fire drills are conducted quarterly for each shift fire brigade. The drills test the fire brigade's response, method of fire control and extinction (simulated), as well as the team leader's ability to coordinate the event. Annually, the offsite volunteer fire companies are invited to participate in an onsite fire drill. During this drill, the coordination between the fire brigade and the volunteer fire companies is analyzed and evaluated.

The offsite fire companies which support TMI Unit 1 are invited to receive training on response procedures, radiological protection, and site familiarization in accordance with the Emergency Plan. Other fire training courses are provided to the offsite fire companies upon the request of the fire company chief.

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Fire Watch Training is conducted annually for those personnel who are assigned "hot work" fire watch duties. This training includes instruction in fire watch duties/responsibilities, basic fire chemistry, fire classification, and the type and operation of portable fire extinguishers.

For selected personnel of the Operations, Rad Con, and Maintenance Groups, periodic training is provided to familiarize them with their support role of the fire brigade.

12.2.4.3 Emergency Preparedness Training Programs

Emergency preparedness training is intended to prepare all personnel to successfully perform their emergency duties as outlined in the Emergency Plan and the Emergency Plan Implementing Document.

All personnel receive a familiarization with the salient features of the Emergency Plan as part of General Employee Training. The training includes identification of specific emergency conditions and associated alarms, and proper employee responses. Retraining is conducted annually.

Personnel who have specific emergency related duties receive specialized emergency preparedness training. That training is tailored to the specific emergency duty positions and emergency response roles. Retraining is conducted annually.

12.2.4.4 Not Used

12.2.5 ENGINEERING SUPPORT PERSONNEL (ESP) TRAINING PROGRAM

The ESP Training Program provides orientation, position specific and continuing training intended to supplement job experience and educational background. It provides staff members with a general knowledge of plant operation, as well as a guideline to perform position specific tasks.

The ESP Training Program is applicable to TMI Unit 1 personnel, Manager level and below, who are assigned technical duties which will involve them in the support of plant operations. The ESP Training Program has been designed to provide a new employee with the basic knowledge needed to work more efficiently in a nuclear plant environment.

12.2.6 TRAINING RECORDS

Records showing the training provided by the Training Department to members of the plant staff are prepared by the Training Division and are submitted to the Information Management Center (IMC) for retention for the life of the license.

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12.3 PROCEDURES

Written procedures are established, implemented and maintained covering the items referenced below:

- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978.
- b. Surveillance and test activities of equipment that affects nuclear safety and radioactive waste management equipment.
- c. Refueling Operations.
- d. Security Plan Implementation.
- e. Fire Protection Program Implementation.
- f. Emergency Plan Implementation.
- g. Process Control Program Implementation.
- h. Offsite Dose Calculation Manual Implementation.
- i. Quality Assurance Program for effluent and environmental monitoring using the guidance in Regulatory Guide 4.15, Revision 1.
- j. Deleted.

Further, each procedure required by the above, and substantive changes thereto shall be reviewed and approved prior to implementation and shall be reviewed periodically as set forth in administrative procedures.

Temporary changes to procedures above may be made provided:

- a. The intent of the original procedure is not altered;
- b. The change is approved by two members of the licensee's management staff knowledgeable in the area affected by the procedure. For changes which may affect the operational status of unit systems or equipment, at least one of these individuals shall be a member of unit management or supervision holding a Senior Reactor Operator's License on the unit.
- c. The change is documented, reviewed and approved within 14 days of implementation.

12.3.1 ADMINISTRATIVE CONTROLS

The administrative controls require that:

- a. Operations, maintenance, repairs, and modification in the nuclear related portions of the unit be performed to written approved procedures.

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- b. Independent checks and audits be made to verify that the procedures are followed.
- c. Changes to the unit be strictly controlled to assure that they do not result in degradation in the nuclear safety of the unit.

12.3.1.1 Normal Operations

During normal operations, including testing, the Vice President - TMI Unit 1 has the responsibility and authority to operate the station within the limits of the facility operating license. The operation of safety-related portions of the unit are performed according to written procedures. These procedures are written and maintained by the TMI Unit 1 staff, Exelon or the corporate engineering staff, or their consultants, and vendors. Procedures will be prepared, reviewed and approved through the approved Review and Approval process and, when applicable, the 10CFR50.59 review process. Changes to these procedures require the same review and approval as defined in written administrative procedures. In addition, Nuclear Oversight conducts periodic audits of unit operation. In performing this function, Nuclear Oversight assigns the audit task to a qualified person or persons having no direct line responsibility for execution of day-to-day operation of the unit.

12.3.1.2 Routine Maintenance, Repairs and Refueling

Routine maintenance and repairs will be performed by the unit maintenance force under the direction of the Director - Maintenance. Outside personnel may be brought in to supplement the unit personnel for some large maintenance jobs, but will work under the supervision of the unit personnel.

The procedures required by the Technical Specifications for performing maintenance and repairs are prepared and maintained by the unit staff, and reviewed and approved through the approved Review and Approval process and when applicable, the 10CFR50.59 review process. Changes to the procedures require the same review and approval.

The written repair and maintenance procedures specifically indicate the inspections and checks which must be performed, and also indicate the records and data which must be kept. The procedures also indicate where independent verification of inspections or checks should be performed by specified personnel other than those performing the maintenance.

Materials and parts utilized in the repair and maintenance of nuclear-related portions of the unit will be of the same quality as, or better than, the original materials. The procurement documents will be selectively reviewed by Nuclear Oversight personnel in accordance with the TMI Unit 1 Operational Quality Assurance Plan to ensure that appropriate quality control requirements are fulfilled.

Storage and material-identification procedures assure that purchased materials and parts do not deteriorate in storage and are properly identified prior to their installation or use.

The Director - Maintenance or his designee reviews all maintenance records to ensure that required maintenance is performed and that the necessary records of maintenance and repairs are kept.

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The refueling procedures are prepared under the cognizance of the unit staff, and reviewed and approved through the approved Review and Approval process and, when applicable, the 10CFR50.59 review process. Changes to the refueling procedures require the same review and approval. The refueling procedures indicate items which require verification by specified personnel other than those performing the operation.

12.3.1.3 Modifications

Proposed modifications to the unit are prepared by Site Engineering, corporate engineering, or an authorized contractor, and are reviewed by the Safety Review process. The design of modifications is performed using the same (or upgraded) codes and requirements as used in the original design.

12.3.2 OPERATING PROCEDURES

12.3.2.1 Normal Operating Procedures

Detailed written procedures and checkoff lists are prepared by the unit staff for the operation of nuclear safety related systems. The operating procedures cover start-up, normal operation, and shutdown of the systems. Supplementary procedures cover abnormalities in operation, especially as induced by failure of interrelated systems. Both sets of procedures contain, where applicable, normal setpoints, limiting safety system settings, and safety limits. These procedures will be prepared, reviewed and approved through the approved Review and Approval process, in accordance with TMI-1 Technical Specifications Chapter 6, "Administrative Controls," and, when applicable, the 10CFR50.59 review process.

12.3.2.2 Emergency and Alarm Response Procedures

Emergency procedures to cope with failure of system components are reviewed by the Safety Review process, and approved by the cognizant manager.

In addition to the emergency procedures, alarm response procedures are written for all annunciators for safety-related systems. The alarm response procedures convey to the operator the necessary, immediate corrective action required to return the affected component or system to a safe condition. All safety related alarm response procedures are reviewed and approved in accordance with TMI-1 Technical Specifications Chapter 6, "Administrative Controls."

Operators are required to demonstrate from memory their familiarity with the immediate actions of emergency procedures.

12.3.2.3 Maintenance Procedures

Maintenance procedures are developed as outlined in Subsection 12.3.1.2.

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12.4 PLANT MODIFICATIONS

The Director - Site Engineering is responsible for controlling design changes and the administering of design control activities including design interfaces for modifications that affect nuclear safety of structures, components, and systems. The design of modifications is accomplished using the same (or upgraded) codes and requirements as used in the original plant design.

12.4.1 MODIFICATIONS

Plant modifications are designed in accordance with approved Engineering procedures by Site Engineering or corporate engineering personnel, or an authorized contractor. The procedures comply with the TMI Unit 1 Operational Quality Assurance Plan and other applicable codes and standards.

Plant modifications are installed in accordance with the TMI Unit 1 work management system, or by outside personnel under TMI Unit 1 supervision and/or management. In addition, plant modifications are installed by plant personnel.

The installation of modifications is accomplished in accordance with approved procedures consistent with the design package. The procedures also comply with the TMI Unit 1 Operational Quality Assurance Plan. The procedures ensure:

- a. Post Installation Testing;
- b. Compilation of installation records and record retention and;
- c. Monitoring of installation by the Quality Verification group.

Where the installation of modifications is performed by an outside contractor, the contractor may utilize the TMI Unit 1 Operational Quality Assurance Plan pertaining to modifications, or may utilize his defined quality control plan accepted by the Nuclear Oversight and construction procedures. The contractor's defined quality control and construction procedures must comply with intent of the above and will require review and approval by Nuclear Oversight. The performance of the contractor is monitored by the Quality Verification group.

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12.5 RECORDS

Records of plant operations, maintenance, and other activities shall be maintained in accordance with Technical Specification 6.10 for the periods indicated.

TMI-1 has no safety related snubbers connected to a common hydraulic fluid reservoir. Addition to the plant of this type of snubber would require a Technical Specification revision.

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12.6 QUALITY ASSURANCE DURING THE OPERATIONS PHASE

The licensee is responsible for the operation and maintenance of TMI Unit 1. These activities are presently conducted in accordance with the NRC approved Quality Assurance Topical Report (QATR) which describes the formal and comprehensive control methods established to assure compliance with 10 CFR 50, Appendix B.

The QATR describes how the Quality Assurance Program is to be functionally implemented with due regard to the safety and health of the public and the personnel on site. The TMI Unit 1 Quality Assurance Program as described by the QATR is incorporated herein by reference.

12.7 EMERGENCY PLAN

The prime objectives of emergency planning are to: (1) Develop a plan and implementing procedures that will provide the means for mitigating the consequences of emergencies (including very low probability events) in order to protect the health and safety of the general public and site personnel and to prevent damage to property, and (2) Ensure operational readiness of emergency preparedness capabilities.

The Emergency Plan for Three Mile Island Nuclear Station assures that all emergency situations, including those which involve radiation or radioactive material are handled logically and efficiently. It covers the entire spectrum of emergencies from minor, localized emergencies to major emergencies involving action by offsite emergency response agencies and organizations.

The Emergency Plan Implementing Document provides a single source of pertinent and significant information and data and the procedures that would be required by or useful for various emergency response agencies and organizations in the event of an emergency.

The Emergency Plan Implementing Document consolidates and integrates specific material detailed in documents such as the Emergency Plan, the State Plans, and the Various County Plans.

This Emergency Plan has been developed in accordance with the provisions of 10CFR50, Appendix E, and 10CFR50.47 and is consistent with the guidelines given in (1) Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Revision 3 and (2) "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG 0654/FEMA-REP-1, dated November 1, 1980.

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12.8 PHYSICAL SECURITY

The physical security program for TMI is in accordance with the applicable portions of 10CFR73. The detailed security program as required by 10CFRPart50 is described in a separate document that is withheld from public disclosure in accordance with 10CFR73.21.

12.8.1 Security Training Program

The Security Force Training Program is designed to train the site protection personnel to perform their assigned duties as identified in the Security Personnel Training and Qualification Plan. Security Force Training is presented as an initial training program and an annual retraining program. Initial training includes topics on basic security skills, site security procedures, the Safeguards Contingency Plan, specific security tasks identified in the Security Personnel Training and Qualification Plan, and weapons training. Annual retraining provides refresher training on special topics of security skills, security plan and procedures, assigned security tasks, and weapons qualification at least once per year. Security Force Training is accomplished through classroom instruction, hands-on performance, demonstrations, and practical field exercises.

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12.9 FIRE PROTECTION

The Fire Protection Program for TMI Unit 1 was developed in accordance with the provisions of 10CFR50.48, 10CFR50 Appendix R Parts III. G, J, K.1 thru K.8, L and O and the NRC's Generic Letter No. 86-10. Details of the Fire Protection Program and the facility are addressed in the Fire Hazards Analysis Report (FHAR), which includes a point-by-point comparison with each requirement of the NRC's Branch Technical Position APCS B 9.5-1. The Fire Protection Program is composed of the description found in Section 9.9 of this document, the FHAR, and AP-1038 a plant administrative procedure entitled "Administrative Controls - Fire Protection Program". The program is authorized by the Chairman of the Management Committee and CNO, and the Vice President – TMI Unit 1 to assure that the appropriate levels of management are directly involved in the program.

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12.10 REFERENCES

1. TMI Unit 1 Training Department Administration Manual.
2. TMI Unit 1 Training Programs Manual.