TMI / GPU

Generation Group

OPERATIONAL

QUALITY ASSURANCE PLAN

FOR

THREE MILE ISLAND

NUCLEAR STATION

1821 233

STATEMENT OF POLICY AND AUTHORITY

It is the policy of the Metropolitan Edison Company to operate the Three Mile Island Nuclear Station so as to ensure the safety and health of the public and the personnel on site.

It is also the policy of the Metropolitan Edison Company to comply with the requirements of the Code of Federal Regulations, the NRC Operating Licenses and the applicable codes, guides and standards with respect to operation, inservice inspection, refueling, maintenance, procurement, repair and modification of the Station.

The Senior Vice President of Metropolitan Edison Company has the overall responsibility for establishing the policies, goals and objectives of the Quality Assurance Program. He utilizes the support and services of the GPU Service Corporation in implementing the requirements of the Quality Assurance Program. The Senior Vice President of Metropolitan Edison Company is also the Vice President -Generation of the GPU Service Corporation. This dual role gives him the authority to manage and control the activities of the TMI Generation Group. The TMI Generation Group was formed to strengthen the management of and to provide greatly increased technical resources to the Three Mile Island Nuclear Station. The Senior Vice President Metropolitan Edison/Vice President GPU Service Corporation is the head of the TMI Generation Group. In this position, he reports directly to the President of GPU Service Corporation (who is also President of General Public Utilities Corp.) and President of Metropolitan Edison.

This reporting structure provides a direct line of authority from the Chief Operating Officer of these three companies to the activities at the Three Mile Island Nuclear Station. A primary objective of the group is to ensure safe operations by means which include strict adherence to NRC Regulations, Technical Specifications and Plant Procedures.

The Director-Reliability Engineering who reports directly to the Senior VP Met-Ed/VP GPUSC provides, by way of the Quality Assurance Department, the staff necessary to develop and maintain the Quality Assurance Program consistent with the applicable Federal and State requirements and to verify the implementation of the Program.

The Manager-Quality Assurance, who reports directly to the Director-Reliability Engineering, has the overall authority and organizational freedom to identify quality assurance or management control problems and provide recommended solutions. This authority and responsibility includes stop work authority in activities associated with operations, maintenance, repair, modification, refueling and manufacturing at or for the Three Mile Island Nuclear Station. With regard to the stoppage of work including the recommendation that an operating nuclear unit be shut down, the Manager-Quality Assurance has direct access to the Senior VP Met-Ed/VP GPUSC and shall use this path when differences of opinion within the Generation Group regarding quality arise.

The effectiveness of any Quality Assurance Program is dependent upon the individuals who implement the program. Accordingly, all personnel of the General Puolic Utility System and their contractors must comply with the applicable requirements of this Quality Assurance Program. All members of management must give full support to maintaining an effective quality program as defined in this Plan.

The Quality Assurance Program, as described in this Plan, is approved for implementation at Three Mile Island Nuclear Generation Station.

Date	President, Met-Ed (Acting)
Date	President, GPU Service Corp.

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OPERATIONAL QA PLAN

Introduction

This Quality Assurance Plan is formatted in such a manner to provide all users with a functionally workable document. It is structured to describe how the Quality Assurance Program is to be functionally implemented with due regard to the safety and health of the public and the personnel onsite. The plan contains a description of the organizations responsible for the implementation of the Quality Assurance Program (Section 1) and an overall description of the Program (Section 2). The remaining sections are structured in a functional manner.
The requirements for administrative control which are generic and apply to all subsequent sections are as follows: control of documents and records are contained in Section 3.0; control of design is contained in Section 4.0; control of materials and services through the control of procurement activities is contained in Section 5.0. Sections 6.0 and 7.0 contain the program requirements for those direct and supportive activities, associated with the operation and safety of the plant; construction and/or modifications associated with corrective maintenance, plant improvement, and/or repair; and the processing and transportation of radioactive wastes. Specific requirements such as those including control of measurement and test equipment, inspection, special processes, test control, and status of inspections, tests and operations are included therein.

Sections 8.0 and 9.0 again apply to all functions covered by the scope of this Quality Assurance Program. Section 8.0 addresses the subjects of identification and disposition of nonconformances associated with all aspects of the program. In addition, this section contains the management controls provided for evaluating, collectively all nonconformances and determining what corrective actions should be taken to preclude their recurrence. Section 9.0 contains the requirements and administrative controls applicable to safety reviews and audits. Appendices A, B, and C contain additional Quality Program requirements associated with the functional areas discussed in the plan.

1.0 Organization

1.1 Policy

The responsibility for the safe and economical operation of the TMI Nuclear Station rests with the TMI Generation Group. As identified in the Statement of Policy and Authority, the TMI Generation Group utilizes the support and services of the GPUSC in implementing the Operational Quality Assurance Program. The organizations having responsibility for the operation, maintenance, refueling, inservice inspection, modifications and repair of TMI Units 1 and 2 include the TMI Generation Group, under the direction of the Senior Vice President of Met-Ed/Vice President GPUSC, and Materials Management under the direction of the Vice President, GPUSC Materials Management.

It is the policy of the Metropolitan Edison Company (Met-Ed) to meet the quality assurance requirements of Nuclear Regulatory Commission as presented in 10 CFR 50, Appendix B, and other applicable regulatory guides, codes, and standards pertinent to the operation of the Three Mile Island Nuclear Station. The Program, which is described in the following sections, shall be implemented throughout the operation phase in documented approved policies, procedures, instructions which comply with this Plan and the design specified in the license application.

1.2 Organization

The structure of the organizations responsible for the operation, maintenance, modification, repair, inservice inspection and refueling of the TMI Nuclear Station is illustrated in Figure 1. The overall organization chart is provided to illustrate the interfaces between the various departments and to identify those normally located on-site and off-site.

1.2.1 President

In the Statement of Policy and Authority, the Presidents of Met-Ed and GPUSC have identified that the safe operation of TMI is the responsibility of all persons performing activities which affect quality and that management will

give full support to the proper and complete implementation of the OQA Program. Lines of authority and responsibilities have been established for maintaining and implementing the Program; for providing independent verification of the activity; and for appraising management of the effectiveness of the Program.

The responsibilities for establishment, implementation and measurement of the effectiveness of the Program are assigned to the TMI Generation Group with support from Materials Management. In providing support to the TMI Generation Group, Materials Management will comply with the requirements of this Operational Quality Assurance Plan as defined further in Subsection 1.2.7.

1.2.2 Senior Vice President Met-Ed/Vice President GPUSC (Figure 1)

The TMI Generation Group, under the direction of a Senior Vice President Met-Ed/Vice President GPUSC, is responsible for establishing the policies, goals and objectives of the OQA Program and for providing the on-site and off-site staffs necessary to implement the Program and provide the verification necessary to assure the effectiveness of the Program. The responsibilities are carried out through four (4) Directors and one (1) Manager.

The Senior Vice President Met-Ed/Vice President GPUSC has the responsibility for directing and assuring that the management controls and the quality assurance program necessary for the safe operation of TMI are established and effectively executed. To this end, they include providing the management personnel, the staff support, and the appropriate investment of time and financial resources to enable the designated individuals to properly execute their responsibilities.

The Senior Vice President Met-Ed/Vice President GPUSC is also responsible for assessing the effectiveness of the program and for assuring that decisions affecting nuclear safety are made at the proper level of responsibility and with the necessary technical advice and review. This responsibility shall be met, as a minimum, by:

a. Assuring that an independent managment review of the effectiveness of the OQA Program is conducted annually. The results of this review shall be documented in a report.

b. Receiving and reviewing summaries of reports prepared by the organizations performing independent audits and safety review. These organizations include the Quality Assurance Department, the Nuclear Safety Evaluation Department, the Generation Review Committee (GRC), and the Plant Operations Review Committee (PORC).

To the extent necessary to assure the health and safety of the public and the employees and contractors working at TMI, the Senior Vice President Met-Ed/VIce President GPUSC shall have the authority, the organizational freedom and the responsibility to order the shutdown of one or both of the operating units.

1.2.3 Director - TMI Unit 1

The Director - TMI Unit 1 is responsible for the overall safety of the TMI Nuclear Station, for ensuring that the applicable procedures for the management control and quality assurance program activities are implemented in the conduct of operations, preventative and corrective maintenance, replacment, modification, refueling, engineering support, in-service inspection, radiation protection and control of radioactive wastes, training, plant security, and for ensuring that these activities are performed in accordance with the provisions and limitations set forth in the licenses and permits of the jurisdictional agencies of Federal, State, and local governments. He is also responsible for ensuring that the operations organization is adequately staffed and that the personnel are adequately trained and qualified to perform their assigned tasks. Additionally, the Vice President-Nuclear Operations is responsible for activities such as support services and logistics and for the planning and scheduling of

plant operations such as start-up and test, refueling and planned outages, and productivity of the generating station.

The Director - TMI Unit 1 gives his fullest support to the quality assurance requirements set forth in this Operational Quality Assurance Plan, assuring compliance to the fullest degree by his staff.

1.2.3.1 Manager-Plant Engineering

The Manager-Plant Engineering is responsible for maintaining technical liaison and coordination between operating shift personnel and the technical support engineering staff. This is accomplished by providing on-shift engineers to the Operations staff for direct technical coverage of the plant reactor performance and associated safety systems in order to improve the safety of unit operations and maintenance performance. In addition, the Manager-Plant Engineering is responsible for in-plant engineering support in the nuclear, mechanical, instrumentation and control, and electrical engineering areas. The Manager-Plant Engineering is also responsible for plant chemistry, fire protection and engineering input for procurement of items and services important to safety.

1.2.3.2 Manager-TMI Unit 1

The Manager - TMI Unit 1 is responsible for the day-to-day operation of Unit 1. He will have a Shift Foreman directing the operations of each shift through the Control Room Operators and Auxiliary Operators; a maintenance force under the direction of a Supervisor-Maintenance, covering the areas of electrical, mechanical and instrument control maintenance and surveillance, will also report to the Manager. Additionally, the Manager - TMI Unit 1 is responsible for the coordination of start-up and test evaluations.

1.2.3.3 Manager-Radiological Controls

The Manager-Radiological Controls is responsible for the personnel, procedures and administrative controls of the radiation protection programs. He provides the administrative

and technical guidance applicable to operations in the areas of radiation protection, radioactive waste, respiratory protection, health physics engineering including ALARA programs, and dosimetry control.

The Manager-Radiological Controls is responsible for providing and maintaining up-to-date procedures controlling the activities of the department, providing training of all Unit personnel in the basic rules of radiation protection, providing adequate staffs of trained personnel to perform the duties of radiation protection, implementing the "as low as reasonably achievable" policy and making it a formal part of the Radiation Protection Program, and assisting in the development, training and implementation of the Station Emergency Plan.

1.2.3.4 Manager-Training

The Manager-Training is responsible for overall administrative control and coordination of all training activities. The purpose of the training program is to develop and maintain an organization fully qualified to ensure the continued safe and efficient operation and maintenance of the Units. In this position, the Manager-Training is responsible for the training of personnel requiring an NRC License and the training of personnel not requiring an NRC License. The former includes an accelerated operator retraining program and the continuous program of training and examination of operators necessary to maintain their NRC Operator's License; the latter includes management and technical training in the areas of Radiation Protection, Industrial Safety, Plant Security, Quality Assurance, Fire Protection, Maintenance and specialized areas as may be identified by management.

The Manager-Training is responsible for the coordination and scheduling of the training, assuring that the training is given by individuals or organizations qualified in the specific subjects, and maintaining records of the training provided and the attendance.

1.2.3.5 Manager-Administration and Services

The Manager-Administration and Services is responsible for coordination of facility functions such as office management, facilities, personnel, station security, and the Station Document Center. Relative to the activities applicable to this Quality Assurance Plan, these responsibilities include establishing, supervising and operating the Station Document Center; providing and maintaining up-to-date procedures for controlling the distribution of documents, and the collection, indexing and storage of records; providing the staff necessary to fulfill these responsibilities include establishing, supervising and operating the Station Document Center; providing and maintaining up-to-date procedures for controlling the distribution of documents, and the collection, indexing and storage of records; providing the staff necessary to fulfill these responsibilities, and ensuring that staff is adequately trained and qualified to perform their assigned tasks.

1.2.4 Director-Technical Functions

The Director-Technical Functions reports directly to the Senior Vice President Met-Ed with responsibility for the detailed development, direction and overall coordination of all engineering activities. He is responsible to assure compliance and implementation of the Quality Assurance Program requirements applicable to technical support activities. Technical support includes various disciplines such as mechanical, civil, electrical and instrumentation, nuclear, and plant operations. He is responsibile to develop and control the Quality Classification List (QCL). Additionally, he is responsible for nuclear fuel management, process computer, control and safety analysis, and plant operational analysis.

The Director-Technical Functions and his staff give full support to the TMI Operational Assurance Plan set forth herein, thereby assuring that all work performed under their cognizance will conform to and support the requirements as applicable to their activities.

1.2.4.1 Manager-Engineering and Design

The Manager-Engineering and Design is responsible for providing technical support for the operations of the TMI Nuclear Station. He is responsible to assure compliance with the implementation of the Quality Assurance Program requirements applicable to engineering and design activities. He will assure the maintenance of technical capability in the various disciplines, such as general mechanical, civil, electrical and instrumentation, and engineering mechanics. The department will review, and where appropriate, approve the work of Architect/Engineering Organizations, and will perform basic engineering and design for modifications. The department has capabilities in the following areas:

a. Engineering Mechanics

b. Mechanical Systems

c. Mechanical Components

d. Electrical Power & Instrumentation

e. Design & Drafting

Additionally, he is responsible for the identification and classification of materials and activities important to safety, and the development and control of the Quality Classification List.

1.2.4.2 Manager-Systems Engineering

The Manager-Systems Engineering is responsible for technical support in the areas of nuclear fuel management, process computer, control and safety analysis, and plant operational analysis. His department provides capabilities in the following functional areas:

a. Nuclear Analysis and Fuels

b. Process Computers

c. Control and Safety Analysis

d. Plant Analysis

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He is responsible to assure compliance with and implementation of the Quality Assurance Program requirements applicable to Systems Engineering activities.

1.2.4.3 Project Engineering Manager

The Project Engineering Manager is responsible for the coordination, staffing and directing of engineering projects that are assigned by the Director-Technical Functions. These activities will vary, depending on the scope and purpose of the assigned project. These responsibilites generally include providing the technical support necessary for a study, an evaluation or a modification and include the coordination of the Departments within Technical Functions with those of Plant Operations.

1.2.5 Director-Environment, Health and Safety

The Director-Health and Safety reports directly to the Senior Vice President Met-Ed and is responsible for the development, direction and overall coordination of the environmental, regulatory, water resources, offsite radiological health and safety efforts at TMI in compliance with the TMI Quality Assurance Program. His responsibilities include:

a. Developing and implementing Environment, Health and Safety Group procedures covering items such as safety evaluations, and others as required to fulfill the responsibilities of this Plan.

b. Concurring with important to safety Design Criteria Documents from the standpoint of having addressed all applicable regulatory requirements and licensing commitment.

c. Exercising project control of amendment requests to the Safety and Environmental Technical Specifications and the FSAR in accordance with 10 CFR.

d. Developing biological monitoring programs and special studies in the Environmental Technical Specifications

to quantify the impact of Station operation on the environment.

e. Performing an environmental evaluation of proposed modifications, including publishing of environmental reports.

f. Maintaining liaison between the TMI Generation Group and NRC's Project Management regarding licensing and environmental issues which are applicable to operating facilities.

1.2.6 Director-Reliability Engineering

The Director-Reliability Engineering has the overall authority and direct responsibility for all Quality Assurance Department activities as defined in this plan. These activities include, but are not limited to:

a. Development, distribution, and maintenance of the Quality Assurance Plan,

b. Assessing program implementation and evaluating its effectiveness,

c. Identification of quality problems,

d. Initiation and recommendations of corrective actions for quality related problems.

Additionally, he is responsible for providing Quality Assurance and Quality Control support services such as laboratory analysis, safety review (Nuclear Safety Evaluation), audits and reliabiliaty information systems. The Director-Reliability Engineering utilitizes the following management staff members in carrying out his responsibilities:

Manager-Quality Assurance

Manager-Nuclear Safety Evaluation

Manager-System Laboratory

1.2.6.1 Manager-Quality Assurance (Figure 2)

The Manager-Quality Assurance Department (QAD) has the functional authority, independence and

responsibility to verify the effective implementation of the administrative controls and compliance to the Quality Assurance Program during the operational phase of TMI Nuclear Station. The Manager of QAD reports directly to the Director-Reliability Engineering. Additionally, he has direct unencumbered access to the Senior Vice President of Met-Ed, the Vice President-Materials Management, and the Director-TMI Unit 1 with regard to quality activities.

This reporting relationship has been established to provide the quality assurance organization with sufficient independence from the influence of costs and schedules to be able to effectively assure conformance of operational Quality Assurance Program requirements. Figure 2 identifies the Quality Assurance Department organizational elements which function under the Quality Assurance Program. The Manager-QAD has no duties or responsibilities unrelated to Quality Assurance that would prevent his full attention to Quality Assurance matters, and he has authority:

a. To evaluate the manner in which all activities, both onsite and offsite are conducted, with respect to quality, by means of review, survey, audit, surveillance, monitoring, and inspection.

b. To perform evaluations on a planned and periodic basis to verify that the Quality Assurance Program is being effectively implemented.

c. To identify quality problems, and to initiate, recommend or provide solutions through designated channels to verify implementation of resolutions.

d. To stop work or further processing, delivery, or installation of nonconforming material, to stop work on nonconforming activities, to initiate unit shutdown recommendations and to obtain unit shutdown with appropriate upper management concurrence as described in applicable Quality Assurance procedures.

The specific responsibilities of the Manager-QAD, include the following:

a. Provide for the review and acceptance of the Quality Assurance Program of contractors providing services affecting quality and of vendors supplying materials, parts, or components covered by the scope of this Quality Assurance Program.

b. Provide for review and acceptance of procedures prepared by other TMI organizations when these procedures control or exercise an effect upon items and activities important to safety.

c. Provide direction and management of the QAD.

d. Provide a working interface and communication with the TMI Generation organizations, consultants, contractors, vendors, and others with respect to QA matters. Additionally, in conjunction with the licensing organization, he shall provide a working interface and communications with the NRC with respect to QA matters.

e. Provide, as applicable, planned and periodic audits, monitoring, surveillance, and inspections of organizations, contractors, and vendors performing work functions important to safety.

f. Establish and assure the continuous implementation of an indoctrination and training program for QA and QC personnel and assure that a quality assurance indoctrination is provided to appropriate personnel outside the Quality Assurance organization.

g. Issue periodic reports to the Director-Reliability Engineering, and the Director-TMI Unit 1 on the status of quality activities, and bring to thier attention immediately any significant quality-related problem or deficiency.

h. Provide for quality assurance review and acceptance of design and engineering documents, as delineated in the detailed procedures.

i. Provide for quality assurance review and acceptance of procurement documents generated for the acquisition of materials and services within the scope of the program.

j. Provide for and maintain quality assurance records generated by QAD until such time as they are turned over to document control for storage.

The Manager-Quality Assurance shall have, as a minimum, a baccalaureate degree in Engineering or Science, with at least five years of experience in nuclear power plant operations and supporting activities.

1.2.6.2(a) Quality Assurance Design and Procurement Manager

The Quality Assurance Design and Procurement Manager is responsible for establishing quality programs and inspection requirements in support of design and procurement activities in compliance with the TMI Quality Assurance Program. These activities include, but are not limited to:

a. Review and approve contractor and vendor quality programs for those supplying services or items important to safety.

b. Reporting quality trends to his supervisor and to the cognizant purchasing or contract manager.

c. Review and accept design control procedures prepared by other TMI organizations when these procedures control or exercise an effect upon systems, components, or activities important to safety.

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1.2.6.3(b) Quality Assurance Manufacturing Assurance Manager

The QA Manufacturing Assurance Manager is responsible to perform the necessary postaward quality-related activities in compliance with the TMI Quality Assurance Program required to assure that vendor products are designed, manufactured, tested and/or inspected in accordance with the procurement specifications. These activities include post-award surveys and surveillances, and source inspections.

He is responsible for the coordination with the QA Modifications/Operations Section to assure that Manufacturing Assurance discrepancies are available to the receiving inspectors and the cognizant purchasing or contracts manager. Additionally, he is responsible for providing the Design/Procurement Assurance Section with the results of Manufacturing Assurance activities and recommendations relative to the acceptability of a vendor.

1.2.6.4(c) Quality Assurance Modifications/Operations Manager

The Quality Assurance Modifications/Operations Manager is responsible for monitoring the implementation and effectiveness of the Quality Assurance Program onsite. These activities include the establishment of adequate site monitoring and inspection programs necessary to verify conformance to Quality Assurance Program requirements. In addition, he is responsible to review site procedures from a QA/QC standpoint and to provide nondestructive examination support for TMI. He reports directly to the Manger of Quality Assurance and, he periodically reports on the implementation and effectiveness of the Operational Quality Assurance Program to the Director - TMI Unit 1. He has the authority and organizational freedom to identify quality assurance problems, provide or recommend solutions, and verify implementation of solutions. He has the authority to stop work on all important to safety activities associated with the onsite TMI Nuclear Station Operational QA program. He is responsible to notify appropriate TMI Station management and

the Manager of Quality Assurance immediately of any condition that warrants operational shutdown of a nuclear unit as defined in appropriate QAD procedures. The Quality Assurance Modifications/Operations Manager is assisted in carrying out his responsibilities by an Operations Quality Assurance Supervisor, a Quality Control Manager and their associated staffs located onsite.

1.2.6.5(d) Quality Assurance Methods/Operations/Audits Manager

The Quality Assurance Methods/Operations/Audits Manager is responsible for maintaining the Quality Assurance Plan and all those procedures applicable to the activities of the QAD. He is responsible, therefore, for coordinating the activities associated with the requirements of the Quality Assurance Plan, including interpretations. In addition, he is responsible for coordinating Quality Assurance indoctrination and training to employees and contractors conducting independent evaluations and assessments of the Program's implementations by performance of internal audits.

The Quality Assurance Methods/Operations/Audits Manager maintains a full-time staff of quality assurance engineers and qualified quality auditors at both the corporate and site offices. The audit activities and the results of the audits are provided to the audited organization and to the Safety Review Groups who provide the management assessments of the significance of the audit findings and the effectiveness of the Quality Assurance Program.

1.2.6.6(e) Materials Technology Manager

The Materials Technology Manager directs and supervises the offsite engineering organizations which have the responsibility for activities in the establishment of requirements for welding, inservice inspection, materials, and materials evaluations. Materials Technology provides NDE and ISI program flow analysis and reporting, technical requirements for repair and repair program and related

corrective action recommendations to Engineering. Additionally, he has a staff function to support manufacturing and the evaluation of system materials technology problems. He is directly responsible for the implementation and compliance with the Quality Assurance Program requirements applicable to his areas of responsibility.

The specific disciplines included in the Materials Technology sections are:

a. Nondestructive Examination

b. Inservice Inspection

c. Materials Engineering

d. Welding Engineering

e. Metallurgical Analysis

1.2.6.7.1 Minimum Qualifications of Quality Assurance Personnel

The qualification requirements and experience levels for key Quality Assurance personnel are such as to assure competence commensurate with the responsibilities of the position. Quality managers and supervisory personnel are required to have a degree in Engineering (or equivalent) and experience in a position having responsibility for the performance of quality activities. The degree requirement may be waived for personnel with exceptional qualifications and a minimum of seven (7) years related experience.

1.2.6.8 Manager-System Laboratory

The Manager-System Laboratory is responsible for the administration and operation of the Environmental and Operational Chemistry Analyses Section of the System Laboratory in compliance with the TMI Quality Assurance Program. This section provides the centralized laboratory analyses services for TMI. The specific responsibilities of the Manager-System Laboratory include the following:

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a. Perform analysis of water and wastewater samples submitted by the generating station,

b. Prepare calibration standards for the labs at the generating stations,

c. Monitor the analysis capabilities of the labs at the generating stations through audits and independent analysis of samples,

d. Assist station personnel in unusual operations such as chemical cleaning,

e. Provide consultation on equipment startup and performance, as requested,

f. Perform chemical analysis of fuels, lubricants, insulating fluids and ion exchange resins,

g. Ensure that the laboratory is adequately staffed and that the laboratory personnel are adequately trained and qualified to perform their assigned tasks,

h. Ensure that the System Laboratory meets the applicable requirements of the Quality Assurance Program,

i. Develop and implement laboratory procedures covering the control of the laboratory activities and the records documenting the results of the analysis.

j. Provide support to Materials Technology regarding material specimen preparation and testing.

1.2.6.9 Manager-Nuclear Safety Evaluation

The Manager-Nuclear Safety Evaluation is responsible for the development, direction and supervision of the Nuclear Safety Evaluation Department in compliance with the TMI Quality Assurance Program. The function of this group is to review the broad range of activities, practices and conditions which may have an adverse effect on quality, to assess the safety significance of the conditions and to

make recommendations to the appropriate levels of management for corrective action to preclude repetition. The activities of the Nuclear Safety Evaluation Department will include the receipt and review of all documents and reports identifying conditions adverse to quality (Audit Reports, Nonconformance Reports, Surveillance/Inspection Reports, Reportable Occurrences, NRC Inspections, etc.); analyzing the conditions reported, both individually and collectively; identifying the safety significance of the conditions and reporting, at intervals not to exceed six (6) months, the results of the evaluations to the Senior Vice President of Met-Ed and the Director-TMI Unit 1. Additionally, the Nuclear Safety Evaluation Department working with Systems Engineering will evaluate the operational experience of other nuclear power stations to improve plant operational status and derive benefit from other stations experience.

1.2.7 Vice President-Materials Management

The Vice President-Materials Management, who reports to the President-GPUSC, via the Executive VP GPUSC, is responsible for assuring that the technical and quality requirements, as established by the Generation Group, are incorporated into procurement documents. He is directly responsible for the compliance and implementation of the TMI Quality Assurance Program with regard to procurement activities. His responsibilities will be administered through the following:

Director-Materials Management Systems

Manager-Contracts, TMI Site

1.2.7.1 Director-Materials Management Systems

The Director-Materials Management Systems is responsible for the development and management of a procurement system in compliance with the TMI Quality Assurance Program including:

a. the establishment and implementation of a procurement control process,

b. the incorporation of quality assurance program requirements, as identified by engineering documents, into procurement documents,

c. the coordination of quality assurance activities in the procurement process.

He reports administratively to the GPUSC Vice President - Materials Management, and functionally to the Senior Vice President - Met-Ed for the priorities accorded to the TMI Generation Group's requirements. His responsibilities will be adminisered through the following:

Manager - Field Warehousing, TMI

Manager - Field Procurement, TMI

1.2.7.1.1 Manager-Field Warehousing, TMI

The Manager-Field Warehousing, TMI is responsible for maintaining an inventory, initiating requisitions for inventory reorder, receiving both direct turnover and inventory items, maintaining adequate storage space and facilities, and issuance of material from storage.

1.2.7.1.2 Manager-Field Procurement, TMI

The Manager-Field Procurement, TMI is responsible for all TMI purchasing and expediting activities including the following:

a. the implementation of an approved procurement control process,

b. the receipt, review, recording and tracking of purchase requisitions,

c. the incorporation of engineering requirements into purchase orders,

d. compliance and implementation of the TMI Quality Assurance Program with regard to his areas of responsibility.

e. the preparation and document control of all purchase orders including those for contracts.

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1.2.7.2 Manager-Contracts, TMI Site

The Manager-Contracts, TMI Site is responsible for all site-related contracts with respect to the bidding, bid evaluation, award and administration of construction, maintenance, water processing, decontamination, and waste removal contracts, and those for various technical and other consulting services. He is additionally responsible for the evaluation, validation, dismissal or negotiation, where warranted, of vendor extras, delays and other claims and proposals. He is directly responsible for the compliance and implementation of the TMI Quality Assurance Program with regard to his areas of responsibility.

1.2.8 Manager-Management Services

The Manager-Management Services, who reports directly to the Senior Vice President Met-Ed, is responsible for the administrative control of the Generation Group in compliance with the TMI Quality Assurance Program. In this capacity, he provides support activities relating to the Quality Assurance Program. The specific responsibilities of the Manager-Management Services include the following:

a. Delegating the preparation of the Generation Group Administrative Procedures, coordinating their review, approving procedures and ensuring their implementation in accordance with Appendix B of this Plan.

b. Establishing, supervising and operating the TMI Generation Group Document Centers in accordance with Generation Group procedures.

c. Establishing an effective interface between the Corporate and Station Document Centers.

d. Supervising and directing the activities for maintenance and control of the off-site TMI Generation Group records.

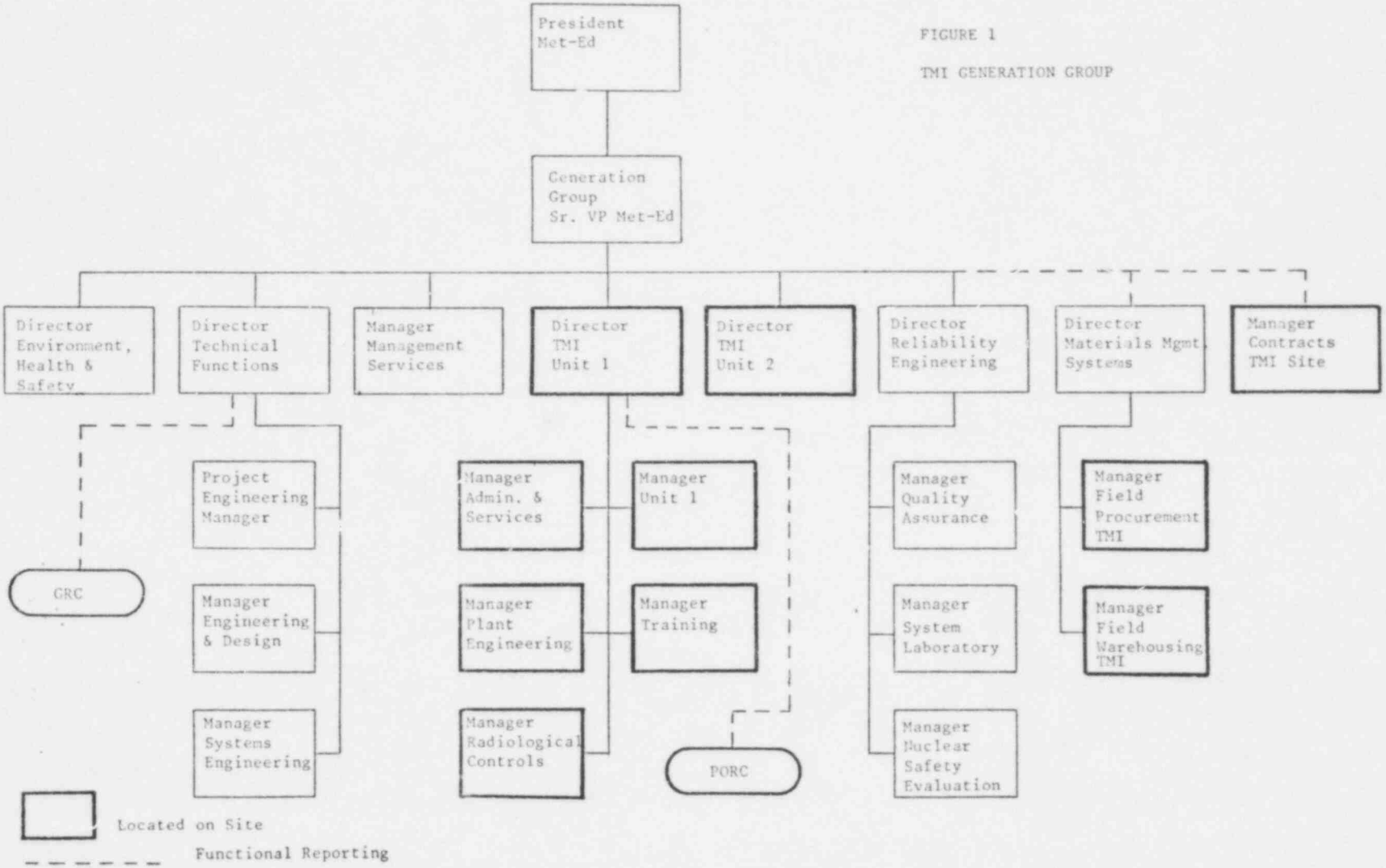
e. Coordinating personnel management development and professional training.

The Manager-Management Services accomplishes these responsibilities via the direct supervision of the activities of the Supervisor-Accounting and Budgets, and Supervisor-Corporate Records Management.

The Manager-Management Services and his staff give full support to the TMI Quality Assurance Program set forth herein, thereby assuring that all work performed under their activity will conform to and support the requirements as applicable to their activity.

FIGURE 1

TMI GENERATION GROUP



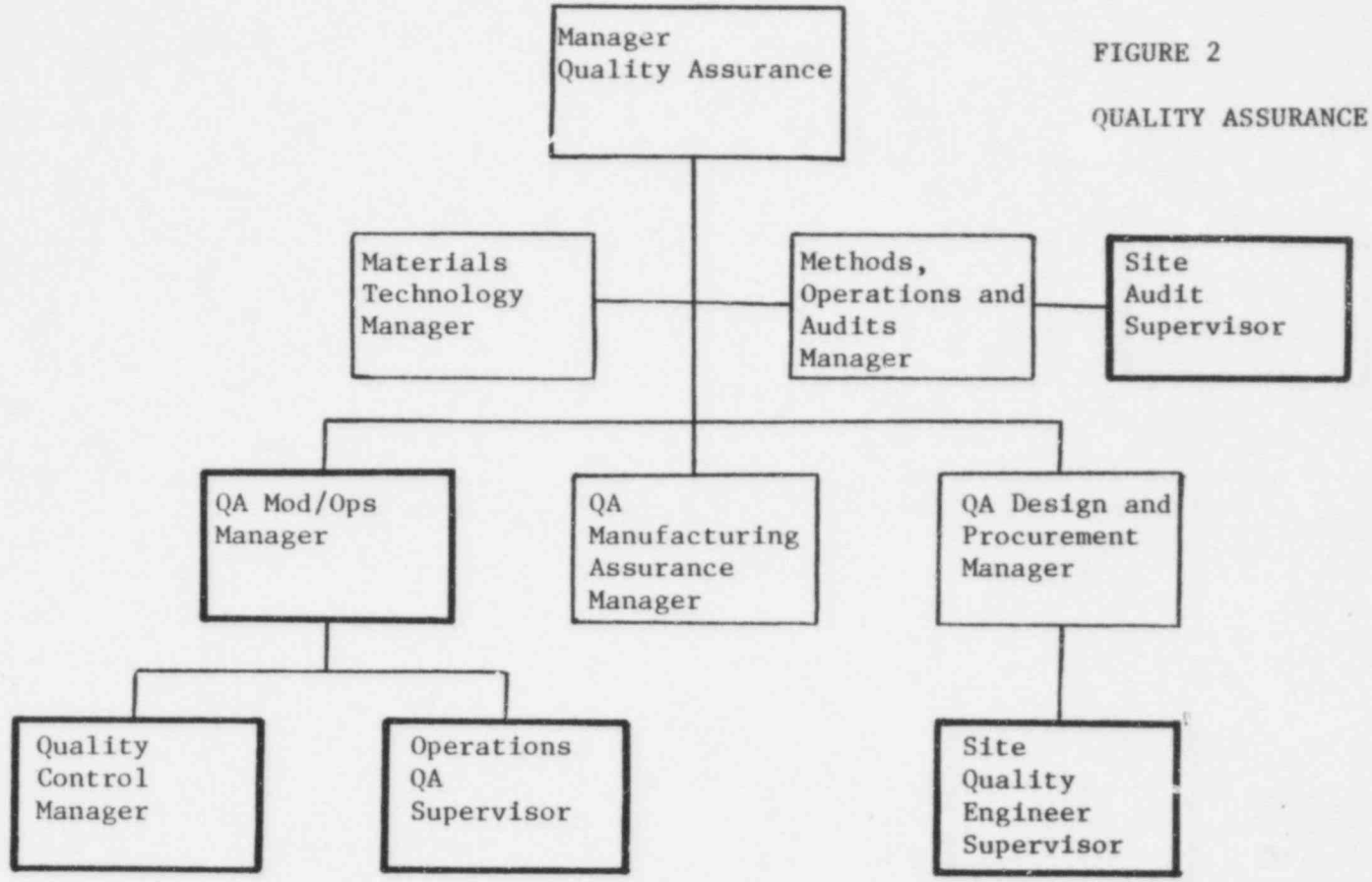


FIGURE 2

QUALITY ASSURANCE DEPARTMENT

Located on Site

2.0 Quality Assurance Program

2.1 Policy

2.1.1 General

The TMI Operational Quality Assurance Program has been established to provide overall quality assurance of operations activities within the scope of the program. Adherence to the requirements of the TMI Operational Quality Assurance Program is mandatory for all TMI organizations and for all contractors or vendors providing items or services covered under the scope.

2.1.2 Scope

The scope of the TMI Operational Quality Assurance Program includes all items and activities considered to be "important to safety." This term is intended to be broader than "safety-related" and encompasses structures, systems, and components (including nuclear fuel and radwaste) which have been designated as Safety-Related, Safety Class, IEEE Class IE, Seismic Category 1 or Fire Protection. The scope of the Program will include all items required by the following:

a. Title 10, Code of Federal Regulations, Part 50, Appendix A "General Design Criteria for Nuclear Power Plants"

b. Title 10, Code of Federal Regulations, Part 50, Appendix B "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants"

c. Title 10, Code of Federal Regulations, Part 71, Appendix E "Quality Assurance for Shipping Packages for Radioactive Material"

d. United States Nuclear Regulatory Commission Regulatory Guide 1.33 "Quality Assurance Program Requirements (Operation)"

e. United States Nuclear Regulatory Commission Regulatory Guide 1.143 "Design

Guidance for Radioactive Waste Management Systems, Structures and Components Installed in Light Water Cooled Nuclear Power Plants"

f. United States Nuclear Regulatory Commission Regulatory Guide 1.120 "Fire Protection Guidelines for Nuclear Power Plants"

The Program also includes certain non-safety related items when designated by engineering.

Activities which are important to safety shall include, but not be limited to, those activities covered by Appendix A of Regulatory Guide 1.33 and ANSI N18.7.

In addition, the requirements of other Regulatory Guides applicable to operations, maintenance, modification, repair, and refueling of a nuclear power plant were considered. Met-Ed position with regard to these Regulatory Guides is included as Appendix C. The determination that an item or activity is, or is not, important to safety is a design decision governed by approved engineering procedures. Items and activities determined to be important to safety are defined as those items on the Quality Classification List (QCL) and those activities covered by procedures which have been designated during the review cycle as "important to safety." The QCL may also be utilized to record information regarding the level of Quality Assurance Program deemed appropriate for a particular item or service.

This information is not required, but may be utilized to facilitate procurement and implementation. For new design efforts such as plant modifications and new construction, the classification determination is recorded on design criteria documents. New items will be included in the next appropriate revisions to QCL.

2.1.3 Quality Assurance Plan

This Quality Assurance Plan is the primary document which provides a description of the program. The program is authorized by the

President of Met-Ed and GPUSC to assure that the appropriate levels of management, as designated herein, are directed to implement the program. The Plan is controlled to assure that only the latest approved revision is implemented. The Plan is implemented by approved detailed procedures and instructions.

The purpose of this Plan is to establish the principles which, when implemented, will provide that level of quality assurance which is appropriate to each activity affecting quality. It is recognized that the degree of management control or quality assurance to be applied varies with different systems and activities, and the degree of applicability of any specific item in this Program will differ from system to system and activity to activity.

The degree to which the requirements of this Plan and its implementing procedures are applied will be based upon the following:

a. The importance of a malfunction or failure of the item to safety;

b. The design and fabrication complexity or uniqueness of the item;

c. The need for special controls and surveillance or monitoring of processes, equipment and operational activities.

d. The degree to which functional compliance can be demonstrated by inspection or test; and

e. The quality history and degree of standarization of the item or activity.

The TMI Generation Group is committed to a comprehensive Quality Assurance Program consisting of a three level approach to assure satisfactory and complete implementation of the program commensurate with its requirements for safety and performance. The Program's foremost considerations are the protection of the general public's health and safety. The three level approach is defined below:

Level 1 - activities at this level include independent inspections, checks and tests.

This level of activity may be performed by the Operations Department by surveillance tests, calibration of instruments, radiation surveys, analyses of samples, etc., the Quality Control Section by receipt inspection or inspections of modification or corrective maintenance activities, or by contractors as part of their scope of work. In all cases, the activity is performed by individuals knowledgeable of the activity being performed and qualified to perform the work. Checklists or data sheets are also used for documenting the results of the activity and for providing a permanent plant record of the performance of the activity.

In all cases where the first level activities involve inspection for purposes of acceptance and/or verification of modifications to safety systems, the activity will be performed by personnel who are independent of those performing the work.

Level II - the activities at this level are primarily those of surveillance or monitoring and are performed as deemed necessary by the QA Modifications/Operations, QA Design and Procurement or QA Manufacturing Assurance Sections. The level of surveillance/monitoring applied is consistent with the importance of the item to safety. For activities, whereby Quality Control is performing first level inspection, no second level activity will be required.

At this level procedures and instructions are established and surveillance records will be completed and maintained. Such surveillance/monitoring normally includes observation of quality control tests and inspections, observation of significant operations, review of records, verifications of test reports, and direct inspection on a spot check basis. The organizations performing this activity have the levels of authority, the lines of internal and external communication for management direction, and the properly trained personnel for implementation of these activities.

Level III - the purpose of this level of activity is to assure through a comprehensive program of review and auditing that the first and second levels of the program are properly functioning. The purpose of this level is also to establish that all other organizations including Operations, Maintenance, Engineering, Materials Management, etc. are properly satisfying all the requirements of the Operational Quality Assurance Program.

At this level procedures and instructions are established including the use of comprehensive checklists for documentation of the audit or third level activity in accordance with requirements of ANSI N45.2.12. Qualified audit personnel are included that satisfy the requirements of ANSI N45.2.23. Additional technical experts from areas with administrative reporting outside the function that is being audited will be included as the Audit Team Leader deems necessary. The organization performing this activity has sufficient authority and lines of internal and external communications for obtaining the necessary management direction.

Appendix A is included to provide a comparison of the sections of the Plan with the requirements of 10CFR50, Appendix B, 10CFR71, Appendix E, ANSI N18.7, and ANSI N45.2.

2.1.4 Quality Assurance Program Review

The TMI Quality Assurance Program effectiveness and implementation is periodically evaluated by independent review groups reporting to TMI Generation Group management. These groups provide safety review reports and operational methods. These groups each have technical expertise necessary to support their areas of concern. The independent review committees and operational review groups include the Generation Review Committee, the Plant Operations Review Committee and the Nuclear Safety Evaluation Department. In addition, the Quality Assurance Department conducts activities which provide management with additional information pertaining to effectiveness and implementation.

2.1.5 Training

The TMI Quality Assurance Program includes requirements for formal training programs for personnel performing or verifying activities important to safety.

2.2 Requirements

2.2.1 Quality Assurance Plan

The Operational Quality Assurance Plan and any significant revisions shall be approved by the following:

Sr. VP Met-Ed/VP GPUSC

VP - Materials Management

Director - TMI Unit 1

Director - Reliability Engineering

Manager - Quality Assurance

The Plan includes a Statement of Policy which is signed by the Presidents - GPUSC and Metropolitan Edison. The Statement of Policy provides authorization and evidence of management commitment to the Quality Assurance Program.

Plan revisions which represent significant changes or personnel reassignments of a substantive nature shall be submitted to the Nuclear Regulatory Commission for approval. The Manager-Quality Assurance is responsible for notifying the NRC of all changes to the Plan within 30 days of the change and for obtaining the required approvals prior to issuance.

Plan revisions not considered by the Manager - Quality Assurance to be significant can be issued with approval of the Manager - Quality Assurance and the Director - TMI Unit 1.

Copies of Quality Assurance Plan may be distributed as "Controlled" or "Uncontrolled" copies in accordance with the requirements established in Section 3.

2.2.2 Classification

The TMI Operational Quality Assurance Program applies to all items on the QCL and activities designated as "important to safety." The QCL will be periodically updated to include new plant modifications or construction, or any changes in classification. The list will be treated as a controlled document.

The QCL will normally list systems and components, but not parts. For procurement of spare or replacement parts, classification will be on a case by case basis. The determinations will not necessarily be added to the QCL. An approved engineering evaluation shall be documented and maintained as a quality assurance record. This does not apply to those items which were originally specified as commerical quality.

2.2.3 Regulatory Commitments

A listing is maintained of commitments to regulatory requirements. Each new or revised USNRC Regulatory Guide will be evaluated for applicability and acceptability to TMI. The TMI Generation Group position on each is documented stating the method and degree of compliance or the justification for lack of compliance.

2.2.4 Safety Review

Safety review groups have been established with primary responsibilities for review of operational phase activities. In addition to performing regulatory required reviews, these groups provide management with visability and recommendations for improved plant safety.

2.2.4.1 Generation Review Committee (GRC):

The GRC is an off-site organization reporting to the Director-Technical Functions. This group is responsible to provide independent safety review of operations, nuclear engineering, chemistry and radiochemistry, matallurgy, nondestructive examination, instrumentation and control, radiological safety,

mechanical and electrical engineering, radwaste, administrative controls, quality assurance and other appropriate fields associated with the unique characteristics of TMI. The GRC is responsible for reviewing the following specific subjects:

a. Written safety evaluations of changes in the facility as described in the Safety Analysis Report, changes in procedures as described in the Safety Analysis Report and tests or experiments not described in the Safety Analysis Report which are completed without prior NRC approval under the provisions of 10 CFR 50.59(a)(1). This review is to verify that such changes, tests or experiments did not involve a change in the technical specifications or an unreviewed safety question as defined in 10 CFR 50.59 (a)(2).

b. Proposed changes in procedures, proposed changes in the facility, or proposed tests or experiments, any of which involves a change in the technical specifications or an unreviewed safety question as defined in 10 CFR 50.59(c). Matters of this kind shall be referred to the GRC by PORC following its review, or by other functional organizational units within the TMI Generation Group, prior to implementation.

c. Changes in the technical specifications or license amendments relating to nuclear safety prior to submittal to the Commission for approval and prior to implementation, except in those cases where the change is identical to a previously reviewed, proposed change.

d. Violations, deviations and reportable events which require reporting to the NRC in writing within 24 hours, such as:

   1. Violations of applicable codes, regulations, orders, technical specifications, license requirements, internal procedures or

instructions having safety significance.

2. Significant operating abnormalities or deviations from normal or expected performance of plant structures, systems, or components important to safety.

3. Reportable events, which require reporting to the NRC in writing within 24 hours, as defined in the plant technical specifications.

Review of events covered under this subsection shall include the results of any investigations made and the recommendations resulting from such investigations to prevent or reduce the probability of recurrence of the event.

e. Any other matter involving safe operation of the nuclear power plant which an idependent reviewer deems appropriate for consideration, or which is referred to the independent reviewers by the onsite operating organization or by other functional organizational units within the owner organization.

2.2.4.2 Plant Operations Review Committee (PORC):

The PORC is an on-site operations review organization functionally reporting to the Director-TMI UnIt 1. This group screens subjects of potential concern by reviewing and/or performing preliminary investigations of subjects requiring independent review.

PORC shall provide, as part of the normal duties of plant supervisory personnel, timely and continuing monitoring of operating activities to assist the Director - TMI Unit 1 in keeping abreast of general plant conditions and to verify that the day-to-day operating activities are conducted safely and in accordance with applicable administrative controls. These continuing monitoring activities are considered to be an integral part of the routine supervisory function and are important to

the safety of plant operation. The Director - TMI Unit 1 in carrying out his responsibility for overall safety of plant operations, shall be responsible for timely referral of appropriate matters to management and independent reviewers.

2.2.4.3 Nuclear Safety Evaluation Department (NSED):

NSED is an independent organization reporting to the Director-Reliability Engineering. It perform evaluations and investigations as assigned by Director-Reliability Engineering. NSED evaluates information from external sources for applicability to TMI. They are responsible for evaluations of hardware and software systems which affect the safe reliable operation of the plant. NSED personnel support the activities of GRC and PORC and contribute as requested. They interface with the QAD audit section to assure complete coverage and utilization of the audit program.

2.2.4.4 Quality Assurance Department:

The normal audit program conducted by the Quality Assurance Department and described in Section 9.0 also provides management with assessment of program status and effectiveness.

2.2.5 Indoctrination and Training

Indoctrination and training programs are established for both on-site and off-site personnel performing important to safety activities by the organizational units responsible for the activities. These programs are implemented by appropriate training plans and procedures which assure that:

a. Personnel responsible for performing important to safety activities are instructed as to the purpose, scope, and implementation of manuals, procedures, and instructions;

b. Personnel performing important to safety activities are trained and qualified in the principles and techniques of the activity being performed;

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c. Proficiency of personnel performing important to safety activities is maintained by retraining, re-examining, or recertifying;

d. The scope, method and objective of the training is documented;

e. Records of training sessions are prepared and maintained, including identification of the content, the attendees, and the date the training was conducted.

2.3 Responsibilities

2.3.1 Sr. Vice President - Met-Ed

The Senior Vice President - Met-Ed shall regularly assess the scope, status, adequacy and compliance of the Quality Assurance Program to the requirements of 10 CFR 50, Appendix B. This assessment shall be the combined result of:

a. Frequent contact with Quality Assurance Program status through attendance at meetings, and review of periodic status reports on the effectiveness and implementation of the Quality Assurance Program.

b. Performance at least once a year of a preplanned and documented assessment of the effectiveness of the Quality Assurance Program to assure that the program meets regulatory requirements, and the policies and directives of TMI. This assessment may be performed utilizing the safety review groups, an independent consultant, or his own staff. Any corrective action which may be deemed necessary as a result of these assessments shall be formally identified and tracked through resolution.

2.3.2 Director - Reliabilty Engineering

The Director-Reliability Engineering has overall responsibility for establishment of the Operational Quality Assurance Program. He

also has overall responsibiliiy for establishment and management of the Nuclear Safety Audit Department and the Quality Assurance Department, including Methods/Operation/Audit Section. He shall provide periodic status reports to the Sr. Vice President Met-Ed on the Quality Assurance Program.

2.3.3 Manager - Quality Assurance

The Manager-Quality Assurance, has the direct responsibility for verifying the effective implementation of the Quality Assurance Program. He shall establish and implement a formally documented and procedurally controlled program to evaluate and report to the Director-Reliability Engineering on the adequacy and continued effectiveness of the overall TMI Operational Quality Assurance Program. Reports of audits performed by the Quality Assurance Department or their agents, and quality trend analyses based on nonconformance and deficiency reports will provide the basis for this evaluation. Corrective action shall be implemented by responsible management as deemed appropriate when analyses reveal adverse quality trends. These actions may involve specific actions to provide compliance with the Quality Assurance Program, and may include follow-up system attribute audits and even revision to the TMI Operational Quality Assurance Program. Implementation and closeout of corrective actions shall be effectively monitored by the Manager-Quality Assurance to assure timely correction and compliance.

The Manager-Quality Assurance is responsible for the contents of Quality Assurance Plan and for ensuring that the Quality Assurance Plan is modified and updated as standards, regulation, requirements and experience dictate. Proposed revisions to the Plan may be suggested by TMI Generation Group personnel by submitting the request, in writing, to the Manager-Quality Assurance for review and action, as applicable. The Manager-Quality Assurance is responsible for the monitoring, surveillance and auditing of Quality Assurance Program implementation.

He is also responsible to provide the required training and qualification of Quality Assurance Department personnel.

2.3.4 Manager - Engineering & Design

The Manager of Engineering & Design is responsible for development and maintenance of the QCL. He solicits input and coordinates with affected organizations to assure a uniform approach to classification of items and activities important to safety.

2.3.5 Generation Group Directors and Managers

Management personnel in each department are responsible for Quality Assurance Program implementation. They are further responsible for development of procedures, for scope of involvement, for activities important to safety, and for training and indoctrination of personnel.

2.3.6 External Organizations

Quality Assurance Programs and implementing procedures for suppliers or contractors providing materials and services for the TMI Nuclear Station which are covered under the scope of this Quality Assurance Program shall be subject, when required, to review and acceptance by the Quality Assurance Department prior to the commencement of any important to safety activity. Procurement documents shall require, and the Quality Assurance Department shall assure, through their review and audit, that supplier and contractor Quality Assurance programs comply with the commitments of this document.

2.4 Resolution of Disputes

Resolution of disputes involving quality, arising from a difference of opinion between QA/QC personnel and other organization (engineering, procurement, manufacturing, construction, operation, maintenance, etc.) personnel shall, if possible, be accomplished at the level such disputes occur. If this is not possible the difference of opinion shall be escalated through supervisory/management

levels until resolution is achieved. The Manager-Quality Assurance shall be the arbitrator on differences of opinion involving conformance of items, components and systems to specified requirements and interpretation of the Quality Assurance Program. The Sr. VP Met-Ed/VP GPUSC and/or Vice President - Material Management shall be the final arbitrator.

3.0 Control of Documents and Records

3.1 Instructions, Procedures, and Drawings

3.1.1 Policy

The TMI Quality Assurance Program requires that activities important to safety be prescribed by documented procedures, instructions, and/or drawings and that these quality-affecting activities be accomplished through the implementation of these documents.

3.1.2 Requirements

TMI procedures, instructions, and/or drawings which prescribe the performance of activities important to safety shall:

a. Include quantitative (such as dimensions, tolerances, and operating limits) and qualitative (such as workmanship samples) acceptance criteria sufficient for determining that important activities have been satisfactorily accomplished.

b. Require approval of appropriate personnel prior to the initiation of the quality-affecting activity.

c. Describe the sequence of action to be accomplished.

d. Define the responsibilities and authorities of personnel performing the activity.

e. Describe interfaces with other company elements or other organizations.

f. Require indoctrination of user personnel prior to implementation.

g. Be distributed in a controlled manner to preclude the use of obsolete documents.

h. Be distributed with sufficient controlled copies to assure availability to responsible personnel.

3.1.3 Responsibilities

3.1.3.1 Department Managers

The Manager of each department performing activities important to safety is responsible for the preparation, approval and implementation of procedures, instructions and/or drawings. He is responsible to assure that provisions are made for interface controls for internal and external lines of communications among participating organizations and technical disciplines. Additionally, he is responsible to insure that the procedures reference the documents used in their preparation and the extent to which the procedures meet the requirements of the references.

3.1.3.2 Quality Assurance Department

The QAD shall review and approve those administrative policies, procedures, instructions and/or drawings which delineate the methods of complying with the requirements of this manual.

Contractor Quality Assurance program documents specified in the applicable procurement documents shall be reviewed and accepted by QAD. Compliance with detailed procedures and instructions shall be audited at specified frequencies.

Vendor Quality Assurance Plans/Manuals, special process procedures, and inspection and test procedures shall be reviewed and approved by QAD prior to releasing the vendor to implement such documents. Contractor Quality Assurance Plans/Manuals, work plans, selected drawings, instructions and procedures shall be reviewed and approved by QAD prior to releasing the contractor to start work. Adequacy shall be verified by audit and inspection programs.

3.1.3.3 TMI Unit Management

The Management of each TMI Unit is responsible for assuring that instructions, drawings, and procedures associated with the administrative controls, operation, fuel handling, inservice inspection, calibration, maintenance, modification, repair and operational testing of

structures, systems, and components important to safety are prepared, reviewed, approved and in accordance with approved written procedures which conform to the requirements of the TMI Quality Assurance Program. All activities important to safety accomplished by the plant staff shall be performed in accordance with approved procedures, instructions, or drawings.

3.1.3.4 Delegated Authorities

Those activities important to safety which are performed by contractors, agents, contractors, or vendors shall be delineated by documented, approved, and controlled procedures, instructions or drawings.

3.2 Document Control

3.2.1 Policy

Measures shall be established and documented to control the issuance of documents, such as program documents, design documents, instructions, procedures, and drawings, including changes thereto, which prescribe activities important to safety. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to, and used at, the location where the prescribed activity is performed.

3.2.2 Requirements

Written document control procedures shall be established to provide for control of the following documents as a minimum:

a. As-built Drawings

b. Quality Assurance Plans/Manuals, and Instructions

c. Operating Procedures & Instructions

d. Maintenance Procedures & Instructions

e. Design Documents (e.g., calculations, drawings, specifications, analyses) including documents related to computer codes.

f. Manufacturing, Construction and Installation Drawings

g. Manufacturing, Construction Modification, Installation, Test, and Inspection Procedures and Instructions

h. Procurement Documents

i. FSAR and Related Design Criteria Documents

j. Nonconformance Reports

k. Design Change Documents

l. Test Specifications

m. Operating and Special Orders

n. Equipment & Material Control Procedures

o. Refueling Procedures

p. QCL

q. Topical Reports

All procedures established for document control shall meet the following requirements:

a. Review, approval and issuance criteria for documents and their revisions shall be specified to assure adequate technical and quality requirements are met prior to issue.

b. The individuals or elements responsible for reviewing, approving and issuing documents and their revision shall be specified.

c. Changes must be documented, approved and included in the appropriate revision document prior to being implemented.

d. Revisions shall be reviewed and approved by the same organizations that performed the original review and approval or by other qualified, responsible, and designated organizations.

e. Document distribution must be sufficient to assure that the documents are readily available at convenient locations to plant personnel prior to commencement of work.

f. Appropriate document transmittal and maintenance measures shall be incorporated in document control systems to prevent inadvertent use of voided, superseded or obsolete documents. Holders of controlled documents are responsible for maintaining their assigned copies in a current status. Documents distributed for information only will not be considered a controlled copy, and, as such, will not be used in performing an activity important to safety since they will not be maintained current. Exceptions to this requirement must be approved, in writing, by QAD.

g. A master list or equivalent will be established and maintained to identify the current revision number of instructions, procedures, specifications, drawings, and procurement documents. This list will be distributed to predetermined responsible personnel to preclude the use of superceded documents.

h. Status indication measures shall be established for all controlled documents. Status lists or logs shall be maintained and be made available to project personnel to identify the current revision levels of controlled documents.

i. Maintenance, modification and inspection procedures shall be reviewed by the responsible Quality Assurance organization to determine:

   1. The need for inspection, the identification of inspection personnel and the documentation of inspection results.

2. That necessary inspection requirements, methods, and acceptance criteria have been identified.

3.2.3 Responsibility

3.2.3.1 Manager - Management Services

Responsible to approve the TMI Generation Group procedures for document control.

3.2.3.2 Manager - Administration and Services

Responsible for implementation of the document control system for all instructions, procedures, drawings and other controlled documents prepared for TMI in administration, operation, testing, maintenance, and modification of structures, systems and components important to safety.

3.2.3.3 Manager - Quality Assurance

Responsible for the review and approval of document control procedures for quality assurance requirements and document control measures; to evaluate the document control system effectiveness through review and audit.

3.2.3.4 Department Managers

Responsible to ensure that documents are available when required; to properly review and approve documents such as procedures, instructions, specifications, drawings, etc. to ensure that changes to documents are reviewed and approved by the same organization that performed the original review and approval of the document; to ensure that approved changes are promptly transmitted for incorporation into documents; to ensure that obsolete or superseded documents are eliminated from the system.

3.2.3.5 Delegated Authorities

Vendor, contractor, and agent QA programs shall be reviewed to assure compliance with the requirements of this section.

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3.3 Quality Assurance Records

3.3.1 Policy

Quality Assurance records for items and activities covered under the scope of the TMI QA Program shall be identified, reviewed, retained, and retrievable. These requirements are imposed on all organizations performing activities important to safety. Quality Assurance record systems shall be described and controlled by approved written procedures and instructions, adequately implemented, and verified by QAD through inspections and audits.

3.3.2 Requirements

The procedures established for the generation, collection, storage, maintenance, and retrieval of the TMI Quality Assurance records shall meet the following minimum requirements:

a. The applicable design specification, procurement documents, test procedures, operational procedures and other documents shall specify the records to be generated, supplied and maintained by or for the owner. These records shall include results of reviews, inspections, tests, audits, and material analysis; monitoring of work performance; qualification of personnel, procedures, and equipment; and other documentation such as calculations design verifications, drawings, specifications, procurement documents, calibration procedures and reports; nonconformance reports; and corrective action reports.

b. Sufficient records and documentation shall be maintained to provide evidence of the quality of items or activities important to safety. Inspection and test records shall contain the following where applicable:

1. A description of the type of observation.

2. The date and results of the inspection or test.

3. Information related to conditions adverse to quality.

4. Inspector or data recorder identification.

5. Evidence as to the acceptability or the results.

6. Action taken to resolve any discrepancies noted.

c. Documented and approved measures shall be established for complying with the applicable requirements of codes, standards, and procurement documents regarding record transmittal, retention, and maintenance subsequent to completion of work.

d. Record storage facilities shall be established and utilized to prevent destruction of quality records by fire, flooding, theft and deterioration by environmental conditions such as temperature or humidity in compliance with the applicable standards, codes and regulatory guides endorsed in Section 2 of the TMI Quality Assurance Plan.

3.3.3 Responsibilities

3.3.3.1 Manager - Quality Assurance

a. Responsible for reviewing and approving major participating organizations procedures for the maintenance of Quality Assurance records; establishing a program for the identification, storage, retrieval, and maintenance of Quality Assurance records generated by QAD, until they are turned over for storage, and performing planned and periodic audits to verify adequacy and implementation of Quality Assurance records requirements by both internal TMI organizations and external suppliers.

3.3.3.2 Manager - Administration and Services

a. Responsible for the collection, maintenance, and storage of records at the plant site in accordance with approved written procedures which conform to the requirements and policy of this section.

b. Responsible for providing procedures which ensure the maintenance of records sufficient to furnish objective evidence that activities affecting quality are in compliance with the applicable standards, codes and regulatory guides endorsed in Section 2 of the TMI Quality Assurance Plan.

3.3.3.3 Manager - Management Services

a. Responsible for the collection, maintenance, and storage of records at the home office in accordance with approved written procedures which conform to the requirements and policy of this section.

b. Responsible for providing procedures which ensure the maintenance of records sufficient to furnish objective evidence that activities affecting quality are in compliance with the applicable standards, codes and regulatory guides endorsed in Section 2 of the TMI Quality Assurance Plan.

3.3.3.4 Delegated Authorities

Records generated by site contractors shall be controlled according to contractor procedures until such time as they are turned over to the QAD for review, acceptance, and transmittal to the permanent records file. Purchased equipment records shall be retained by the vendor until the equipment is released for shipment.

When required by the procurement documents, contractors and vendors shall establish procedures to control Quality Assurance records. Implementation of these procedures shall be assured by performance of source surveillance by QAD and through audits performed by QAD.

Records to be submitted with the shipment or retained by the vendor will be specifically identified in procurement documents. These records will be reviewed as necessary by QAD to provide the required degree of confidence in the adequacy of compliance of the vendor with the requirements of this section.

4.0 Design Control

4.1 Policy

Measures shall be established and documented to assure that the applicable specified design requirements, such as design bases, regulatory requirements, codes and standards are correctly translated into specifications, drawings, procedures or instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included or referenced in design documents for design of systems and structures; external design of systems and structures; and assessment of damage.

4.2 Requirements

4.2.1 Design control measures require that:

a. The organizational structure be defined, and authority and responsibility of personnel involved in preparing, reviewing, approving and verifying design documents be delineated.

b. The FSAR design bases, FSAR safety analysis, design regulations, codes and standards and Plant Technical Specifications be adhered to in design work, except where the changes will be the subject of an operating license amendment application.

c. The materials, parts and processes selected by design are reviewed to assure that they are suitable for the intended application, including compatibility of materials, accessibility for inservice inspection, maintenance and repair, associated computer programs, and quality standards. The review will also evaluate suitability with regard to human factors which may effect safe operation.

d. Internal and external design interface controls, procedures, and lines of communication among participating design organizations and across technical disciplines are established and

described for the review, approval, release, distribution, and revision of documents involving design interfaces.

e. Errors and deficiencies in approved design documents, including design methods (such as computer codes) that could adversely affect items and activities important to safety shall be documented, and action shall be taken to assure that these errors or deficiencies are corrected.

f. Deviations in specified quality standards shall be identified and procedures shall be established to assure their control.

g. Review of standard "off the shelf" commercial materials, parts, and equipment for suitability of application with structures, systems, and components important to safety shall be conducted prior to selection.

h. Design verification methods (design review, alternate calculations or qualification testing) shall be established. Guidelines shall be established for determining the appropriate methods.

i. Design verification procedures shall be established which assure the following:

- The verifier is qualified and is not directly responsible for the design.

- Verification shall be complete prior to relying upon the component, system, or structure to perform its function during plant operations.

- Procedural control is established for design documents that reflect the commitments of the SAR. Design documents subject to procedural control include, but are not limited to, specifications, calculations, computer programs,

system descriptions, and drawings, including flow diagrams, piping and instrument systems for major facilities, site arrangements, and equipment locations.

- The responsibilities of the verifier, the areas and features to be verified, the pertinent considerations to be verified, and the extent of documentation shall be identified in procedures.

j. When verifications may be accomplished by test:

- Prototype, component or feature testing shall be performed as early as possible prior to installation of plant equipment, or prior to the point when the installation would become irreversible.

- Verification by test shall be performed under conditions that simulate the most adverse design conditions as determined by analysis.

k. Procedures shall be established to assure that computer codes are verified prior to use.

l. Design and specification changes, including field changes, will be subject to design control measures commensurate with those applied to the original design. Design changes shall be reviewed and approved by the organization responsible for the original design or by another organization with comparable expertise designated to review and approve changes.

m. Measures shall be provided to assure that responsible plant personnel are made aware of design changes and/or modifications, which may affect the performance of their duties.

4.3 Responsibilities

4.3.1 Plant Engineering

The Plant Engineering Department is responsible for providing technical support to operations and maintenance personnel. This is accomplished by providing on-shift engineers to the operations staff for direct technical coverage of the plant systems performance. In addition, Plant Engineering is responsible for in-plant fuel management and accountability, control rod programs, core calculations, providing technical assistance to unit management and the preparation and maintenance of procedures related to the activities of the department.

Plant Engineering is also responsible for engineering activities related to routine maintenance and minor plant modifications.

4.3.2 Project Engineering Manager

The Project Engineering Manager is responsible for coordination, staffing and directing of engineering tasks which are outside of the normal scope of activities of Plant Engineering. To fulfill these responsibilities he will:

a. Maintain a listing of all identified design tasks and the person(s) or organization assigned. For each outside design task, a Cognizant Engineer will be identified.

b. Maintain schedule and status information for each task.

c. Coordinate the efforts of the System Engineering Department and the Engineering and Design Department. Personnel from these departments will be utilized to perform the assigned tasks.

d. Control and coordinate the activities of A/E's providing direct engineering service.

e. Coordinate with the engineering management personnel of contractors with design responsibility.

f. Review and approve baseline design documents such as design criteria, flow diagrams, system descriptions, arrangement drawings, one-line diagrams and logic diagrams, as appropriate.

g. Review and approve final design documents including specifications and drawings (as required).

Note: This design review does not replace or eliminate the need for design verification by the organization who performed the design.

4.3.3 Systems Engineering Department

The Systems Engineering Department is responsible for providing conceptual and analytic engineering service to other engineering groups as required. They are directly responsible for technical administration of nuclear fuel-related engineering activities.

The Systems Engineering Department is responsible for implementation of the design control program for their own activities which are important to safety.

4.3.4 Engineering and Design Department

The Engineering and Design Department provides detailed mechanical and electrical engineering as well as design service to support TMI engineering activities. They are responsible for classification of items and activities important to safety and for preparation and maintenance of the Quality Classification List (QCL). The department is also responsible for implementation of the design control program for their own activities which are important to safety.

4.3.5 Other Design Organizations

All design organizations performing design activities for TMI shall have quality programs

which include design control provisions equivalent to those provided in the TMI Quality Assurance Program.

4.3.6 Quality Assurance Department

The Manager - Quality Assurance is responsible for providing Quality Assurance review and concurrence with design and engineering documents relating to items and activities important to safety to assure that appropriate quality requirements have been included. In addition, Quality Assurance will perform planned and periodic audits of responsible design organizations to verify implementation of design control measures.

5.0 Procurement and Material Control

5.1 Control of Procurement

5.1.1 Policy

Procurement of material, equipment and services which are considered important to safety shall be performed in accordance with written policies, procedures and instructions. These shall establish methods for preparation, review approval, and control of procurement documents and shall provide measures to comply with applicable regulatory requirements. Appropriate measures shall be established to evaluate procurement sources, monitor the activities of consultants, vendors and contractors, and confirm that purchased items conform to procurement document requirements. The programs of all participants shall be in accordance with the applicable requirements of the TMI Quality Assurance Program.

The general and specific requirements for the quality assurance program of all vendors and contractors, including their subvendors and subcontractors supplying material, equipment, or services which are considered important to safety, are delineated by procurement documents. The procurement documents impose quality program requirements that are commensurate with the degree of complexity, the uniqueness, and the importance to safety of the items and services being performed.

Quality Assurance measures shall apply to the procurement of materials including spare parts, replacement parts, off-the-shelf items and consumables. Procurement of spare or replacement parts for structures, systems, and components shall be subject to current Quality Assurance program controls and to codes, standards, and technical requirements equal to, or better than, original technical requirements, or in accordance with an approved engineering document.

5.1.2 Requirements

5.1.2.1 Procurement Documents

The sequence of actions for the preparation, review, approval and control of procurement documents shall be delineated in detailed procedures. These procedures shall delineate requirements to asssure that procurement documents:

a. Specify applicable quality assurance requirements.

b. Require applicable quality program requirements to be passed on to subvendors and subcontractors.

c. Specify or reference design bases technical requirements, including applicable regultory requirements, material, and component identification requirements, drawings, specifications, codes and standards, test and inspection requirements, and special process instructions.

d. Identify the documentation to be prepared, maintained, and submitted for review, approval and record information as applicable.

e. Include an identification of those systems and activities important to safety.

f. Identify those records which vendors or contractors shall retain, maintain, and control; and those which vendors or contractors shall deliver prior to use or installation of the item.

g. Include right of access to vendors or contractors and their subtier vendor and contractor facilities and records for source inspection and/or audit.

h. For spare or replacement parts, contain requirements at least equivalent to those used for the original procurement. The original procurement document may be used as the technical requirements for purchase of spare or replacement parts.

i. Include the provision that suppliers shall refrain from implementing procedures which require owner approval prior to ootaining such approval.

Measures shall be established for the review, approval, and release of procurement documents and subsequent revisions. The reviews shall assure the inclusion of the applicable technical, quality, and administrative requirements in procurement documents prior to their use. Requisitions for professional service agreements for services covered by the scope of this Quality Assurance Program shall be reviewed by the QAD to assure inclusion of quality requirements.

QAD personnel shall review and concur with the adequacy of quality requirements to determine that they are correctly stated, inspectable and controllable; that there are adequate acceptace criteria; and that procurement documents have been processed in accordance with established requirements.

Review of procurement documents shall be documented to provide objective evidence of their approval prior to their release.

5.1.2.2 Qualification and Selection of Suppliers

The TMI Quality Assurance Program requires documented evaluations of prospective suppliers which demonstrate qualifications based upon one or more of the following criteria:

a. Review of performance histories which provide records of suppli.rs previous capability to provide similar products or services.

b. Review of the supplier's capability to comply with the criteria of 10 CFR 50, Appendix B, applicable to the items or services to be supplied.

c. A pre-award survey of supplier's facilities and Quality Assurance program to determine his capability to supply the items or services that meet the design

and quality requirements of the specification.

Procedures shall be established to accomplish the evaluation and selection of suppliers of equipment, material or services. Contracts or purchase orders for material, equipment or services covered by the scope of the Quality Assurance Program shall be awarded only to vendors or contractors who have been qualified by the QAD as having a Quality Assurance program commensurate with the equipment or services to be provided. When a supplier quality program is required, it shall be reviewed and approved prior to initiation of the activity affected by their program. For certain services, the supplier may be required, by procurement documents, to work under the direct control of the TMI Quality Assurance Program. In these instances, the supplier will not be required to have a separate quality assurance program, but will be required to work within the applicable requirements of this Quality Assurance Program and will require the approval of the Quality Assurance Department.

5.1.2.3 Manufacturing Assurance

Measures shall be established to provide control of manufacturing activities of vendors. These methods shall be described in detailed written procedures. The extent to which these specific controls will be applied to vendors will be described in individual vendor inspection plans. A vendor inspection plans will be prepared for each major contract within the scope of the TMI Quality Assurance Program.

The attributes of the manufacturing assurance program shall include:

a. Provisions for the review, approval and status tracking of the vendor's drawings, Quality Assurance manual and selected manufacturing and quality procedures prior to fabrication. Vendors may not implement procedures until written notice of approval is received, if applicable.

b. Established vendor inspection plans that delineate, as required the hold

and/or witness points in the manufacturing process for specified review, inspection, verification and test.

c. Methods for resolution of nonconformance where the vendor's suggested disposition is "Use-as-is" or "Repair". Such nonconformances require approval by the responsible engineer.

d. Planned and systematic audit and surveillance of vendor quality activities. Scope of coverage and frequency shall be determined by the criticality of the furnished items and the evaluated results of vendor qualifications, including pre-award surveys and quality procedure reviews. Revisions to surveillance plans shall be made as warranted by vendor performance.

e. Control of vendor document package including review for completeness and acceptability. Inadequate records shall be sufficient cause to reject the items furnished due to their indeterminate quality status.

f. Assessments of vendor control of quality shall be made at a frequency and depth commensurate with the importance, complexity and quantity of the items furnished. These assessments shall utilize the qualitative and quantitative information provided by vendor noncompliance documents; surveillance, inspection and audit reports; and receiving inspection and test records.

g. Receiving inspection procedures assure that:

    1. The material, component, or equipment is clearly identified and that the identification and quantity correspond to the information on the shipping documents and quality records.

    2. The item's handling and shipping, requirements have been met by the

vendor and maintained by the carrier.

3. The item's quality record package or compliance certificate is complete, and adequate.

4. Items delivered, which are not in compliance with requirements are documented in accordance with the nonconformance procedure, tagged, segregated (if possible), and prevented from being inadvertently issued for installation or use.

5. Items accepted and released are identified as to their inspection status prior to forwarding them to a controlled storage area or releasing them for installation or further work.

5.1.3 Responsibilities

5.1.3.1 Materials Management

Materials Management is responsible for complying with the requirements of this Plan and for the administration and operation of procurement and warehousing associated with the operation of the TMI Nuclear Station. In this regard, they are responsible for assuring that the technical and quality requirements, as established by the Generation Group, are incorporated into procurement documents without revision. Furthermore, Materials Management is responsible for assuring that the contractual, legal and commercial requirements are incorporated into the procurement documents in a manner which will not alter the technical or quality requirements. The Manager - Field Warehousing, TMI is responsible for the operation and maintenance of the company warehouses and storerooms at the TMI Nuclear Station.

5.1.3.2 Manager - Quality Assurance

The Manager - Quality Assurance is responsible for assuring that QAD procedures for the control of purchased equipment, material, and services are established, approved, implemented and effective. He is also responsible for

the approval of all TMI procedures necessary for the control of purchased equipment, material, and services within the scope of the TMI Quality Assurance Program. He is responsible for approval of suppliers' Quality Assurance Program to the extent required in the procurement documents. He is also responsible for review on acceptance of supplier document record packages. He is responsible for establishing and implementing an adequate program of source inspection, surveillance and receipt inspection to assure supplier compliance with contract requirements.

5.1.3.3 Responsible Engineer

A responsible engineer is that engineer assigned responsibility for the design and/or procurement of each structure, system, or item. He shall review, approve and control procedures, drawings and other quality-related documents submitted by the supplier of the specified equipment. He shall maintain a status reference of all documents requiring approval and distribute such information as required.

5.2 Indentification and Control of Materials, Parts and Components

5.2.1 Policy

Measures shall be established to provide for the identification and control of materials, parts and components important to safety. These measures shall assure that incorrect or nonconforming items are identified and controlled in order to prevent their inadvertant installation or use at TMI. Where required by design documents, the system established shall provide traceability of components from the receipt of material through fabrication and testing. Verification shall include review of objective evidence of inspections and tests which demonstrate that product identification and control is maintained at various stages of manufacture, installation, or erection. Identification requirements shall be specified in the applicable design and procurement documents.

5.2.2 Requirements

a. Identification requirements shall be included in specifications and drawings.

b. Material, parts, and components, including partially fabricated subassemblies or subdivided materials shall be identified to preclude the use of incorrect or defective items.

c. Materials and parts important to safety shall be identified so that they can be traced to the appropriate documentation, including, but not limited to:

1. Specifications
2. Drawings
3. Procurement Documents
4. Physical and Chemical Test Reports
5. Nonconformance Reports
6. Inspection Reports and Checklists
7. Storage Maintenance Instructions
8. NDE Reports
9. Vendor Certificates of Compliance

d. The location and method of identification shall be specified so as not to affect the form, fit, function or quality of the item being identified.

e. Correct identification of materials, parts and components shall be verified prior to release for fabrication, shipping, installation, and testing.

f. Where physical identification is either impractical or insufficient, physical separation, procedural control, or other approved means may be employed.

g. A receipt inspection at the site warehouse verifies that identification for

received items is complete and accompanied by appropriate documentation.

5.2.3 Responsibility

5.2.3.1 Responsible Engineer

a. Responsible for ensuring that procurement documents contain appropriate requirements for the identification and control of materials, parts, or components.

5.2.3.2 Manager - Quality Assurance

a. Responsible for Quality Assurance review and concurrence of procedures for maintaining identification in accordance with the requirements of this section.

b. Responsible for verification of identification during receipt inspection.

c. Responsible for monitoring and conducting inspections, surveillances and audits to verify conformance to the requirements of this section.

5.2.3.3 Manager - Site Warehousing, TMI

a. Responsible for maintaining identification and control of materials, parts or components received and stored at TMI in accordance with written procedures.

6.0 Control of of Station Activities

6.1 Policy

Station activities considered important to safety shall be conducted in accordance with the requirements of this Plan. These activities include design changes, procurement, fabrication, handling, shipping, storage, cleaning, erecting, installation, inspection, testing, operation, maintainance, repair, refueling and modification.

6.2 Requirements

The Quality Assurance requirements for station activities are contained in this Plan and include compliance with applicable USNRC Regulatory Guides and ANSI Standards indicated in Appendix C. These requirements shall be implemented in appropriate TMI procedures governing station activities. The requirements of the Plan apply to all individuals or organizations performing functions which affect the quality of structures, systems, components, or activities important to safety.

6.2.1 Details

The following subsections discuss typical activities which are representative of the broad scope of administrative controls and quality assurance requirements that are applicable to station activities. The organizational structures and functional responsibilities governing station activities shall be structured so that attainment of Quality Assurance Plan objectives is accomplished by those who have been assigned or delegated responsibility for performing the work and verification of conformance to established requirements is accomplished by qualified personnel who do not have direct responsibility for performing or directly supervising the work. Quality Assurance Department activities such as inspection, monitoring, surveillance, reviews and audits are performed to independently verify conformance to this plan, applicable station administration controls, and applicable regulatory and licensing commitments. These independent verifications are applied to station activities on a graded

approach and to the extent necessary to provide adequate confidence that structures, systems, components, and personnel perform satisfactorily to maintain the safety of the station. Station work functions such as routine and abnormal operations, maintenance, repair or rework, in-service inspections, technical specification compliance, fuel handling, radwaste handling, radiation protection, chemical analysis, housekeeping and cleanliness, fire protection, security, training, environmental requirements, health physics, and other activities considered important to safety which are discussed in the Quality Assurance Plan are controlled to an extent consistent with their importance to safety.

6.2.1.1 Control of Inspection

A program for inspection of activities affecting quality shall be established and executed by, or for, the organization performing the activity to verify conformance to the documented instructions, procedures, and drawings for accomplishing the activity. Design specifications, drawings, procedures, or instructions shall include the necessary inspection requirements. These requirements include acceptance criteria and reference to codes, standards, and regulatory documents. These requirements shall be further translated into inspection procedures, instructions, or checklists which shall contain, as required, the following:

a. Identification of characteristics and activities to be inspected.

b. Inspection methods.

c. Identification of organization responsible for performing the inspection.

d. Acceptance and rejection criteria.

e. Identification of applicable revisions or required procedures, drawings and specifications.

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f. Documentation of inspection results including identification of the inspector.

g. Listing of necessary measuring and test equipment including their accuracy requirements.

Inspectors (including NDE personnel) shall be qualified in accordance with applicable codes, standards and TMI training programs and their qualification and certification shall be kept current and documented.

Individuals performing inspections shall be other than those who performed or directly supervised the activity being inspected and shall not report directly to the immediate supervisors who are responsible for the work activity being inspected. If the individuals performing inspections are not part of the responsible Quality Assurance organization, the inspection procedures and personnel qualification criteria shall be reviewed and concurred with by the responsible Quality Assurance organization prior to the initiation of the inspection activity. Inspection of activities as defined in ANSI N45.2.10 may be conducted by second line supervisory personnel or by other qualified personnel not assigned first line supervisory responsibility for the conduct of work. These inspections, i.e., those performed by individuals not assigned first line supervisory responsibility, are not intended to dilute or replace the clear responsibility of first line supervisors for the quality of work performed under their supervision. When inspections associated with normal operations of the plant (such as routine maintenance, surveillance and tests) are performed by individuals other than those who performed or directly supervised the work, but are within the same group, the following controls shall be met:

a. The quality of the work can be demonstrated through a functional test when the activity involves breaching a pressure retaining item.

b. The qualification criteria for inspection personnel are reviewed and found acceptable by the Quality Assurance organization prior to initiating the inspection.

Work authorization documents relating to work considered important to safety shall be reviewed by Quality Assurance Department personnel to determine the need for: a) inspection, b) identification of inspection organization, c) identification of inspection witness and hold points, d) documenting inspection results.

When hold points have been establisned, either contractually by procurement or internally by plant procedures, work may not proceed until either inspection is performed or waived by the responsible Quality Assurance organization.

Inspection of modifications, repairs, and replacements shall be by the same method and to the same criteria as the original inspection or by an approved, documented, engineering and QA alternate. Where direct inspection is not practicable, control of processing, equipment and personnel shall be based on statistically valid sampling plans. Inspection personnel shall be provided with suitable equipment and tools, which are calibrated as necessary, and controlled to assure that accuracy requirements are satisfied and that inspections are complete.

Inspection data and results shall be evaluated by designated personnel to assure that the inspection objectives have been met and that items requiring action or follow-up are identified and documented.

Records shall be kept in sufficient detail to provide adequate confirmation of an inspection program.

6.2.1.2 Control of Special Processes

Measures shall be established and documented to assure that special processes are accomplished under controlled conditions in accordance with applicable codes, standards, applications criteria, and other special requirements including the use of qualified personnel

and procedures. Special processes are those that require interim in process controls in addition to final inspection to assure quality including, but not limited to, such processes as welding, heat treating, chemical cleaning, and nondestructive examination. Procedures for special processes shall be established to meet the requirements or applicable codes and standards, where applicable, or to meet the requirements of special process specifications which may be produced for TMI. These procedures shall provide for recording evidence of acceptable accomplishment of special processes. Procedures and instructions for the control of special processes shall be reviewed and approved by qualified personnel. Procedures, equipment, and personnel performing special processes shall be qualified in accordance with applicable codes, standards, and specifications. Organizational responsibilities shall be delineated for the qualification of special processes, equipment and personnel. Qualification records of personnel equipment and procedures associated with special processes shall be established, maintained and kept current. For special processes not covered by the existing codes or standards, or when item quality requirements exceed the requirements of established codes or standards, the necessary qualifications of personnel, procedures and equipment shall be defined.

6.2.1.3 Test Control

A documented test program shall be established to assure that all testing required to demonstrate that the structure, system or component considered important to safety will perform satisfactorily in service. The tests shall be performed in accordance with written, approved, and controlled test procedures which incorporate or reference the requirements and acceptance standards contained in the applicable design documents. The extent of testing shall be based on the complexity of the modification, replacement, or repair. Testing, including proof tests prior to installation and preoperational tests, necessary to demonstrate that structures, systems and components will perform satisfactorily in service, shall be accomplished in accordance with written

approved procedures. These procedures shall be based on requirements and acceptance limits contained in applicable design and procurement documents. These test procedures or instructions shall provide for the following as required:

a. A description of the test objective.

b. Instructions for performing the test, including caution or safety notes in sufficient detail to avoid operator interpretation.

c. Test prerequisites such as calibrated instrumentation, adequate test equipment and instrumentation including accuracy requirements, completeness of item to be tested, suitable and controlled environmental conditions, and trained qualified and licensed or certified personnel.

d. Provisions for data collection and storage.

e. Acceptance and rejection criteria as specified in design and procurement documents.

f. Methods of documenting or recording test data and results, in sufficient detail to prevent misinterpretation.

g. Provisions for assuring that test prerequisites have been met.

h. Mandatory hold or witness points for inspection by TMI Quality Assurance and/or other designated personnel.

i. Provisions for control of jumpers, lifted leads and jurisdictional or safety tags.

j. Provisions for returning a system to normal configuration upon completion of the test.

Test results shall be documented, evaluated, and their acceptability determined by a responsible individual or group.

The test program shall cover all required tests including:

1. Tests during the preoperational period to demonstrate that plant performance is in accordance with the design intent.

2. Tests during the initial operational phase to demonstrate the performance of systems that could not be tested prior to operation to confirm that plant behavior conforms to design criteria.

3. Tests during the operational phase to provide assurance that failures or substandard performance do not remain undetected and that the required reliability of systems important to safety is maintained.

4. Tests during activities associated with plant maintenance during the operational phase and to demonstrate satisfactory performance following plant maintenance or procedural changes.

Tests performed following plant repairs or replacements shall be conducted in accordance with the original design and testing requirements or engineering approved, documented alternatives. Testing shall be sufficient to confirm that the changes reasonably produce expected results and that the change does not reduce safety of operations.

6.2.1.4 Control of Measuring and Test Equipment

Measures shall be established to assure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting the function or quality of structures, systems, and components covered under the scope of the TMI Quality Assurance Program be properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within specified limits. Additional measures shall be established to ensure the range, type and accuracy of test equipment conforms to the specified testing requirements.

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Requirements for each control program shall include inspection and verification of accuracy upon receipt of equipment, identification of all gauges and instruments, calibration and scheduled recall for calibration and traceability to an accepted Standard. Procedures shall be established to implement the following requirements:

a. To establish the calibration technique and frequency maintenance, and control of all measuring and test equipment which are used in the measurement, inspection, and monitoring of components, systems, and structures covered under the scope of the TMI Quality Assurance Program (instruments, tools, gauges, fixtures, reference and transfer standards, and nondestructive examination equipment).

b. The identification of measuring and test equipment traceable to the calibration test data.

c. Installed operations measuring and test equipment requiring calibration shall be labelled, tagged or otherwise controlled in accordance with written, approved procedures to assure that approved calibration intervals are not exceeded. Portable measuring and test equipment may be similarly controlled; but shall, as a minimum, be clearly labelled to indicate the date on which the current calibration expires. Portable measuring and test equipment that has exceeded the approved calibration interval shall not be used for measurements or tests.

d. Establish calibration frequency for measuring and test equipment based on required accuracy, purpose, degree of usage, stability characteristics, and/or any other condition which may affect the measurement. A calibration recall system shall be implemented to assure recalibration within the required period for each piece of measuring and test equipment covered under the scope of this program.

e. Methods for determining the validity of previous inspections performed when the measuring and test equipment is found to be out of calibration. Inspections or tests are repeated on items determined to be suspect. Such determination is to be documented in suitable form. If any calibration, testing or measuring device is consistently found to be out of calibration, it shall be repaired or replaced.

f. Calibration shall be against standards that have an accuracy of at least four times the required accuracy of the equipment being calibrated. When this is not possible, standards shall have an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by the supervisor of the calibrating organization.

g. A status of all measuring and test equipment under the calibration program is to be maintained.

h. Utilization of reference and transfer standards traceable to nationally recognized standards. Where national standards do not exist, provisions shall be established to document the basis for the calibration.

i. NDE equipment, such as ultrasonic equipment, shall be controlled and calibrated in accordance with the ASME code governing its use.

6.2.1.5 Handling, Storage and Shipping

Measures shall be established and documented to control handling, storage, and shipping, including cleaning, packaging, and preservation of items important to safety in accordance with established instructions, procedures, and drawings to prevent damage, deterioration or loss.

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Organizations performing special handling, preservation, storage, cleaning, packaging, and shipping activities shall do so in accordance with predetermined work and inspection procedures or instructions utilizing suitably trained individuals.

Procedures shall be established to control the cleaning, handling, storage, packaging, and shipping of materials, components, systems in accordance with design and procurement requirements to preclude damage loss or deterioration by environmental conditions such as temperature or humidity. These procedures shall include an assessment of, but not limited to, the following:

a. Packaging and preservation procedures to provide assurance of adequate protection against corrosion, contamination, physical damage or any effect which would lower the quality of the items or cause them to deteriorate during shipping, handling or storage. Special protective environments, special coverings, inert gas atmosphere, allowable moisture content, and temperature level shall be specified as required and their existence verified and documented.

b. Cleaning procedures to provide assurance that necessary cleaning operations are carried out prior to packaging, storage or installation. The level of cleanliness required, and verification and documentation requirements shall be specified in the procedures.

c. Detailed handling procedures to be provided for all items that require special handling. Special handling tools and equipment shall be provided and controlled to ensure safe and adequate handling. These tools and equipment shall be maintained, inspected and tested in accordance with written procedures at established intervals to ensure their reliability and availability for use.

d. Storage procedures to provide for methods of storage and the control of items in storage which will minimize the possibility of damage or deterioration during storage. Periodic inspections of storage areas shall be performed and documented to verify compliance with storage procedures. Release of items for installation shall also be procedurally controlled.

e. Procedures to be provided to assure that proper marking and labeling of items and containers is accomplished to provide identification and necessary instructions during packaging, shipment and storage.

f. Procedures for documenting and reporting noncompliance and nonconformance to handling, and shipping requirements.

g. Provisions for the storage of chemicals, reagents, lubricants and other consumable materials which will be used in conjunction with systems which are important to safety.

h. Provisions for "Limited Life" requirements (including "Shelf Life" and "Service Life" for applicable materials.

6.2.1.6 Inspection, Test, and Operating Status

Measures shall be established and documented to ensure that the required inspections and tests are performed and that the acceptability of items with regard to inspection and tests performed is known throughout manufacturing, installation, and operation. Status of items covered by the scope of the TMI Quality Assurance Plan shall be controlled in accordance with approved procedures. These procedures shall include the use of appropriate tags, markings, lists, logs, diagrams, or other suitable means, to assure that required inspections and tests are satisfactorily completed to prevent inadvertent bypassing of required inspections and tests and to prevent inadverent operation.

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The requirements for an acceptable inspection, test and operating status program for structures, systems, and components throughout fabrication, installation and test include:

a. Design and quality documents which address the requirements for the identification of inspection, test, and operating status of structures, systems and components.

b. Procedures which include controls for the application and removal of inspection and welding stamps, and other status indicators such as tags, markings, labels, and stamps.

c. Bypassing or altering the sequence of required inspections, tests or other critical operations procedurally controlled by Engineering procedures with concurrence by the appropriate quality organization. Where necessary to preclude inadvertent bypassing of required inspections and tests, the procedures shall provide for the identification of items which have passed such inspections and test.

d. In cases where documentary evidence is not available to confirm that an item has passed required inspections and tests, that item shall be considered nonconforming until such evidence becomes available. Affected systems shall also be considered to be inoperable and reliance shall not be placed on such systems to fulfill their intended safety functions.

e. Procedures to be provided to require identification of the operating status of systems, components, controls, or support equipment in order to prevent inadvertent or unauthorized operation. These procedures shall require control measures such as locking or tagging to secure and identify equipment in a

controlled status. Independent verification shall be required, where appropriate, to ensure that necessary measures, such as tagging equipment, have been implemented correctly.

f. Temporary modifications shall be controlled by approved procedures which include a requirement for independent verification. A log shall be maintained of the current status of such temporary modification.

g. Nonconforming services and inoperative or malfunctioning structures, system, components or materials shall be identified, documented and controlled in accordance with the requirements of this Plan.

6.2.1.7 Fire Protection

The primary objective of a Fire Protection Program is to minimize both the probability and consequences of postulated fires. Fire Protection starts with design and must be carried through all phases of construction and operation. Therefore, Quality Assurance Program requirements in accordance with Regulatory Guide 1.120 and this Plan shall be established to assure the reliability of the TMI fire protection systems. Quality measures shall be established to ensure that the guidelines for design, measurement, installation, testing and administrative controls for the fire protection systems are satisfied.

6.2.1.8 Plant Security

Procedures shall be developed utilizing the guidelines of ANSI N18.17-1973 to supplement features and physical barriers designed to control access to the plant and, as appropriate, to vital areas within the plant. Information concerning specific design features and administrative provisions of the plant security programs shall be confidential and thus accorded limited distribution. Quality measures shall be established to ensure that the guidelines for design, measurement, installation, testing and administrative

controls for the plant security systems are satisfied.

6.2.1.9 Housekeeping and Cleanliness

Housekeeping practices on a regularly scheduled basis shall be utilized recognizing the requirements for the control of radiation zones and the control of work activities, conditions and environments that can affect the quality of important parts of the nuclear plant. Housekeeping encompasses all activities related to the control of cleanliness of facilities, materials, equipment fire prevention and protection including disposal of combustible material and debris and control of accesses to areas, protection of equipment, radioactive contamination control and storage of solid radioactive waste. Housekeeping practices shall assure that only proper materials, equipment processes, and procedures are utilized and that the quality of the item is not degraded as a result of housekeeping practices or techniques. During maintenance activities, certain portions of safety-related systems may be subject to potential contamination with foreign materials. To prevent such contamination, control measures, including measures for access control, shall be established. Additionally, immediately prior to closure, an inspection shall be conducted and documented to ensure cleanliness. Special housekeeping considerations shall be made for maintenance of radioactively contaminated systems for components.

6.2.1.10 Equipment Control

Permission to release equipment or systems for maintenance shall be granted by designated NRC SRO licensed operations personnel. Procedures shall be provided for control of equipment, as necessary, to maintain personnel and reactor safety, to avoid unauthorized operation of equipment, and to assure that operational equipment is a ready status. These procedures shall require:

a. Control measures such as locking or tagging or secure and identify equipment in a controlled status.

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b. Independent verifications, where appropriate, to ensure that necessary measures, such as tagging equipment, has been implemented correctly.

c. Control measures for temporary modifications, such as temporary by-pass lines, electrical jumpers, lifted electrical leads, and temporary trip point settings. Included shall be a requirement for independent verification. (A log shall be maintained of the current status of temporary modifications.)

d. Control of inspection and test status on individual items by the use of markings such as stamps, tags, labels, routing cards or other suitable means.

e. When equipment is ready to be returned to service, operating personnel shall place the equipment in operation and verify and document its functional acceptability.

6.2.1.11 Control of Construction, Maintenance (Preventive/Corrective) and Modifications

Construction, maintenance or modifications which has the potential to affect the functioning of structures, systems or components important to safety shall be performed in a manner to ensure quality at least equivalent to that specified in original design bases and requirements, materials specifications and inspection requirements. A suitable level of confidence in structures, systems or components on which maintenance or modifications have been performed shall be attained by appropriate inspection and performance testing. Construction, maintenance or modification of equipment shall be preplanned and performed in accordance with written procedures, documented instructions or drawings appropriate to the circumstances which conform to applicable codes, standards, specifications, and criteria. Skills normally possessed by qualified maintenance personnel may not require detailed step-by-step delineations in a written procedure but are subject to general adminstrative procedural controls that govern or define the following areas:

a. Methods for obtaining permission and clearance for operation personnel to work and for logging such work.

b. Factors to be taken into account, including the necessity of maintaining occupational radiation exposure as low as is reasonably achievable (ALARA).

c. Method for identification of what procedural coverage is necessary for the maintenance, construction and modification activity.

d. Considerations for system/equipment cleaniness control.

e. Method for identification of post maintenance, construction or modification, testing, including system/equipment functional capability to meet operational requirements in all respects.

f. Method for ensuring that maintenance, contruction or modification activities, performed either on-site or off-site, are properly reviewed.

The following type of activities are among those that may not require detailed step-by-step written procedures:

a. Gasket replacement

b. Trouble shooting electrical circuits

c. Changing chart or drive speed gears or slide wires on recorder.

Means for assuring quality of maintenance, modifications or construction activities (for example, inspections, measurements, tests, welding, heat treatment, cleaning, nondestructive examination and worker qualifications in accordance with applicable codes and standards) and measures to document the performance thereof shall be established. Measures shall be established and documented to identify the inspection and test status of items to be used in maintenance modification, and construction activities. Normally, the

point of control for such items should be the plant storage area.

A corrective maintenance program shall be developed to maintain structures, systems and components important to safety at the quality required for them to perform their intended functions. Corrective maintenance shall be performed in a timely manner to insure that important to safety items are adequately maintained in the original, design, functional status.

A preventative maintenance program including procedures as appropriate for structures, systems, and components important to safety shall be established which prescribes the frequency and type of maintenance to be performed. In all cases, maintenance shall be scheduled and planned so as not to compromise the safety of the plant. Planning shall consider the possible safety consequences of concurrent or sequential maintenance, testing or operating activities. Preventive maintenance shall be performed in a timely manner to insure that important to safety items are adequately maintained in the original, design, functional status.

6.2.1.12 Procedural Requirements

Measures shall be established to control and coordinate the approval and issuance of documents, including changes, which prescribe all activities affecting quality. Those documents which are considered important to safety require a documented Quality Assurance Department review. This review is to provide an independent verification that the procedures have been prepared, reviewed and approved in accordance with established policy and program controls; they contain the necessary policy and program requirements including the inspection and verification requirements where applicable; and they contain clear descriptions related to the extent of documenting results of completed actions when required. These documents include operating and special orders, operating procedures, test procedures, equipment and material control procedures, maintenance or modification procedures, and refueling procedures. Each procedure shall be

reviewed and approved prior to initial use. Plant procedures shall be reviewed by an individual knowledgeable in the area affected by the procedure no less frequently than every two (2) years to determine if changes are necessary or desirable.

6.2.1.13 Control of Surveillance Testing and Inspection

A surveillance testing and inspection program shall be established to insure that important to safety structures, systems, and components will continue to operate, keeping parameters within normal bounds, or will act to put the plant in a safe condition if they exceed normal bounds.

Provisions shall be made for performing required surveillance testing and inspections, including inservice inspections. Such provisions shall include the establishment of a master surveillance schedule reflecting the status of all planned inplant surveillance tests and inspections. Frequently of surveillance tests and inspections may be related to the results of reliability analyses, the frequency and type of service, or age of the item or system, as appropriate.

Additional control procedures shall be instituted, as necessary, to assure timely conduct of surveillance tests and inspections and appropriate documentation, reporting, and evaluation of the results. Following the completion of testing, procedures shall be established to assure the return of systems to an operable status. These procedures shall include provisions for the documentation of authority, conduct, responsibility, and verification involved in returning the system to an operable status. Such provisions shall include the use of procedures, checklists, and independent verification as appropriate, considering the degree that system status was altered during the performance of the test.

6.2.1.14 Radiation Control

Procedures shall be provided for the implementation of a radiation control program. The radiation control program involves the acquisition of data and provision of equipment to

perform necessary radiation surveys, measurements and evaluations for the assessment and control of radiation hazards associated with TMI. Procedures shall be developed and implemented for quality assurance review of records and programs to insure the adequacy of measures taken to control radiation exposure of employees and others. Additionally, quality measures for radwaste management shall be implemented in accordance with 10 CFR 71, Appendix E.

6.3 Responsibilities

6.3.1 Senior Vice President - Met-Ed

The Senior Vice President - Met-Ed has overall responsibility for the management, supervision, and control of all station activities.

6.3.2 TMI Generation Group Station Management

The TMI Generation Group Station management is responsible for the implementation and compliance of the Quality Assurance Plan and directly responsible to insure their respective activities and responsibilities are conducted in accordance with applicable adminsitrative controls, regulatory and licensing requirements.

6.3.3 Delegated Authorities

Contractors or other agents outside the TMI Generation Group who are assigned or delegated responsibilities and/or activities governed by this Plan shall comply with the applicable requirements of the Plan.

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7.0 Control of Radioactive Waste

7.1 Policy

Measures shall be established and documented to assure that the applicable requirements of the Code of the Federal Regulations, Title 10, Part 71 and Title 49, Parts 100 through 199 applicable to the packaging and transporting of radioactive wastes are satisfied. Appendix E to 10 CFR 71 identifies the quality assurance criteria applicable to the control of radioactive waste.

The applicable portions of this Plan that relate to the criteria in Appendix E to 10 CFR 71 describe to a large extent the administrative controls and quality requirements to be applied in the control of Radioactive Waste. Typically, Sections 6.2.1.1 thru 6.2.1.6 and 6.2.1.9 apply to Control of Radioactive Waste.

7.2 Requirements

7.2.1 Procedures shall be developed and implemented to cover the following:

a. Processing of radioactive wastes including the collection, handling and preparation for shipment of radioactive liquids and solids. These procedures shall be consistent with the ALARA program and shall clearly identify the administrative controls and organizational responsibilities.

b. Training and qualification of personnel operating radioactive waste processing equipment, health physics monitoring, packaging and shipping and other operations deemed appropriate by management.

c. The activities associated with the packaging of radioactive wastes to include the proper selection of the receptacles to be used for containing the waste materials, the selection of the shipping containers (structures used to contain and support the receptacle and its contents) Health Physics inspections of the packaging prior to release, proper markings on

the outside of the package and the preparation of shipping papers and certificates.

d. Movement of radioactive materials within and outside the protected area to assure personnel protection at all times.

e. The shipment of radioactive material from the Station to be in accordance with the regulations of the U.S. Department of Transportation for the transportation of hazardous materials (49 CFR) and of the NRC (10 CFR 71).

f. The packaging used for transporting of radioactive wastes, whether purchased from an outside supplier or designed by GPUSC, shall meet the applicable requirements of 10 CFR 71 and 49 CFR.

7.2.2 The carriers to be used for transporting of radioactive wastes shall be selected on the basis of their experience, knowledge of DOT regulations, control and maintenance of their equipment and the selection and control of their drivers. The carrier is required to have or shall be supplied documented procedures covering acceptance of materials from a shipper, certification requirements, placarding, stowage control, reporting of incidents and security.

7.2.3 Radwaste operations shall be controlled to minimize personnal exposures or environmental contamination consistent with ALARA.

7.2.4 Operations procedures shall be reviewed by QAD to establish any necessary witness or hold points or activities to be monitored.

7.3 Responsibilities

7.3.1 The Manager - TMI Unit 1 and Manager - Radiological Controls shall develop and implement procedures for processing activities and movement of radioactive materials.

7.3.2 The Operations Department shall be responsible for the processing and packaging of liquid wastes and for the packaging of solid wastes

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in preparation for shipment. Additionally, the Operations Department is responsible for the collection and identification of radioactive solids, such as rags, papers, boots, gloves, etc., and having them moved to the Radwaste facility for packaging.

7.3.3 The Radiological Controls Department is responsible for monitoring all activities associated with the processing and handling of radioactive wastes and for providing advice on radiological matters relating to processing, packaging and shipping.

7.3.4 The Operations Department is responsible for the selection of the proper packaging for the specific contents to be shipped, taking into consideration the radiation levels, contamination limits and shipping requirements. Health Physics inspects the packaging for radiation level and, if acceptable, the Operations Department marks the outside of the package with the appropriate markings, completes the shipping papers and certificates, attaches the security seal and advises the carrier that the shipment is ready.

7.3.5 Plant Engineering is responsible for reviewing and accepting the designs of packaging purchased from an outside supplier. If packaging is to be designed by GPUSC, the design, fabrication and licensing of the packaging shall be the responsibility of the Director - Technical Functions.

7.3.6 Each manager for this functional area related to the control of radioactive wastes, shall establish the requirements for personnel qualification and institute training and indoctrination to satisfy these requirements. Training requirements shall be consistent with the importance and complexity of the activity performed.

7.3.7 Quality Assurance Modifications/Operations Manager is responsible for review and concurrence with procedures describing control of radioactive waste. He is also responsible to monitor and/or inspect radioactive waste processing operations to the extent to verify

they are preformed in accordance with established procedures, applicable administrative controls and regulatory requirements.

The Operations Department shall review and accept carriers' documented procedures as specified by procurement documents covering acceptance of radioactive waste materials for shipment.

8.0 Control of Corrective Actions and Nonconformances

8.1 Policy

Nonconforming materials, parts, components, services or activities within the scope of the QA Plan shall be controlled to prevent their inadvertent utilization. As a result, measures shall be established which ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances be promptly identified and corrected. The cause of the condition adverse to quality shall be determined and appropriate action taken to preclude repetition. The identification, cause, and actions taken to correct conditions adverse to quality shall be documented and reported to the appropriate levels of management.

Significant conditions within the intent of 10CFR 50.55(e) or 10 CFR 21 shall be reported to appropriate management levels within the affected organization for review and evaluation.

8.2 Requirements

Procedures shall be established which detail and implement the following corrective action system measures:

a. Conditions adverse to quality shall be evaluated to determine the need for corrective action.

b. Corrective action documentation shall include identification, cause, and actions taken to correct and to preclude the similar recurrence for conditions adverse to quality.

c. Follow-up activities shall be conducted to verify implementation of corrective actions and to close out corrective action in a timely manner.

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d. Significant deficiencies, nonconformances and defects, reportable under 10 CFR 50.55(e) or 10 CFR 21 shall be

reported to appropriate management levels for evaluation and possible reporting to the Nuclear Regulatory Commission.

e. Control of nonconforming materials, parts, components, services, or activities. These procedures shall address and detail measures to implement the following requirements:

1. Measures for the identification, documentation, segregation, and dispositions of nonconforming materials, parts or components.

2. Disposition of nonconformances shall be made by the organization that established the governing requirements or by other qualified individuals or committees authorized by the TMI Generation Group.

3. Nonconformance reports shall be used to identify materials, parts, components, and activities which are not in compliance with the requirements of specifications, codes, drawings, and detailed installation or manufacturing program requirements. This shall include use of nonconformance reports on items whose status is indeterminate due to the lack of documentation. Nonconformance reports on items shall contains the following minimum information:

(a) Identification of the nonconforming item and date of inspection.

(b) Identification of the initiator of the nonconformance report.

(c) Description of the nonconformance.

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(d) Disposition of the nonconformance (repair, rework, use as is, or scrap).

(e) Inspection requirements.

(f) Required approval signatures of the disposition and the verification.

(g) Evidence of review for reporting per 10 CFR 50.55(e) or 10 CFR 21.

4. Reworked, repaired, and replacement items shall be reinspected and tested in accordance with the original inspection and test requirements or acceptable alternatives as determined by Engineering and Quality Assurance. All inspection, testing, rework, and repairs shall be by approved procedures and the results documented.

5. Identification of nonconforming items by appropriate means (tags, labels, etc.) and segregation, if practical, until disposition of the nonconforming item has been determined.

6. Prior to the initiation of a preoperational test on a safety-related item all nonconformances shall be evaluated for significance or impact on further testing or operation.

7. Nonconformance reports shall be periodically analyzed to show quality trends. Such analysis will be based upon severity, number, frequency of nonconformances, the causes of the nonconformances, and the timeliness and adequacy of the reporting and resolution of nonconformances. Significant results shall be reported to management for review and assessment.

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8.3 Responsibilities

8.3.1 The Manager - Quality Assurance is responsible for the review and concurrence of all procedures for reporting and controlling of nonconformances for compliance with the requirements of the Operational Quality Assurance Plan.

8.3.2 Operations Management is responsible for ensuring that nonconformances are reported and corrected for plant personnel activities involving operation, maintenance, repair replacement, addition, modification, health physics, environmental monitoring, fuel handling, and inservice inspection. Plant items such as failures, malfunctions, deficiencies, deviations and defective materials, parts or components are handled in a manner consistent with their importance to safety and reviewed in accordance with appropriate procedures and the applicable Technical Specifications.

8.3.3 Each Manager is responsible for the disposition and corrective action of nonconformances identified as within the scope of his responsibilities. In the specific case of materials, parts, components, or systems which have not been installed or accepted as operational at the Station, the responsible Manager and the Manager - Quality Assurance approves the resolution of nonconformances.

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9.0 Audits

9.1 Policy

A comprehensive system of planned and documented audits shall be established and executed:

a. To ensure that Quality Assurance requirements are adequate, effective and implemented.

b. To ensure than nonconformance and Quality Assurance deficiencies are identified and corrected.

c. To verify compliance with the TMI Quality Assurance Program.

In addition, this audit program shall provide data for a continuing evaluation of the effectiveness of the TMI Quality Assurance Program.

9.2 Requirements

A comprehensive system of audits shall be established for both internal and external functions which affect structures, systems, components, operations and activities covered by the scope of the TMI Quality Assurance Program.

Planned and scheduled audits shall verify compliance with the following:

a. TMI Quality Assurance Program

b. 10 CFR 50, Appendix B

c. Regulatory Guides, ANSI, and other codes and standards as endorsed in the TMI Quality Assurance Program.

d. Operating procedures

e. Plant technical specifications

f. Administrative procedures

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g. Other procedures and instructions affecting quality

h. Procurement documents

9.2.1 Audit Program

Audits shall be performed in accordance with pre-established written procedures and checklists, and shall be conducted by trained and qualified personnel having no direct responsibilities in the areas being audited. The audit program shall include

a. Audit schedules

b. Procedures for preparation, performance and reporting of audits

c. Analysis of audit data and reporting results to appropriate levels of management

d. Follow-up action to be taken based upon individual and collective audit reports

e. Qualification of auditors

f. Delineation of the authority, responsibility, and organizational independence of those responsible for the audit program.

Audits shall be regularly scheduled based upon the status and safety importance of activities being performed and shall be initiated in a timely manner to assure the effectiveness during design, procurement, manufacturing, construction, installation, inspection, testing and as required by the technical specifications for TMI. In addition, audits may be scheduled and performed as required by management or the safety review groups for special evaluations. Implementation of corrective action shall be verified in a timely manner. Unscheduled audits may be conducted at any time on any aspect of this Quality Assurance Plan.

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Both TMI Generation Group and organizations providing goods and/or services are subject to the audit requirements of this Program.

Audits will be performed by the Quality Assurance Methods/Operations/Audit group.

Each audit team shall be led by a qualified Audit Team Leader. Audit team members shall be utilized as required and will be classified as either auditors or technical specialists, depending on their function on the audit team.

Procurement documents shall include audit access requirements in insure vendor compliance to the audit program. Audited organizations shall cooperate with the auditing organization, providing whatever assistance is necessary in the performance of the audit. The audited organization shall take corrective action for findings and resolve observations in a timely manner.

9.2.2 Audit Frequency

Audit frequencies shall be based upon the status and safety importance of activities, degree of previous experience, consistency of overall coverage, unique testing/operating activities, and follow-up on previous audit findings.

9.2.3 Documentation

Audit results shall be documented in a written report to the audited organization. The Quality Assurance organization conducting the audit is responsible for conducting follow-up actions including re-audit of deficient areas, as required, to assure correction of the deficiencies.

9.2.4 Training

Audits shall be performed by personnel who are trained and qualified to the requirements defined in ANSI N45.2.23. These requirements provide the means to assure that audits are performed in a thorough and professional manner. Documented training programs shall be organized to provide auditors with the necessary training and knowledge of regulatory requirements, codes, standards, procedures, etc. applicable to the activities being audited.

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9.3 Responsibilities

9.3.1 Senior Vice President - Met-Ed

Responsible for the performance of an independent review of the TMI Quality Assurance Program and related activities.

9.3.2 Manager - Quality Assurance

a. The Manager-Quality Assurance is responsible for establishing and implementing the overall Quality Assurance audit program. He assures that all applicable areas are audited and that the auditing organization meets the requirements of this Plan. He evaluated the effectiveness of the overall audit program, analyzes the reports and related information for quality trends and appraises the TMI Generation Group Management and the Director-Reliability Engineering of significant findings of the program. The Manager-Quality Assurance further ensures that an overall Quality Assurance Audit Program Schedule is established and implemented.

b. The Manager-Quality Assurance has the authority and organizational freedom to schedule and perform audits and to identify quality or management control problems and provide recommended solutions.

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APPENDICES

APPENDIX A — Comparison Chart of Quality Assurance Plan Requirements with those of various parts of the Code of Federal Regulations and Nuclear Industry Standards

APPENDIX B — Minimum Document Control Responsibility for "Important to Safety" Documents Quality Assurance Program

APPENDIX C — NRC Regulatory Guide Commitments and Exceptions

APPE[illegible] A

COMPARISON CHART OF QUALITY ASSURANCE PLAN REQUIREMENTS
WITH THOSE OF VARIOUS PARTS OF THE
CODE OF FEDERAL REGULATIONS AND NUCLEAR INDUSTRY STANDARDS

10 CFR 50, App. B	
Criterion	QA Plan
I	1.0
II	2.0
III	4.0
IV	5.1
V	3.1
VI	3.2
VII	5.1
VIII	5.2
IX	6.2.1.2
X	6.2.1.1
XI	6.2.1.3
XII	6.2.1.4
XIII	6.2.1.5
XIV	6.2.1.6
XV	8.0
XVI	8.0
XVII	3.3
XVIII	9.0

ANSI N45.2	
Paragraph	QA Plan
2.0	2.0
3.0	1.0
4.0	4.0
5.0	5.1
6.0	3.1
7.0	3.2
8.0	5.1
9.0	5.2
10.0	6.2.1.2
11.0	6.2.1.1
12.0	6.2.1.3
13.0	6.2.1.4
14.0	6.2.1.5
15.0	6.2.1.6
16.0	8.0
17.0	8.0
18.0	3.3
19.0	9.0

10 CFR 71, App. E	
Criterion	QA Plan
1	1.0
2	2.0
3	4.0
4	5.1
5	3.1
6	3.2
7	5.1
8	5.2
9	6.2.1.2
	7.0
10	6.2.1.3
	7.0
11	6.2.1.3
	7.0
12	6.2.1.4
	7.0
13	6.2.1.5
	7.0
14	6.2.1.6
	7.0
15	8.0
16	8.0
17	3.3
18	9.0

ANSI N18.7 - 1976			
Paragraph	QA Plan	Paragraph	QA Plan
3.1	1.0	5.2.11	8.0
3.2	1.0	5.2.12	3.3
3.3	1.0	5.2.13	5.0
3.4	1.0	5.2.14	8.0
3.5	2.0	5.2.15	3.0
4.1	2.0/9.0	5.2.16	6.2.1.4
4.2	2.0/9.0	5.2.17	6.2.1.1
4.3	2.0	5.2.18	6.2.1.2
4.4	2.0	5.2.19	6.2.1.3
4.5	9.0	5.3	6.2.1.12
5.1	2.0		
5.2.1	2.0		
5.2.2	3.1		
5.2.3	3.1		
5.2.4	3.1		
5.2.5	3.1		
5.2.6	6.2.1.10		
5.2.7	6.2.1.11		
5.2.8	6.2.1.13		
5.2.9	6.2.1.8		
5.2.10	6.2.1.10		

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APPENDIX B

MINIMUM DOCUMENT CONTROL RESPONSIBILITY FOR "IMPORTANT TO SAFETY" DOCUMENTS

Document	Prepared By	Reviewed By	*Approved By/Concurrence	Issued By	(Notes) (1,2,3)
A.1 QA Plan (Significant Changes)	QA Department	Manager - QA	*President - Met Ed *President - GPUSC Sr. V.P. - Met Ed V.P. - Materials Management Director - Reliability Eng. Applicable Unit Directors Manager - QA	QA Department	
A.2 QA Plan (Insignificant Changes)	QA Department	Manager - QA	*Manager - QA Applicable Unit Director	QA Department	
B.1 QA Department Procedures	QA Department	QA Department	*Manager - QA	QA Department	
B.2 QA Department Section Procedures	QA Section	QA Section	*QA Section Manager Manager - QA	QA Department	
B.3 QA Department Section Instructions	QA Section	QA Section	QA Section Manager *QA Subsection Manager/Supervisor	QA Department	
C.1 TMI Generation Group Administrative Procedures	TMI Generation Group Administration	TMI Generation Group Department Heads Affected Director - Reliability Eng.	*Sr. V.P. - Met Ed Director - Reliability Eng.	TMI Generation Group Administration	
C.2 TMI Generation Group Function/Dept. Procedures	TMI Generation Group Function/Dept.	TMI Generation Group Function/Dept. Manager - QA	*TMI Generation Group Function/Dept. Manager Manager - QA	TMI Generation Group Administration	
C.3 TMI Station Administrative Procedures	TMI Station Organizations	Affected TMI Station Management QA Mod/Ops Manager	*Unit Manager	TMI Station Administration	
C.4 TMI Station Section Procedures	TMI Station Sections	TMI Station Section Manager/Supervisor QA Mod/Ops Manager	*TMI Station Section Manager/Supvr. Unit Manager	TMI Station Administration	

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APPENDIX B

Document	Prepared By	Reviewed by	*Approved By/Concurrence	Issued By	(Notes) (1,2,3)
C.5 TMI Station Section Instructions	TMI Station Sections	TMI Station Sections QA Mod/Ops Manager	*TMI Station Section Manager/Supervisor QA Mod/Ops Manager	TMI Station Administration	
C.6 TMI Special Test Procedures (Per 10 CFR 50.59)	TMI Station Organizations	PORC GRC Unit Manager QA Mod/Ops Manager	*Unit Manager NRC	TMI Station Administration	
C.7 TMI Radiation Protection Procedures	Radiation Protection	Radiation Protection Engineering	*Radiation Protection Manager/ Supervisor	TMI Station Administration	
D.1 Procurement Requisition	Off Site Organizations	Applicable Section Managers QA Design/Procurement Manager	*Project Engineering Manager QA Design/Procurement Manager	Project Engineering Manager	
D.2 Procurement Requisition	Site Organizations	Applicable Section Managers QA Design/Procurement Supvr.	*Manager - Plant Engineering QA Design/Procurement Supvr.	Originating Organizations	
E.1 Engineering Change Memorandums	TMI Generation Group Engineering	Applicable Section Managers QA Design/Procurement Manager	*Project Engineering Manager QA Design/Procurement Manager Applicable Section Manager	TMI Generation Group Engineering	(Notes) (4,5,6)
E.2 Engineering Change Memorandums	TMI Plant Eng.	Applicable Department Managers QA Mod/Ops Manager	Applicable Department Managers *TMI Plant Engineering QA Design/Procurement Supvr.	TMI Plant Eng.	(Notes) (4,5,6)

NOTE: 1) Responsible individuals or organizations may have documented, designated alternates who are authorized to perform the function.

2) Designated support organizations (within the TMI Generation Group or outside contractors) may be authorized and designated to perform certain of the functions.

3) This Appendix is a supplement of Section 3.0 of the QA Plan

4) Drawings will not be reviewed unless used in lieu of specifications.

5) TMI Generation Engineering is defined as those sections within the Technical Function Department.

6) Engineering Change Memoramdums are defined as formalized documents for the description and approval of changes prepared for incoproration at TMI. Engineering Change Memorandums will include:

a) Cover Sheet
b) Nuclear Safety Environmental Impact Evaluation
c) Safety Evaluation
d) Fire Hazards Analysis
e) Nuclear Safety Related Design Verifications
f) Index of Interim Drawings and Related Purchase Orders

APPENDIX C

QUALITY ASSURANCE PROGRAM NRC REGULATORY GUIDE COMMITMENTS AND EXCEPTIONS

Engineering, in establishing specific requirements for design will use regulatory guide positions controlled by Engineering in a project criteria document. Examples of positions taken relative to regulatory guides are listed. Those identified by an asterisk cover regulatory guides which are specifically quality related or impacted and are therefore controlled by this manual.

The TMI Quality Assurance Program complies with Section C of the NRC Regulatory Guides indicated below. Exceptions to NRC Regulatory Guide position are detailed in Part 2 of this Appendix.

This Appendix addresses additional Reg. Guides not listed in Rev. 7 of the Operational Quality Assurance Plan. Compliance with these added Reg. Guides will apply to modifications, additions and activities performed after issue of Rev. 8 and does not imply backfitting and/or retroactive compliance. It is also to be recognized that existing plant conditions, may prevent or preclude the satisfaction of all requirements of a specific design related regulatory guide. The deviation will be documented and, along with the justification, will be approved by the Manager of Design and Engineering.

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APPENDIX C, PART I

JANUARY, 1980

COMMITMENT TO QUALITY ASSURANCE REGUALTORY GUIDES FOR THREE MILE ISLAND

REG. GUIDE		ANSI STD.		DEGREE OF COMPLIANCE	REMARKS
*1.8 5/77, Rev. 1-R	Personnel Selection and Training	N18.1	1971	Modified	Comply with "Regulatory Position".
*1.28 2/79, Rev. 2	Quality Assurance Program Requirements (Design and Construction)	N45.2	1977	Full	Comply with "Regulatory Position".
1.30 8/11/72	QA Requirements for the Installation, Inspection and Testing of Instrumentation and Electrical Equipment	N45.2.4	1972	Full	Comply with "Regulatory Position".
*1.33 2/78, Rev. 2	Quality Assurance Program Requirements (Operation)	N18.7	1976	Modified	See alternate method attached.
1.37 3/16/73	QA Requirements for Cleaning of Fluid Systems and Associated Components of Water Cooled Nuclear Power Plants	N45.2.1	1973	Modified	See alternate method attached.
1.38 5/77, Rev. 2	QA Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water Cooled Nuclear Power Plants	N45.2.2	1972	Modified	See alternate method attached.
1.39 9/77, Rev. 2	Housekeeping Requirements for Water Cooled Nuclear Power Plants	N45.2.3	1973	Full	Comply with "Regulatory Position".
1.54 6/73	QA Requirements for Protective Coatings Applied to Water Cooled Nuclear Power Plants	101.4	1972	Modified	See alternate method attached.
*1.58 7/79 Proposed Rev. 1	Qualifications of Nuclear Power Plant Inspection, Examination and Testing Personnel	N45.2.6	1978	Modified	See alternate method attached.
*1.64 6/76 Rev. 2	Quality Assurance Requirements for the Design of Nuclear Power Plants	N45.2.11	1974	Modified	See alternate method attached.
*1.74 2/74	Quality Assurance Terms and Definitions	N45.2.10	1973	Full	Comply with "Regulatory Position".

APPENDIX C, PART I

JANUARY, 1980

REG. GUIDE		ANSI STD.	DEGREE COMPLIANCE	REMARKS
*1.88 10/76, Rev. 2	Collection Storage and Maintenance of Nuclear Power Plant Quality Assurance Records	N45.2.9 1974	Modified	See alternate method attached.
1.94 4/76, Rev. 1	QA Requirements for Installation, Inspection and Testing of Structural Concrete & Steel during Nuclear Power Plant Construction	N45.2.5 1974	Modified	See alternate method attached.
1.116 5/77, Rev. 0-R	QA Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems	N45.2.8 1975	Modified	See alternate method attached.
*1.123 7/77, Rev. 1	QA Requirements for Control of Procurement of Items and Services for Nuclear Power Plants	N45.2.13 1976	Full	Comply with "Regulatory Position".
*1.144 1/79	Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants	N45.2.12 1977	Modified	See comments attached.
1.26 2/76, Rev. 3	QA Classifications and Standards for Water Stream and Radioactive Waste Containing Components of Nuclear Power Plants		Modified	See alternate method attached.
1.31 4/78, Rev. 3	Control of Ferrite Content in Stainless Steel Weld Metal		Modified	
1.63 8/78, Rev. 2	Electric Penetration Assemblies in Containment Structure for Light Water Cooled Nuclear Power Plants	I.EEE-317 1976	Modified	See clarification attached.

NRC Regulatory Guide 1.30, August 1972

Quality Assurance Requirements for the Installation, Inspection and Testing of Instrumentation and Electric Equipment

Met-Ed shall comply with the Regulatory Position established in this Regulatory Guide in that QA programmatic/administrative requirements included therein shall apply to maintenance and modification activities even though such requirements were not in effect originally. Technical requirements associated with maintenance and modifications shall be the original requirements or better (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements).

NCR Regulatory Guide 1.33, Rev. 2, February 1978

Quality Assurance Program Requirements (Operation)

The TMI QA Program complies with the regulatory position of this guide with the following clarifications:

1. Paragraph C.4.a is interpreted to mean audits will be made once each 6 months to verify the nonconformances and corrective action program is properly implemented and documented, particularly as related to actions taken to correct deficiencies that affect items important to safety.

2. Paragraph 5.2.8 of ANSI N18.7 - 1976 titled "Surveillance Testing and Inspection"

   In lieu of a "master surveillance" schedule, a surveillance testing schedule shall be established reflecting the status of all inplant surveillance tests and inspections.

3. Paragraph 5.2.15 of ANSI N18.7 - 1976 titled "Review, Approval and Control of Procedures"

   The third sentence of the third paragraph is interpreted to mean applicable procedures shall be reviewed following a reportable incident such as an accident, an unexpected transient, significant operator error, or equipment malfunction.

4. Paragraph 5.2.17 of ANSI N18.7 - 1976 titled "Inspections"

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Not all inspections will require a separate inspection report. Inspection requirements may be integrated into appropriate procedures or other documents with the procedures or documents with the procedure or document serving as the record; however, records of inspections will be identified and retrievable.

NRC Regulatory Guide 1.3.7, March 16, 1973

Quality Assurance Requirements for Cleaning Fluids Systems and Associated Components of Water Cooled Nuclear Power Plants

The TMI Quality Assurance Program complies with the regulatory position of this guide with the following classifications:

1. The second sentence of paragraph C.3 should be amended to read:

   "The water quality for final flushes of fluid systems and associated components shall be at least equivalent to the operating systems water, except for the oxygen nitrogen content and this does not infer that chromates or other additives normally in the system water will be added to the flush water."

2. Paragraph C.4 should be amended to add:

   Expendable material such as inks, temperature indicating crayons, labels, wrapping materials (other than polyethylene), water soluble dam materials, lubricants, NDT penetrant materials and couplants, which contact stainless steel or nickle alloy material surfaces shall not contain lead, zinc, copper, mercury or other low melting alloys or compounds as basic essential chemical constituents. Prescribed maximum levels of water leachable chloride ions, total halogens and sulfur compounds shall be imposed on expendable products.

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NRC Regulatory Guide 1.38, Rev. 2, May 1977

Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water Cooled Nuclear Power Plants

The TMI Quality Assurance Program complies with the regulatory position of this guide with the following modifications:

1. Section 3.6 of ANSI N45.2.2 - 1972 concerns prevention of halogenated materials from contacting stainless steel or nickle alloy materials. The position stated in Reg. Guide 1.37 also applies to this guide.

2. Section 3.7.1 of ANSI N45.2.2 - 1972

   Cleated, sheathed boxes will be used up to 1000 lbs. rather than 500 lbs. as specified. This type of box is safe for, and has been tested for, loads up to 1000 lbs. Other material standards (i.e., FED Spec. PPP-B-601) allow this. Special qualification testing shall be required for loads in excess of 1000 lbs.

3. Section 6/2/1 of ANSI N45.2.2 - 1972

   For storage of level D items access will be controlled and limited by posting. Other positive controls such as fencing or posting of guards will be provided for higher storage levels.

4. Section 7.3 of ANSI N45.2.2 - 1972

   Rerating of hoisting equipment will be considered only when necessary. Prior to performing any lift greater than the load rating, the equipment manufacturer will be contacted for his approval and direction. The manufacturer will be requested to supply a document granting approval for a limited number of lifts at the new rating and any restrictions involved such as modifications to be made to the equipment, number of lifts to be made at the new rating, and the test lift load. At all times the codes governing rerating of hoisting equipment will be observed.

5. Section A.3.4.1 Appendix to ANSI 45.2.2 - 1972

   The last sentence of A.3.4.1(4) and (5) should be corrected as follows:

   (4) "However, preservatives for inaccessible inside surfaces of pumps, valves and pipe systems containing, reactor coolant water shall be the water flushable type."

   (5) "The name of the preservative used shall be indicated to facilitate touch up."

6. With regard to Section A.3.5.2 of the Appendix to ANSI N45.2.2 - 1972 entitled "Tapes and Adhesives":

   Tapes will meet a sulphur limit of 0.30% by weight instead of 0.10% as specified in A.3.5.2(1)(a). This limit is reasonable based upon the chemical content of commercially available tapes will be of a contrasting color rather than "Brightly Colored" as required by A.3.5.1(3).

7. With regard to Section A.3.7.1 of the Appendix to ANSI N45.2.2 - 1972 entitled "Fiberboard Boxes":

   In lieu of A.3.7.1(3) and (4), the following will be imposed: Fiberboard boxes shall be securely closed either with a water resistant adhesive applied to the entire area of contact between the flaps, or all seams and joints shall be sealed with not less than 2-inch wide, water resistant tape.

NRC Regulatory Guide 1.39, Rev. 2, September 1977

Housekeeping Requirements for Water Cooled Nuclear Power Plants Endorses ANSI N45.2.3 - 1973

The Operational Quality Assurance Program complies with this guide with the following clarification:

1. With regard to SEctions 2.1 and 3.2 of ANSI N45.2.3 - 1973 entitled "Planning and Control of Facilities", respectively:

   The TMI Nuclear Station will not utilize the five level zone designation system, but will utilize standard janitorial and work practices to maintain a level of cleanliness commensurate with company

policy in the areas of housekeeping, plant and personnel safety, and fire protection.

Cleanliness will be maintained, consistent with the work being performed, so as to prevent the entry of foreign material into safety related systems. This will include as a minimum documented cleanliness inspections which will be performed immediately prior to system closure. Control of personnel, tools, equipment, and supplies will be established when major portions of the reactor system are opened for inspection, maintenance of repair.

Additional housekeeping requirements will be implemented as required for control or radioactive contamination.

NRC Regulatory Guide 1.54, June 1973

Quality Assurance Requirements for Protective Coatings Applied to Water Cooled Nuclear Power Plants

Endorses ANSI N101.4 - 1972

The Operational Quality Assurance Program complies with this guide with the following clarification:

1. Met-Ed shall comply with the Regulatory Position established in this Regulatory Guide in that QA programmatic/administrative requirements included therein shall apply to maintenance and modification activities even though such requirements were not in effect originally. Technical requirements associated with maintenance and modifications shall be the original requirements or better (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements).

2. The guidance or Regulatory Guide 1.54 shall be followed for organic protective coatings selected and evaluated in accordance with pertinent sections of ANSI N101.2 when applied to interior surfaces of the containment. The supplier's quality assurance program shall be approved prior to implementation. Quality Assurance documentation may not be similar to records and documents listed in Sections 7.4 through 7.8 of ANSI N101.4 but will be evaluated to assure that they provide at least the same degree of documentation as required by this standard.

NRC Regulatory Guide 1.58, August 1973

Qualifications of Nuclear Power Plant Inspection, Examination, and Testing Personnel

Endorses ANSI N45.2.6 - 1973

The Operational Quality Asssurance Program complies with this guide with the following clarification:

1. The guidance of Regulatory Guide 1.58 shall be followed as it pertains to the qualifications of personnel who verify conformance of work activities to quality requirements. The qualifications of plant operating personnel concerned with day-to-day operation, maintenance, and certain technical services shall conform to Regulatory Guide 1.8.

2. Not all personnel who approve inspection and test procedures will be certified as meeting the Level III capability requirements of ANSI N45.2.6 - 1973, but personnel who approve inspection and test procedures will be determined by management, through evaluation of their education, training and experience, to be fully qualified and competent to approve such procedures. The basis for the determination will be documented.

NRC Regulatory Guide 1.64, Rev. 2, June 1976

Quality Assurance Requirements for the Design of Nuclear Power Plants

Endorses ANSI N45.2.11 - 1974

Met Ed shall comply with the Regulatory Position established in this Regulatory Guide in that QA programmatic/administrative requirements included therin shall apply to maintenance and modification activities even though such requirements were not in effect originally. Technical requirements associated with maintenance and modifications shall be the original requirements or better (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements).

The Operational Quality Assurance Program complies with this guide with the following clarification to paragraph C.2(1) of Regulatory Guide 1.64: If in an exceptional circumstance the designer's immediate Supervisor is the only technically qualified individual available, this

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review can be conducted by the Supervisor, providing that: (a) the other provisions of the Regulatory Guide are satisfied, and (b) the justification is individually documented and approved in advance by the Supervisor's management, and (c) quality assurance audits cover frequency and effectiveness of use of Supervisors as design verifiers to guard against abuse.

NRC Regulatory Guide 1.94, Rev. 1, April 1976

Quality Assurance Requirements for Installation, Inspection and Testing of Structural Concrete and Structural Steel during the Construction Phase of Nuclear Power Plants

Endorses ANSI N45.2.5 - 1974

The Operational quality Assurance Program complies with this guide with the following clarification:

> Met-Ed shall comply with the Regulatory Position established in this Regulatory Guide in that QA programmatic/administrative requirements included therin shall apply to maintenance and modification activities even though such requirements were not in effect originally. Technical requirements associated with maintenance and modifications shall be the original requirements or better (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements).

NRC Regulatory Guide 1.116, Rev. 0-R, June 1976

Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems

Endorses ANSI N45.2.8

The Operational Quality Assurance Program complies with this guide with the following clarification:

> Met-Ed shall comply with the Regulatory Position established in this Regulatory Guide in that QA programmatic/administrative requirements included therein shall apply to maintenance and modification activities even though such requirements were not in effect originally. Technical requirements associated with maintenance and modifications, shall be the original requirements or better (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements).

NRC Regulatory Guide 1.26, Rev. 3, February 1976

Quality Group Classifications and Standard for Water, Steam and Radioactive Waste Containing Components of Nuclear Power Plants

Since the original design and construction of the Three Mile Island Plants was to different classification criteria than contained in this guide; Met-Ed will comply with the regulatory position of this guide with the following clarifications:

1. For modifications to existing plant systems and for new construction, items will be classified according to this guide providing such action will improve the safety of the system being modified or make a significant improvement in overall plant safety. Otherwise the items will be classified the same as the original design and construction.

2. Tie-in's to existing plant systems will be made to the same or better code, standard and technical requirements which were applicable to the system to which the tie-in is to be made.

NRC Regulatory Guide 1.63, Rev. 2, July 1978

Electric Penetration Assemblies in Containment Structures for Light Water Cooled Nuclear Power Plants

Met-Ed will comply with the regulatory position of this guide with the following clarification:

For modifications to existing structures and to new constructions, this guide will be utilized providing its use will improve the safety of the structure being modified or make a significant improvement in overall plant safety. Otherwise, the code, standard and technical requirements applicable to the original design and construction will be utilized.

NRC Regulatory Guide 1.144, January 1979

Auditing of Quality Assurance Programs for Nuclear Power Plants

Met-Ed is in basic agreement with the position set forth by your staff in your draft response to the subject regulatory guide. Listed below are comments to the major points raised in your response:

1. Section C.3.a(2)

The proposed scheduling requirement for internal audits appears to change the basis for having a rational, programmatic approach to auditing. In its place, the new regulatory guide requires mandatory auditing of all program elements on a yearly basis. The latter would require that all elements obtain the same attention regardless of importance, past performance, or to what extent other aspects of quality assurance measuring and evaluating techniques are used; as an example, the extent to which surveillance and process monitoring is used.

2. Section C.3.b(1)

We agree that source inspection provides some controlled basis for replacing the need for external audits. It is recommended that the use of quality assurance program surveillance should also be viewed as another alternative.

3. Section C.3.b(2)

We agree with the staff's position that the new regulatory guide wording will lead to "audit proliferation". While the licensee is responsible for procurement control. This can be exercised through an annual evaluation of the contractor's performance using pertinent results from manufacturing surveillance, source inspection, receiving inspection, and other applicable factors. The evaluation would include a recommendation as to the need for a scheduled program or problem area audit. Hence, auditing, like surveillance and inspection, should be treated as a quality assurance tool used for evaluation. Furthermore, the recommendation to audit should include provisions for reviewing the importance and impact of the particular contractor's scope and status.

NRC Regulatory Guide 1.88, Rev. 2, October, 1976

Collection, Storage, and Maintenance of Nuclear Power Plant Availability Assurance Records

Met-Ed will comply with this regulatory guide with the following clarification:

1. With regard to Section 5-6 of ANSI N45.2.6-1974 titled Facility, Met-Ed will comply with the requirements of Section 5-6 of the 1979 revision in lieu of the 1974 revision.

   In order to reach full compliance with this modified position, Met-Ed must contruct a new facility. This facility is scheduled for construction in 1980.