GPU Nuclear
P.O. Box 480
Middletown, Pennsylvania 17057
717-944-7621
Writer's Direct Dial Number:
(201) 263-6498

QA/82-164

September 24, 1982
4410-82-M-0012

TMI Program Office
Attn: Dr. B. J. Snyder, Program Director
US Nuclear Regulatory Commission
Washington, DC 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
TMI-2 Recovery Quality Assurance Plan

Attached for your information is the TMI-2 Recovery Quality Assurance Plan, Revision 1. The Plan utilizes the same concepts described in the TMI-2 Recovery Quality Assurance Plan, Revision 0, but has been revised to reflect the new organization of TMI-2. The Plan reflects the current reporting requirements and functional responsibilities as described in the GPU Organization Plan, Revision 5, submitted to Mr. L. H. Barrett of your staff on August 5, 1982, and approved by the NRC on August 6, 1982. Since the organizational changes also reflected changes in responsibilities between Divisions within GPUN, this revision is considered significant per the definitions in corporate compliance to regulatory requirements. These changes were discussed with NRR QAB and in light of the fact that the TMI-2 reorganization was approved, it was agreed that submittal of the Plan prior to implementation was not required.

This revision also incorporated changes in the Nuclear Assurance Division, which included title changes, the addition of the Manager - Emergency Preparedness, the deletion of the Manager - System Labs, and updating the assignment of responsibilities. These changes do not alter the degree of compliance to regulatory requirements of change responsibilities of the Quality Assurance Department.

Q002

Title changes have also been included for the Administration Division and Radiological Controls along with the corresponding assignment of responsibility.

The reference to Met-Ed has been changed to GPUN throughout the Plan.

Additionally, GPU's commitments with respect to Regulatory Guides 1.58 and 1.146 are as reflected in GPU letter LL2-81-0184 dated September 20, 1981. Because QA Plan Revision reflects only organizational changes, these commitments have not been included. A general update to the Recovery Quality Assurance Plan, which will incorporate these commitments, is scheduled for submittal in the near future to allow implementation by October 15, 1982. As previously discussed with you, this revision will also modify the TMI-2 review and approval process by establishing a Safety Review Group and deleting the previously established PORC and GRC.

Please advise Mr. J. E. Larson of my staff if you have any questions regarding the Plan.

Sincerely,

B. K. Kanga

B. K. Kanga
Director, TMI-2

BKK/JFM/jep

Attachment

CC: L. H. Barrett, Deputy Program Director--TMI Program Office

TABLE OF CONTENTS

QUALITY ASSURANCE PLAN FOR RECOVERY OF TMI-2

Introduction

The Quality Assurance Plan for Recovery of TMI Unit 2 describes a formal and comprehensive Quality Assurance program which has been established to assure compliance with 10 CFR 50, Appendix B; 10 CFR 71, Appendix E; and Regulatory Guide 1.33 during the recovery effort. This effort includes various aspects of construction, modification and plant operations. Recovery activities include decontamination, assessment of damage, design, procurement, fabrication, handling, shipping, storage, cleaning, erecting, installation, inspection, test, operation, maintenance, repair, and modification. This Plan replaces the "Operational Quality Assurance Plan for Three Mile Island Nuclear Station" for Unit 2 and will be implemented in lieu of that Plan during the recovery period.

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 are generic and apply to all subsequent sections. 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 including procurement 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 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 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 audits. Appendices A, B, and C contain additional Quality Program requirements associated with the functional areas discussed in the plan. Appendix D contains definitions of terms used throughout the plan.

1.0 Organization

1.1 Policy

It is the policy of GPUN to conduct recovery activities on Three Mile Island Unit 2 so as to ensure the safety and health of the public and the personnel on site. To implement this policy GPUN will meet the quality assurance requirements of corporate policies, the Nuclear Regulatory commission as presented in 10 CFR 50, Appendix B, and other applicable regulatory guides, codes, and standards pertinent to recovery of Three Mile Island Unit 2. Therefore, GPUN has authorized the establishment of a formal and comprehensive Quality Assurance Program for the TMI Unit 2 Recovery. The Program, which is described in the following sections, shall be implemented throughout the recovery phase in documented approved policies, procedures, and instructions which comply with this plan.

1.1.1 Due to the nature of the recovery activities, construction and operation activities will coexist. Therefore, the Plan addresses the requirements and responsibilities related to both activities. Detailed procedures will be used to control the transition from construction to operations.

1.2 Responsibilities

The management structure and technical support organization for the conduct of activities during the recovery effort and positions having principal responsibilities in the QA Program for the Recovery of TMI Unit 2 are described in the following paragraphs. Figure 1 identifies the organizational elements which function under the QA Program. The organization chart illustrates the interfaces between the various departments and identifies those functions normally located on site and off site.

1.2.1 President - GPUN

The President - GPUN has the overall responsibility for the establishment, implementation and effectiveness of the TMI Unit 2 Recovery Quality Assurance Program. This responsibility is administered through his management staff including:

Executive Vice President - GPUN
Office of the Director - TMI-2
Vice President - Technical Functions
Vice President - Nuclear Assurance
Vice President - Administration
Vice President - Radiological and Environmental Controls

1.2.2 Executive Vice President - GPUN

The Executive Vice President-GPUN reports directly to the President-GPUN and shares in the duties and responsibilities of the Office of the President.

1.2.3 Office of the President

The President and the Executive Vice President constitute the Office of the President. The two officers work in close cooperation and share the executive duties of GPUN. As used in this Plan, the Office of the President means either the President or the Executive Vice President.

1.2.4 Office of the Director - TMI-2

The Director-TMI-2 and the Deputy Director-TMI-2 constitute the Office of the Director-TMI-2. The two individuals work in close cooperation and share the duties of the directorship. The Deputy Director reports directly to the Director-TMI-2. As used in the Plan, the Office of the Director-TMI-2 means either the Director-TMI-2 or the Deputy Director-TMI-2. The TMI-2 organization is shown on Figure 2. The Office of the Director-TMI-2 is responsible to operate, maintain and conduct decontamination and recovery operations of TMI-2 in a safe and efficient manner in conformance with corporate policies and all applicable laws, regulations, licenses, and technical requirements. This includes construction of required facilities. The Office of the Director-TMI-2 is responsible for the following major functions:

- Establish and maintain plant level policies, procedures and practices related to the decontamination, recovery, operation and maintenance of the plant.
- Provide and maintain a plant staff qualified to decontaminate, recover, operate and maintain the plant.
- Operate and maintain all systems and equipment required for decontamination, and recovery of systems in a safe, reliable and efficient manner.
- Decontaminate and clean up the water and decontamination fluids in a safe and efficient manner.
- Direct and control the plant recovery program.
- Direct and control the design and construction of facilities required for the decontamination and recovery programs.

- Establish and implement preventive and corrective maintenance programs to assure that the plant is maintained in a safe and reliable, and efficient manner.

- Assure that all plant activities are carried out in accordance with Corporate Radiological Control, Quality Assurance, Security and Emergency Preparedness programs.

The Office of the Director-TMI-2 gives full suport to the quality assurance requirements set forth in this Quality Assurance Plan, assuring compliance to the fullest degree by the staff. In the event of a disagreement on a safety issue between the Director and Deputy Director, it shall be referred to the Office of the President for resolution.

1.2.4.1 Site Operations Director

The Site Operations Director, reports to the Office of Director-TMI-2 with responsibility for overall site operations in compliance with this Quality Assurance Program. Site operations include the following functional areas:

a. Operations

b. Maintenance

c. Plant Engineering

1.2.4.2 Manager - Recovery Programs

The Manager-Recovery Programs reports to the Office of the Director-TMI-2 and is responsible for engineering and field operations necessary for decontamination of the TMI-2 facility and fuel removal. This includes design and construction of new facilities and modifications to existing facilities required for recovery.

The Recovery Programs staff includes:

- Manager Site Engineering
- Manager, Design Engineering
- Program Controls Director
- Manager Recovery Operations
- Manager, Reactor Disassembly & Defueling Operations
- Reactor Disassembly & Defueling Tasks Leader
- Decon & Radwaste Tasks Leader

1.2.4.3 Licensing and Nuclear Safety Director

The Licensing and Nuclear Safety Director reports to the Office of the Director-TMI-2 and is responsible for:

a. Providing the primary interface with NRC and provide Licensing service for TMI-2

b. Providing review of all procedures, design changes, tests, experiments, etc., as required by Technical Specifications.

The Licensing and Nuclear Safety staff includes:

- Manager, Licensing
- PORC Chairman

1.2.4.4 Technical Planning Director

The Technical Planning Director reports to the Office of the Director-TMI-2 and is responsible for providing technical guidance and direction to the Recovery Program Department, in the form of technical plans which establish the approach to be employed, functional criteria, systems, priorities and objections of major recovery steps.

The Technical Planning staff includes:

- Waste Management Planning Manager
- Decontamination Planning Manager
- Reactor Disassembly and Defueling Planning Manager
- Data Management and Analysis Manager
- Supervisor Technical and Administrative Service

1.2.4.5 Manager Government and Industry Programs

The Manager Government and Industry Programs reports to the Office of the Director TMI-2 and is responsible for directing the interface with sponsors of government and industry-funded programs including consideration of proposed preparations and overview of performances.

1.2.4.6 Manager Program Controls

The Manager Program Controls reports to the Office of the Director TMI-2 and is responsible for providing program controls support to the Office of the Director, TMI-2.

1.2.5 Vice President - Technical Functions

The Vice President-Technical Functions reports directly to the Office of the President. With regard to TMI-2, he is responsible for providing the Generation Review Committee (GRC) and for providing, when requested, technical support of the recovery effort.

1.2.6 Vice President - Nuclear Assurance

The Vice President-Nuclear Assurance reports directly to the Office of the President. He is responsible to monitor all nuclear activities to assure that they provide the required high degree of safety and reliability and are carried out in accordance with corporate policies and all applicable laws, regulations, licenses, and technical requirements. The Vice President-Nuclear Assurance is responsible for the following major functions:

- Monitor, evaluate, and assure that all activities having the potential for compromising nuclear safety are adequately addressed.
- Provide and maintain the qualified personnel to develop and administer the Recovery Quality Assurance Program and assure that it is implemented in all activities Important to Safety.
- Develop and implement all necessary general employee, operator, technician and management training programs.
- Develop the site emergency plans and assure that emergency preparedness is maintained.

The Vice President-Nuclear Assurance utilizes the following management staff members in carrying out his responsibilities:

Director - Training and Education
Director - Quality Assurance
Nuclear Safety Assessment Director
Manager - Emergency Preparedness

1.2.6.1 Director - Quality Assurance (FIGURE 3)

The Director-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 recovery phase of TMI Unit 2. The Director of QAD reports directly to the Vice President-Nuclear Assurance. Additionally, he has direct access to the Office of the President, the Office of the Director-TMI-2 and the Vice Presidents 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 to TMI Unit 2 Quality Assurance Program requirements. Figure 3 identifies the Quality Assurance Department organizational elements which function under the Quality Assurance Program.

The Director-QAD has no duties or responsibilities unrelated to Quality Assurance that would prevent his full attention to Quality Assurance matters, and he has authority to:

a. Evaluate the manner in which all activities, both on site and off site, are conducted with respect to quality, by means of review, survey, audit, surveillance, monitoring, and inspection.

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

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

d. Stop work or further processing, delivery, or installation of nonconforming material, and stop work on nonconforming activities.

The specific responsibilites of the Director 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-2 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-2 organizations, A/E's, agents, 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, surveillances, and inspections of organizations, contractors, and vendors performing activities 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 Office of the Director-TMI-2 and the Vice President-Nuclear Assurance on the status of quality activities, and bring to their 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.

1.2.6.1(a) Manager-Quality Assurance Design and Procurement

The Manager-Quality Assurance Design and Procurement 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 approval of contractor and vendor quality programs for those supplying services or items Important to Safety.

b. Reporting quality trends.

c. Review and acceptance of design control procedures prepared by other TMI organizations when these procedures control or exercise an effort upon systems, components, or activities Important to Safety.

d. Identify quality problems and initiate, recommend or provide solutions through designated channels, and verify implementation of resolutions.

e. Perform the necessary post-award quality related activities, including post-award surveys and source surveillances, in compliance with the TMI Quality Assurance Program.

f. Coordinate with the Site QA Modifications/Operations Section to assure that documentation of the manufacturing discrepancies is available to the receiving inspectors and cognizant purchasing or contract manager.

1.2.6.1(b) Manager-Quality Assurance Modifications/Operations

The Manager-Quality Assurance Modifications/Operations is responsible to:

a. Monitor the implementation and effectiveness of the Quality Assurance Program on site.

b. Establish adequate site monitoring and inspection programs necessary to verify conformance to Quality Assurance Program requirements.

c. Review site procedures from a QA standpoint.

d. Provide nondestructive examination support for TMI.

e. Identify quality problems and initiate, recommend or provide solutions through designated channels and to verify implementation of the resolutions.

f. Review engineering specifications and procurement documents to assure quality requirements are incorporated.

The Manager-Quality Assurance Modifications/Operations reports directly to the Director Quality Assurance and periodically reports on the implementation and effectiveness of the Recovery Quality Assurance Program to the Office of the Director-TMI-2. He has the authority to stop work on all Important to Safety activities associated with the on site TMI-2 Recovery QA Program.

1.2.6.1(c) Manager - Program Development and Audit

The Manager-Program Development and Audit is responsible to:

a. Coordinate the development and maintenance of the Quality Assurance Plan and the QAD procedures.

b. Coordinate the development, implementation, maintenance and administration of the Quality Assurance Department training and certification program.

c. Coordinate the development of QA training and indoctrination provided for GPUN and external organization personnel.

d. Develop, implement and maintain a comprehensive system of planned and periodic audits to verify compliance with all aspects of the Quality Assurance Program.

e. Identify quality problems and initiate, recommend or provide solutions through designated channels and verify implementation of the resolutions.

The Manager-Program Development and Audit 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 the Safety Review Groups, who provide the independent management assessments of the significance of the audit findings and the effectiveness of the Quality Assurance Program.

1.2.6(d) Manager - Special Processes and Programs

The Manager-Special Processes and Programs is responsible to:

a. Establish the requirements for weld programs consistent with specification and engineering requirements, inservice inspection of piping and components, and NDE.

b. Develop the ISI programs at each station excluding IST, hydro testing, leak testing and functional tests.

c. Provide engineering support for IST, hydro testing, leak testing and functional tests upon request.

d. Provide weld engineering support.

e. Identify quality problems and initiate, recommend and provide solutions through designated channels, and verify implementaton of the resolutions.

f. Provide support related to manufacturing and system materials technology problems.

g. Provide technical requirements for weld repair and weld repair programs.

1.2.6.1(e) Unit 2 Project Quality Assurance Engineer

The Unit 2 Project Quality Assurance Engineer provides an interface point between Quality Assurance and other organizations affecting the operation and recovery of TMI Unit 2. He represents QAD at project meetings. He acts in an advisory position to help establish Quality Assurance task priorities. He acts as a technical advisor to the Office of the Director TMI-2 for Quality Assurance related matters. He advises the project management staff in Quality Assurance matters to maintain an efficient working relationship between project personnel and the Quality Assurance Department.

1.2.6.1(f) Minimum Qualifications of Quality Assurance Personnel

The Director-Quality Assurance shall have, as a minimum, a baccalaureate degree in Engineering or Science, with at least five years of QA experience in nuclear power plant operations or supporting activities. Additionally, the Director-Quality Assurance must be knowledgeable in QA regulations, policies and standards.

The qualification requirements and experience levels for other key Quality Assurance personnel are such as to assure competence commensurate with the responsibilities of each position. Quality Managers and Supervisory personnel are required to have a degree in Engineering or Science 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.

1.2.6.2 Director-Training and Education

The Director-Training and Education reports directly to the Vice President-Nuclear Assurance and has the overall authority and responsibility for providing training of corporate personnel, as needed, to carry out their duties. These activities include, but are not limited to:

a. Providing training for plant operations in the areas of:

- operator training
- maintenance training

- fire protection training
- health physics and chemistry training
- plant related technology
- quality assurance training

b. Evaluation of the effectiveness of the training program in meeting established course objectives.

1.2.6.3 Manager - Emergency Preparedness

The Manager-Emergency Preparedness is responsible to assure that the TMI Emergency Plans and Procedures are in accordance with corporate policies and all applicable laws, regulations, licenses and technical requirements. Additionally, he is to provide support and guidance in Emergency Planning and assure the maintenance of a high state of emergency preparedness at the station. The Manager-Emergency Preparedness is responsible for the following major functions:

a. Coordinate emergency planning between the Three Mile Island and Oyster Creek stations.

b. Monitor, evaluate and assure both Three Mile Island and Oyster Creek stations have emergency preparedness programs that are coordinated and maintained current, and assure a high state of preparedness.

c. Assure that Three Mile Island and Oyster Creek Stations' Emergency Plans are consistent with the latest requirements of the NRC and with the FEMA approved Pennsylvania and New Jersey state, county and local emergency plans.

d. Interface with the Nuclear Regulatory Commission, state and local authorities in emergency planning areas.

e. Obtain, review and comment on proposed legislation, industry guidelines and standards in the area of emergency planning.

1.2.6.4 Nuclear Safety Assessment Director

The Nuclear Safety Assessment Director is responsible for the development, direction and supervision of the Nuclear Safety Assessment Department (NSAD). The function of this group is to review and assess the safety significance of the broad range of activities, practices and conditions which contribute to or may

have an adverse effect upon quality and to make recommendations to the appropriate levels of management for improvements or corrective action.

The Nuclear Safety Assessment Department (NSAD) will have access to all documents and reports identifying conditions adverse to quality (audit reports, nonconformance reports, surveillance/inspection reports, reportable occurrences, NRC inspection, etc.). NSAD serves as an independent Office of OMBUDSMAN for all members of the Corporation having a concern for nuclear safety.

1.2.7 Vice President - Administration

The Vice President-Administration reports directly to the Office of the President. He is responsible to provide, in an efficient and reliable manner and in accordance with corporate policies and all applicable laws, regulations, licenses and other requirements, all required business-management and administrative support services for prudent conduct of the activities of GPUN. The Vice President-Administration is responsible for the following major functions:

- Assemble, review and issue budgets on a corporate-wide basis and regularly monitor and report projects progress and expenditures against capital and O&M budgets and associated work plans.
- Provide materials management services including contracting and procurement, contract administration, warehousing and inventory control on a corporate-wide basis.
- Develop and administer security, facilities, services and industrial safety programs directed to creating a safe, convenient and protected environment for company employees and property in accordance with corporate policies and all applicable laws, regulations, licenses and other requirements.
- Provide human resources personnel services in the areas of recruiting, indoctrination and orientation of new employees, wage and salary administration, career counselling and planning, employee benefits administration, employee relations services for professional and bargaining unit employees, EEO and other employee relations and retention programs.
- Negotiate and administer union contracts and grievance and arbitration processes.
- Prepare, review, coordinate and issue corporate administrative policies and procedures.

- Provide information management and documentation control services.

- Provide legal services in support of operations including pre-submission reviews of major purchase transactions and vendor negotiations, support litigation and arbitration or administrative proceedings and review, as applicable, proposed corporate administrative policies and procedures.

The Vice President-Administration is assisted in the performance of these responsibilities at the site by individuals with assigned responsibility for security, procurement, warehousing, personnel, labor relations and facilities management. The Vice President-Administration and his staff give full support to the Recovery Quality Assurance Program described herein, thereby assuring that all work performed under their cognizance will conform to and support the requirements of this plan.

1.2.7.1 Director - Materials Management

The Director-Materials Management is responsible to provide contracting and procurement, contract administration, warehousing and inventory control services to the plants and the services divisions of GPUN.

The Materials Management Department is responsible for the following major functions:

a. Sources, bid, review quotations, negotiate and award materials, equipment, fuels and service requirements for all plants and services divisions.

b. Administer and expedite performance under these contracts and purchase orders.

c. Review and evaluate vendor claims for changes, extras, delays, suspensions and terminations and equitably negotiate those found to be valid.

d. Receive, inspect, store and issue ordered goods.

e. Maintain inventory levels of repetitively procured items at optimum levels.

1.2.7.2 Director - Security, Facilities, Industrial Safety and Health

The Director-Security, Facilities, Industrial Safety and Health is responsible to develop and administer security and facilities services and industrial safety programs directed to creating a

safe, convenient and protected environment for GPUN employees and property. The Department is responsible for the following major functions:

a. Plant security guard force and surveillance systems and controls including physical security, physical barriers, access requirements, detection aids, communications requirements, security equipment testing and maintenance, response requirements, records and reports involving such activities as:

   - Ensuring that the nuclear generating stations are adequately protected against acts of sabotage, arson, theft and civil disturbances.
   - Developing and executing plans and procedures for the physical security of the nuclear stations.
   - Providing liaison to regulatory agencies.
   - Implementing company and NRC rules and regulations.
   - Screening all non-company employees and contractors for unescorted access to the facility.
   - Providing access control through the use of security surveillance equipment.
   - Providing physical access control and carrying out search requirements.
   - Planning defenses for civil disturbances and demonstrations.
   - Investigating all security incidents.

b. Industrial safety systems, surveys and equipment, medical surveillance, first aid programs and training, and fire suppressant systems and standards, industrial safety systems and regulations.

c. Policy, procedures and implementation for OSHA, NIOSH and NFPA.

1.2.7.3 Director - Fiscal and Information Management

The Director-Fiscal and Information Management is responsible for the following major functions:

a. Implement and maintain New Information Systems.

b. Provide records management, documentation and correspondence control.

c. Establish and maintain GPUN administrative policies and procedures and monitor for control.

d. Provide interface requirements for control to GPUSC Assistant Comptroller and Data Center Management interface for all requirements to GPUSC Informtion Service Division.

e. Provide operations analysis for corporate and plant operations.

f. Manage corporate and plant libraries as required.

g. Provide configuration control support.

1.2.8 Vice President-Radiological and Environmental Controls

The Vice President-Radiological and Environmental Controls reports directly to the Office of the President. He is responsible to establish and implement uniform radiological and environmental policies, practices and procedures required to assure safe, reliable and efficient operation in accordance with corporate policies and all applicable laws, regulations, licenses and technical requirements. The Vice President-Radiological and Environmental Controls is responsible for the following major functions:

- Establish and maintain corporate level policies, procedures, standards and practices relating to radiological and environmental activities.

- Provide the personnel, procedures and administrative controls to implement the plant radiation and environmental protection programs.

- Provide administrative and technical guidance applicable to radiation protection, radioactive materials, respiratory protection and radiological engineering including ALARA programs and dosimetry control.

- Provide administrative and technical guidance applicable to environmental protection, environmental monitoring and NPDES.

The Vice President-Radiological and Environmental Controls gives his full support to the quality assurance requirements set forth in this Quality Assurance Plan, assuring compliance to the fullest degree by his staff.

1.2.8.1 Director - Radiological Controls

The Director-Radiological Controls reports directly to the Vice President-Radiological and Environmental Controls. He is responsible for the Unit 2 on site implementation of the radiological control and related programs.

The Director-Radiological Controls is responsible for providing and maintaining up-to-date procedures controlling the activities of the department, providing training of Unit personnel in special topics regarding 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.

1.2.8.2 Manager - Environmental Control

The Manager-Environmental Control reports directly to the Vice President-Radiological and Environmental Controls. He is responsible for the on site implementation of the environmental control and related programs. His responsbilities include:

a. Developing and implementing procedures covering items necessary to fulfill his responsibilities.

b. Developing biological monitoring programs and special studies in the Environmental Technical Specifications to quantify the impact of Unit 2 on the environment.

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

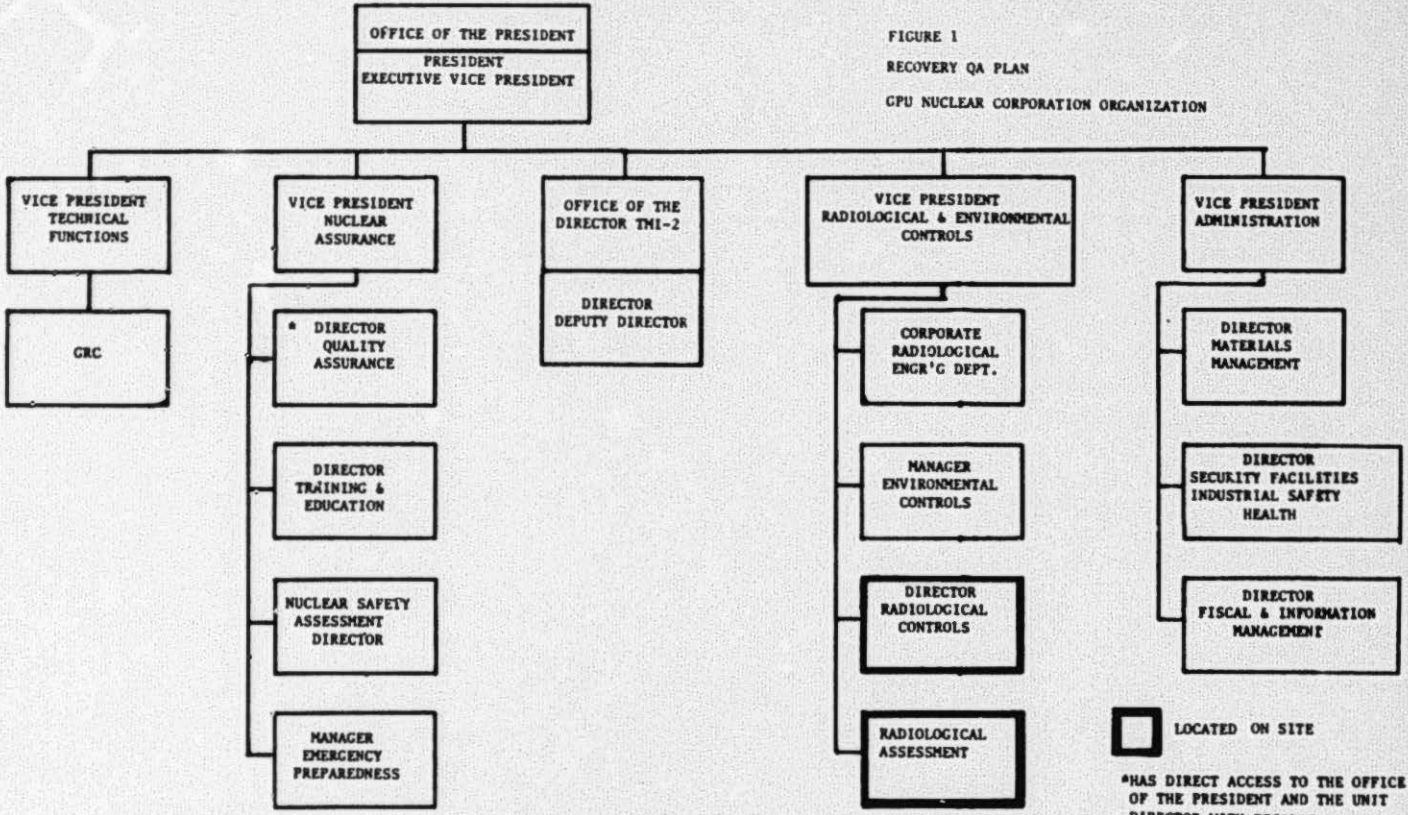

FIGURE 1

RECOVERY QA PLAN

GPU NUCLEAR CORPORATION ORGANIZATION

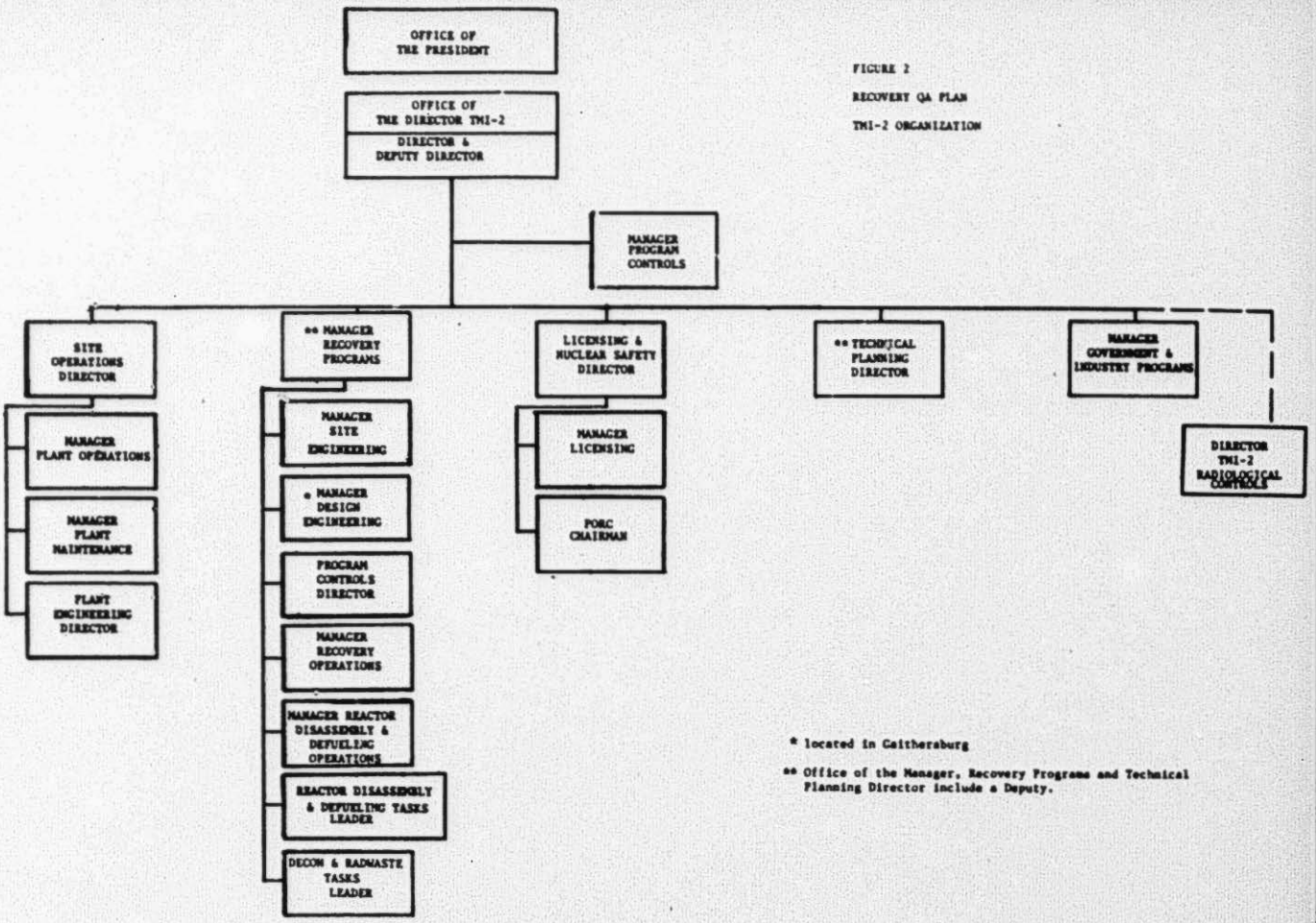

FIGURE 2

RECOVERY QA PLAN

TMI-2 ORGANIZATION

* located in Gaithersburg

** Office of the Manager, Recovery Programs and Technical Planning Director include a Deputy.

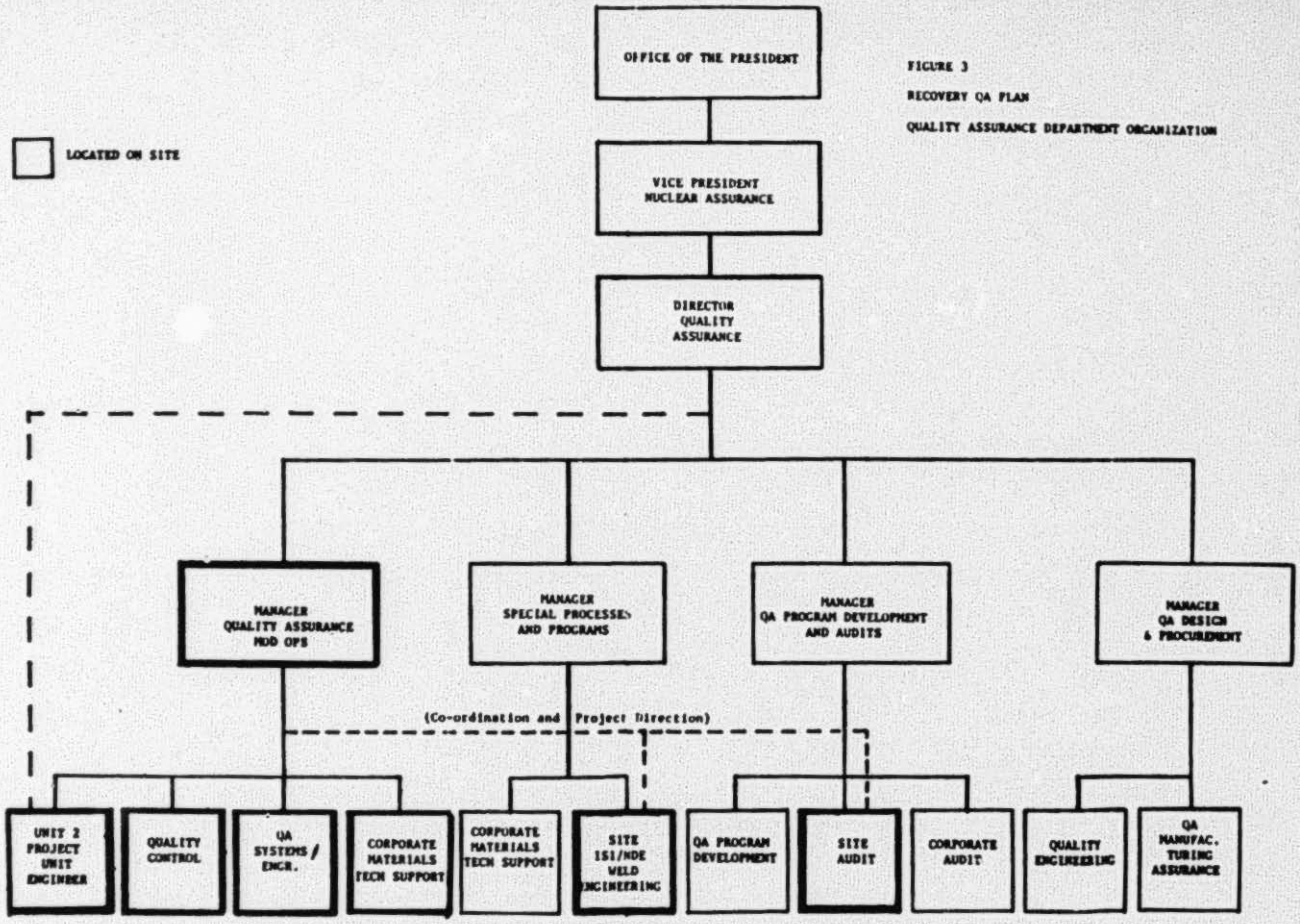

FIGURE 3

RECOVERY QA PLAN

QUALITY ASSURANCE DEPARTMENT ORGANIZATION

2.0 QUALITY ASSURANCE PROGRAM

2.1 Policy

2.1.1 General

The TMI 2 Recovery Quality Assurance Program has been established to provide overall quality assurance of recovery activities within the scope of the program. Adherence to the requirements of this Quality Assurance Program is mandatory for all GPUN organizations and for all external organizations providing items or services covered under the scope.

This Quality Assurance Plan is the highest level document which describes the Quality Assurance Program. The term "Program" as used herein includes subtier implementing policies, procedures and instructions.

Any conflicts regarding interpretation or implementation of this Plan shall be promptly reported to the Director-Quality Assurance for resolution.

2.1.2 Scope

The scope of the TMI Unit 2 Quality Assurance Program includes items and activities considered to be "Important to Safety". This term is 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 I or Fire Protecton. The scope of the Program includes 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 1.143 "Design Guidance for Radioactive Waste Management Systems, Structures and Components Installed in Light Water Cooled Nuclear Power Plants".

e. Branch Technical Position ASB 9.5-1 "Guidelines for Fire Protection for Nuclear Power Plants".

f. U. S. Nuclear Regulatory Commission Regulatory Guide 1.29 "Seismic Design Classification" and components which have impact on items Important to Safety.

g. Other items when designated by the Office of the Director TMI 2.

The TMI Quality Assurance Program applies to all items on the Quality Classification List (QCL). 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.

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 revision to the QCL. Documents which control the installation of modifications which have been classified as "Important to Safety" will be clearly identified as such.

2.1.2.2 Activities which are important to safety shall include, but not be limited to:

a. Those activities covered by Appendix A of Regulatory Guide 1.33 and ANSI N18.7.

b. The requirements of other Regulatory Guides applicable to operations, maintenance, modification, repair and refueling of a nuclear power plant as identified in Appendix C herein.

c. Those activities related to Fire Protection as covered by Branch Technical Position ASB 9.5-1.

d. Those activities related to Plant Security as covered by 10 CFR 73.

e. Those activities covered by procedures which have been designated during the review cycle as "Important to Safety".

2.1.3 Quality Assurance Plan

This Quality Assurance Plan is the primary document which provides a description of the Program. This Plan is authorized by the Office of the President 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. This Plan is implemented by approved detailed procedures and instructions.

The purpose of this Plan is to establish the principles which, when implemented, will provide the level of quality assurance which is appropriate to each item or activity Important to Safety. 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 item-to-item and activity-to-activity.

Graded Approach

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.

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

f. The intended life during which the item performs an Important to Safety function.

The quality requirements for items Important to Safety will be established using approved procedures based on the "General Logic Considerations" listed in the Appendix to ANSI N45.2.13-1976. Quality requirements will be established by the responsible Engineering Department and concurred with by the Quality Assurance Department for those items which are Important to Safety.

GPUN 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.

2.1.3.1 Level I - Activities at this level consist of inspections, checks and tests. Where the first-level activities involve independent inspection for purposes of acceptance and/or verification of modifications to Important to Safety systems, the activity will be

performed by the QA Department or by organizations authorized to perform those activities by the QA Department. In other cases, this level of activity may be performed by:

1. Operations, Plant Maintenance and Radiological Controls personnel for activities such as surveillance tests, calibration of instruments, radiation surveys, analyses of samples, valve line-ups, etc.

2. The Quality Control Section by receipt inspection or inspection of modification or corrective maintenance activities.

3. Contractors as part of their scope of work.

In all cases, the activity is performed by individuals knowledgable 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.

2.1.3.2 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 or QA Design and Procurement. The level of surveillance/monitoring applied is consistent with the importance of the item to safety. For activities where 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 tests and inspections, observation of selected operations, review of records, verification 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.

2.1.3.3 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 the program is also to establish that all other organizations, including Operations, Maintenance, Engineering, Materials Management, etc., are properly satisfying all the requirements of the 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. The program requirements of ANSI N45.2.12 are satisfied. Qualified audit personnel are utilized 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 10 CFR 50, Appendix B, 10 CFR 71, 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 GPUN management. The Quality Assurance Department conducts evaluations which provides management with information pertaining to program effectiveness and implementation. Other divisions provide additional information/ evaluations as requested.

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 TMI Unit 2 Quality Assurance Plan and any significant revisions shall be approved by the following:

Office of the President
Office of the Director - TMI Unit 2
Vice President - Nuclear Assurance
Vice President - Technical Functions
Vice President - Administration
Vice President - Radiological and Environmental Control
Director - Quality Assurance

The Plan includes a Statement of Policy which is signed by the Office of the President - GPUN. The Statement of Policy provides authorization and evidence of management commitment to the Quality Assurance Program.

Revisions to this plan shall be considered significant if they alter the degree of compliance with regulatory requirements committed to in Appendix C herein. Changes to the TMI-2 organization in assignment of responsibilities to the extent

described below the Office of the Director TMI-2 or the Vice President's level shall not be considered significant except in the area of Quality Assurance. Changes in name or title changes with no basic change in function shall not be considered significant. Editorial and typo's which do not change the intent of the words or scope of the program shall not be considered significant. Significant plan revisions shall be submitted to the Nuclear Regulatory Commission. NRC approval is required prior to implementation.

Plan revisions not considered by the Director-Quality Assurance to be significant can be issued with approval of the Director-Quality Assurance and the Vice President-Nuclear Assurance. The Director-Quality Assurance is responsible for notifying the NRC of all changes to the Plan within 30 days of the change.

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

2.2.2 Classification

2.2.2.1 General

The Quality Assurance Department will concur with the procedures used for classification, and audit the process for implementation. Additionally, engineering classification of items "Important to Safety" will be subject to independent design review by Engineering.

2.2.2.2 Parts Classification

The Quality Classification List (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. Engineering will classify the parts to be ordered. QA concurrence is required. The determinations will not necessarily be added to the QCL.

2.2.3 Regulatory Commitments

A listing is maintained by Licensing and Nuclear Safety of commitments to regulatory requirements. Each new or revised USNRC Regulatory Guide will be evaluated for applicability and acceptability to TMI-2. The GPUN position on each is documented stating the method and degree of compliance or the justification for lack of compliance.

Appendix C, herein, lists those regulatory guides which are quality related or affected with stated company position, exceptions and/or clarifications. These must be complied with in conjunction with this QA Plan. Appendix C will be revised to reflect any changes in the GPUN commitment to those Regulatory Guides shown with an asterisk.

2.2.4 Safety Review

Safety review groups have been established to perform regulatory required reviews. These groups provide management with visability and recommendations for improved plant safety.

2.2.4.1 Plant Operations Review Committee (PORC):

The PORC is an on-site operations review organization functionally reporting to the Licensing and Nuclear Safety Director. This group reviews all matters which potentially require independent review by the Generation Review Committee.

PORC is made up of plant senior technical personnel with day-to-day responsibility and accountability for safe operation. Its members shall provide, as part of the normal duties of plant supervisory personnel, timely and continuing monitoring of operating activities to assist the Office of the Director-TMI-2 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 Office of the Director TMI-2 in carrying out it's responsibility for overall safety of plant operations, shall be responsible for timely referral of appropriate matters to management and the GRC.

2.2.4.2 Generation Review Committee (GRC):

The GRC is an off site organizaton reporting to the Vice President-Technical Functions. This group is responsible to provide independent safety review of operations, nuclear engineering, chemistry and radiochemistry, metallurgy, 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-2. 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. Any proposed change in procedures or the facility or proposed tests or experiments which involve a change in the technical specifications or an unreviewed safety question as defined in 10 CFR 50.50(c). Matters of this kind shall be referred to the GRC by the PORC following its review, or by other functional organizational units within GPUN, prior to implementation.

c. Changes in the technical specifications or license amendments relating to nuclear safety prior to submittal to the NRC for approval.

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 regulatory 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.

e. Violations, deviations and reportable events as described in 10 CFR Part 50, Domestic Licensing of Production and Utilization Facilities. Section 50.72, shall be reported to the NRC by telephone within one hour.

   GRC reviews of these items (d and e) normally occur after the NRC has been notified. GRC reviews 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.

f. Any other matter involving safe operation of the nuclear power plant which an independent 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 TMI organization.

2.2.4.3 Nuclear Safety Assessment Department (NSAD):

NSAD is an independent organization reporting to the Vice President-Nuclear Assurance. It performs evaluations and investigations as it deems appropriate or as assigned by the Vice President-Nuclear Assurance. NSAD performs special evaluations of information from external sources for applicability to TMI. NSAD may also perform evaluations of existing hardware and software systems which affect the safe, reliable operation of the plant. NSAD personnel 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 as 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 are instructed as to the purpose, scope, and implementation of manuals, procedures and instructions.

b. Personnel are trained and certified in the principles and techniques of the activities being performed. Acceptance criteria will be established consistent with the importance to safety of the activity requiring qualification.

c. Proficiency 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 Office of the President - GPUN

The Office of the President - GPUN is responsible to 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. Review of audit reports, periodic status reports, etc. of 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 TMI-2 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 Vice President - Nuclear Assurance

The Vice President - Nuclear Assurance has overall responsibility for establishment of the TMI Unit 2 Quality Assurance Program. He also has overall responsibility for establishment and management of the Nuclear Safety Assessment Department, the Quality Assurance Department, including Methods/Program/Audit Section. He shall provide periodic status reports to the Office of the President on the Quality Assurance Program.

2.3.3 Director - Quality Assurance

The Director - Quality Assurance has the direct responsibility for verifying the effective implementation of the TMI-2 Quality Assurance Program. He shall establish and implement a formally documented and procedurally controlled program to evaluate and report to the Vice President - Nuclear Assurance on the adequacy and continued effectiveness of the overall TMI-2 Quality Assurance Program. Reports of audits performed by Quality Assurance Department or their agents, and quality trend analysis 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 analysis reveals 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-2 Quality Assurance Program. Implementation and closeout of corrective actions shall be effectively monitored by the Director-Quality Assurance to assure timely correction and compliance.

The Director-Quality Assurance is responsible for the contents of the Quality Assurance Plan and for ensuring that the Quality Assurance Plan is modified and updated as standards, regulations, requirements and experience dictates. Proposed revisions to the Plan may be suggested by GPUN personnel by submitting the request, in writing, to the Director-Quality Assurance for review and action. The Director-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 - Recovery Programs

The Manager - Recovery Programs 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 GPUN - Management

Management personnel, in each department, are responsible for Quality Assurance Program implementation by their department or groups. 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 TMI Unit 2 which are covered under the scope of this Quality Assurance Program shall be subject, when specified in procurement documents, to review and acceptance by the Quality Assurance Department prior to the commencement of any activity Important to Safety.

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 at which such disputes occur. If this is not possible, the difference of opinion shall be escalated through supervisory/management levels until resolution is acheived.

The Director - Quality Assurance shall make the decision on matters concerning inspection and acceptance to established requirements. The Manager-Recovery Programs shall make the decision on matters concerning interpretation of technical requirements or design changes.

3.0 CONTROL OF DOCUMENTS AND RECORDS

3.1 Instructions, Procedures, Drawings and Policies

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 activities be accomplished through the implementation of these documents.

3.1.2 Requirements

TMI Procedures, instructions, drawings, and/or policies which prescribe the performance of activities Important to Safety shall comply with the requirements of this Plan. To accomplish this these documents 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 responsible personnel prior to the initiation of the quality-affecting activity.

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

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

Appendix B identifies organizational responsibilities for the preparation, review, approval, concurrence and issuance of documents Important to Safety.

3.1.3 Responsibilities

3.1.3.1 Department Managers

The Director/Manager of each department performing activities Important to Safety is responsible for the preparation, approval and implementation of procedures, instructions and/or drawings necessary to effectively implement this Quality Assurance Plan. 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 those administrative policies, procedures, instructions and/or drawings which delineate the methods of complying with the requirements of this Plan.

Selected 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. Selected contractor Quality Assurance Plans/Manuals, work plans, drawings, instructions and procedures shall be reviewed and approved by QAD prior to releasing the contractor to start work. Compliance shall be verified by audit, surveillance and inspection programs.

3.1.3.3 External Organizations

Those activities Important to Safety which are performed by contractors, agents, 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 as defined in Section 2.0 of this Plan. 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 Procedures

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 Modifications, 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 organizations or positions responsible for reviewing, approving and issuing documents and their revision shall be specified.

c. Changes must be documented and approved prior to being implemented.

d. Revisions shall be reviewed and approved by the same organizations that performed the original review and approval or by organizations designated by the originating organizations.

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

f. 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, must be clearly marked and will not be used in performing an activity Important to Safety since they will not be maintained current.

g. Master lists or equivalents will be established and maintained to identify the current revision number of instructions, procedures, specifications, drawings and procurement documents. These lists will be distributed to predetermined responsible personnel to preclude the use of superceded documents.

3.2.3 Responsibilities

3.2.3.1 Vice President - Administration

Responsible via the Director - Fiscal and Information Management to approve the GPUN procedures for offsite document control, and to establish and implement the TMI document control program.

3.2.3.2 Office of the Director - TMI 2

Responsible via the TMI-2 Staff 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 Vice President - Nuclear Assurance

Responsible via the Director - Quality Assurance 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.

3.3.3.4 All Functional 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 use.

3.3 Quality Assurance Records

3.3.1 Policy

Quality Assurance records for items and activities covered under the scope of the TMI Quality Assurance 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.

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. Design specifications, procurement documents, test procedures, and operational procedures shall specify the records to be generated, supplied and maintained by or for the owner. Typical records to be specified include inspection and verification procedures (exclude completed checklist when results are documented in a separate report), 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. Identification of any conditions adverse to quality.

   4. Inspector or data recorder identification.

   5. Evidence as to the acceptability of the results.

   6. Action taken to resolve any discrepancies noted.

c. Documented and approved measures shall be established for complying with the 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 standards, codes and regulatory guides endorsed in Appendix C of this Plan.

3.3.3 Responsibilities

3.3.3.1 Vice President - Nuclear Assurance

Responsible via the Director - Quality Assurance for reviewing procedures for GPUN departments who perform activities related to 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 organizations.

3.3.3.2 Office of the Director - TMI-2

Responsible via the TMI-2 Staff 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, and for providing procedures which ensure the maintenance of records sufficient to furnish objective evidence that activities affecting quality are in compliance with the standards, codes and regulatory guides endorsed in Appendix C of this Plan.

3.3.3.3 Vice President - Administration

Responsible via the Director - Fiscal & Information Management 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; for providing procedures which ensure the maintenance of records sufficient to furnish objective evidence that activities affecting quality are in compliance with the standards, codes and regulatory guides endorsed in Appendix C of this Plan, and for establishing and implementing the TMI-2 Records Control System.

3.3.3.4 External Organizations

Records generated by 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 and 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 responsiblity of personnel involved in preparing, reviewing, approving and verifying design documents be delineated.

b. The FSAR design bases, FSAR safety analyses, design regulations, codes and standards and Plant Technical Specifications including all amendments, be adhered to in design work.

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 preparation, 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.

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 turnover of the component or system to Operations.

- 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 are to 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 verified computer codes are certified prior to use.

l. Design and specification changes, including field changes, will be subject to design control measures commensurate with those applied to the most recently verified 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.

4.2.2 Assessment of Damage

Design activities directed toward the assessment of the damage to TMI Unit 2 will be controlled in the same manner as other design activities within the scope of this Plan. However, specialized reviews will be used as conditions warrant to allow for necessary flexibility in design control. Advance approval by the Director - Quality Assurance is required where full compliance with the design control program is not feasible.

4.3 Responsibilities

4.3.1 Office of the Director - TMI-2

a. The Office of the Director - TMI-2 is responsible through the Site Operations Director for the development and implementation of design control measures regarding maintenance and plant engineering activities.

b. The Office of the Director - TMI-2 is responsible via the Manager - Recovery Programs for the development and implementation of the design control measures utilized by the engineering departments.

c. The Office of the Director - TMI-2 is responsible through the Manager - Recovery Programs for coordination and direction of engineering tasks which are outside of the normal scope of Plant Engineering. To fulfill these responsibilities, the Manager - Recovery Programs will:

1. Control and coordinate the activities of A/E's and those contractors with design responsibility.

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

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

3. Provide for Quality Assurance review and approval of criteria documents and specifications.

4. Provide for technical administration of nuclear fuel related engineering activities.

d. The Office of the Director - TMI-2 through the Technical - Planning Director is responsible for providing conceptual and analytic engineering service to other engineering groups as required.

e. The Office of the Director - TMI-2 is responsible, through the Manager - Recovery Programs for providing detailed design and drafting services. He is also responsible for the preparation and maintenance of the Quality Classification List (QCL).

4.3.5 Vice President - Nuclear Assurance

The Vice President - Nuclear Assurance, through the Director - 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.

4.3.6 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.

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 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, shall be delineated by procurement documents. These quality program requirements shall be 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 requirements for the preparation, review, approval and control of procurement documents shall be delineated in detailed procedures. These procedures shall delineate requirements to assure that procurement documents:

a. Specify quality assurance requirements commensurate with the requirements of this QA Plan.

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

c. Specify or reference design bases, technical requirements, including applicable regulatory 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 items 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 obtaining 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.

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 External Organizations

Evaluations of prospective suppliers shall be conducted and documented to demonstrate qualifications based upon one or more of the following criteria:

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

b. Review of the external organization'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 external organization'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 external organizations. Contracts or purchase orders for material, equipment or services covered by the scope of the Quality Assurance Program shall be awarded either to:

1. External organizations who have been qualified by the QAD as having a Quality Assurance program commensurate with the equipment or services to be provided, or

2. The external organization will 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.

When an external organization quality program is required, it shall be reviewed and approved prior to initiation of the activity affected by their program.

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 plan 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 and approval 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 and the approval of the responsible Quality Assurance organization. QAD will also provide followup of corrective action implementation.

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 audit and 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 vendors' 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 Vice President - Administration

The Vice President - Administration is responsible through the Director - Materials Management for:

a. the administration and operation of procurement and warehousing activities associated with the recovery of TMI-2.

b. the assurance that the technical and quality requirements, as established by engineering, are incorporated into procurement documents without revision.

c. the assurance that the contractural legal and commercial requirements are incorporated into the procurement documents in a manner which will enable enforcement of the technical or quality requirements.

d. the assurance that documents and records, as required by procurement documents, are submitted in a timely manner and that they are complete and legible.

5.1.3.2 Vice President - Nuclear Assurance

The Vice President - Nuclear Assurance is responsible through the Director - Quality Assurance to:

a. Assure that QAD procedures for the control of purchased equipment, material and services are established, approved, implemented and effective.

b. Approve all TMI procedures necessary for the control of purchased equipment, material, and services within the scope of the TMI Quality Assurance Program.

c. Approve supplier Quality Assurance Programs to the extent required in the procurement documents.

d. Review and accept supplier record packages.

e. Establish and implement an adequate program of source inspection, surveillance and receipt inspection to assure supplier compliance with contract requirements.

f. Review and concur with the adequacy of quality requirements to determine that they are correctly stated, inspectable and controllable, that there are adequate acceptance/rejection criteria and that the procurement documents have been processed in accordance with established requirements.

5.2 Identification 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 inadvertent installation or use. 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 and traceability 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 (including as-builts)
   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 fabricating, 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 verifies that identification for received items is complete and accompanied by appropriate documentation.

5.2.3 Responsibilities

5.2.3.1 Engineering

Engineering is responsible for ensuring that procurement documents contain appropriate requirements for the identification and control of materials, parts, or components.

5.2.3.2 Vice President - Nuclear Assurance

The Vice President - Nuclear Assurance is responsible through the Director - Quality Assurance for:

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

b. Verification of identification during receipt inspection.

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

6.0 CONTROL 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, test, operation, maintainance, repair, 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 this 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 the 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 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 this Quality Assurance Plan are controlled to an extent consistent with their importance to safety.

6.2.1.1 Control of Inspections

A program for inspections 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 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.

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 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 (reporting to different supervisors), 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 and concurred with 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 established, either contractually, by procurement or internally by plant procedures, that work may not proceed until either inspection is performed or waived by the responsible Quality Assurance organization.

Inspections 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 verification of inspection is being performed on previously accepted lots, sampling inspection shall be representative and only to the extent necessary to assure adequacy of control. 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 Plant QA Monitoring

A program for QA Monitoring of activities affecting Important to Safety materials, parts, components or processes shall be established and executed by Quality Assurance. Monitoring is used to establish adequate confidence levels that Important to Safety

activities are being performed in accordance with Quality Assurance Program requirements and plant administrative controls. Monitoring will be performed on a graded approach and the degree of monitoring performed shall be typically based upon the status and safety importance of activities, degree of previous experience, consistency of overall coverage, uniqueness of testing or operating activities and trending data.

Monitors shall be qualified in accordance with a documented Quality Assurance Department procedure that insures that Monitors are knowledgeable in the activities they are monitoring to the extent that they can readily verify compliance of the activity being performed.

Monitoring reports shall contain as a minimum the following:

a. Identification of activity being monitored including specific reference to the program or procedural requirements governing the activity.

b. Indication of compliance.

c. Identification of monitor.

d. Appropriate distribution to supervisory or managerial personnel that have responsibility for the performance of the activity.

e. Identification of nonconformance document that will obtain appropriate corrective action, including that to prevent recurrence, when nonconformances exist and are identified as a result of the monitoring.

Records shall be kept in sufficient detail to provide adequate confirmation of a monitoring program.

6.2.1.3 Control of Special Processes

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. 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. Procedures for special processes shall be established to meet the requirements or applicable codes and standards 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 by the Manager-Recovery Programs.

6.2.1.4 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, including verification.

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:

a. Preoperational tests of components or systems to demonstrate that performance is in accordance with the design intent.

b. Tests during initial operation to demonstrate system performance (that could not be tested prior to operation) to confirm compliance to design criteria.

c. 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.

d. 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.

6.2.1.5 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 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.

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 when due, and traceability to an accepted standard. Procedures shall be established to implement the following requirements:

a. 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.

6.2.1.6 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.

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 be 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 deterioration during shipping, handling or storage. Special protective environments, special coverings, inert gas atmospheres, allowable moisture contents, and temperature levels shall be specified as required and their existence verified and documented.

b. Cleaning methods 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 methods 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 practices 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. Provisions 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. Provisions 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.

6.2.1.7 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 inadvertent operation.

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. Procedures for controlling the bypassing or altering of the sequence of required inspections, tests or other critical operations are 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 requiring 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. Procedures to control 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. Procedures for documenting and controlling nonconforming services and inoperative or malfunctioning structures, systems" components or materials shall be identified in accordance with the requirements of this Plan.

6.2.1.8 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 or components 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 of system(s) or component(s), an inspection shall be conducted and documented to ensure cleanliness. Special housekeeping considerations shall be made for maintenance of radioactively contaminated systems or components.

6.2.1.9 Equipment Control

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

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

b. Independent verifications, where appropriate, to ensure that measures, such as tagging equipment, have 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.

f. When traceability is required, as determined by plant Engineering and Quality Assurance, the components/equipment shall be identified in such a manner that it can be traced to its associated documentation.

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

Construction, maintenance or modifications which have 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 the 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 administrative procedural controls that govern or define the following areas:

a. Methods for obtaining permission and clearance for 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 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. Replacing 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.

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 ensure that Important to Safety items are adequately maintained in the original design functional status.

A preventive 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 ensure that Important to Safety items are adequately maintained in the original, design, functional status.

6.2.1.11 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.

6.2.1.12 Control of Surveillance Testing and Inspection

A surveillance testing and inspection program shall be established to ensure 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. Frequency 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.

6.2.1.13 Radiological Control

Procedures shall be provided for the implementation of the radiological controls program. The radiological controls program involves the acquisition of data and provision of equipment to perform necessary radiological surveys, measurements and evaluations for the assessment and control of radiological conditions associated with TMI.

6.3 Responsibilties

6.3.1 GPUN Management

GPUN Managers with direct responsibility for activities described herein are 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 administrative controls, regulatory and licensing requirements.

6.3.2 Delegated Authorities

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

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 processing, 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, packaging and transportation of radioactive material. The applicable sections of this Plan will be implemented to satisfy the requirements of Appendix E to 10 CFR 71. Typically, Sections 6.2.1.1 thru 6.2.1.6 and 6.2.1.13 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 surveys 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 GPUN, 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 with, documented procedures covering acceptance of materials from a shipper, certification requirements, placarding, storage control, reporting of incidents and security.

7.2.3 Radwaste operations shall be controlled to minimize personnel 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 Office of the Director - TMI-2

The Office of the Director-TMI-2, through the TMI-2 staff, is responsible for:

a. Development and implementation of procedures for processing activities and movement of radioactive materials.

b. Processing and packaging of liquid wastes and for the packaging of solid wastes in preparation for shipment.

c. Collection and identification of radioactive solids such as rags, papers, boots, gloves, etc. and having them moved to the Radwaste facility for packaging.

d. Selection of the proper packaging for the specific contents to be shipped, taking into consideration the radiation levels, contamination limits and shipping requirements. Radiological Controls surveys the packaging for radiation level and, if acceptable, the Site 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.

e. Review and accept carrier procedures specified by the procurement documents covering the acceptance of radioactive waste materials for shipment.

f. Reviewing and accepting the designs of packaging purchased from an outside supplier. If packaging is to be designed by GPUN, the design, fabrication and licensing of the packaging shall be the responsibility of the Office of the Director - TMI-2 through the TMI-2 staff.

7.3.2 Vice President - Radiological and Environmental Control

The Vice President - Radiological and Environmental Control is responsible, thru the Director, Radiological Controls, for monitoring all radiological activities associated with the processing and handling of radioactive wastes and for providing advice on radiological matters relating to processing, packaging and shipping.

7.3.3 Vice President - Nuclear Assurance

The Vice President - Nuclear Assurance is responsible, thru the Director - Quality Assurance 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 performed in accordance with established procedures, applicable administrative controls and regulatory requirements.

7.3.4 Each manager 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.

8.0 CONTROL OF CORRECTIVE ACTIONS AND NONCONFORMANCES

8.1 Policy

8.1.1 Nonconforming materials, parts, components, services or activities within the scope of the GPUN Quality Assurance Program 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 10 CFR 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. Corrective action documentation requires concurrence by QAD.

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

d. Significant deficiencies, nonconformances and defects, potentially 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. Procedures shall be established for 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, dispositions of nonconforming materials, parts or components.

2. Disposition of nonconformances shall be made by the organization that established the governing requirements or, if this is not possible, by the organization with current design engineering responsibility for the item. QAU concurrence is required if the disposition is "use-as-is" or "repair".

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 contain 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.

   (d) Disposition of the nonconformance (repair, rework, use as it, 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 peroperational 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, and 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.

8.3 Responsibilities

8.3.1 The Vice President - Nuclear Assurance through the Director - Quality Assurance is responsible for the review and concurrence of all procedures for quality trends, reporting and controlling of nonconformances for compliance with the requirements of the Quality Assurance Plan.

8.3.2 The Office of the Director - TMI-2 through the TMI-2 staff 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 Technical Specification.

8.3.3 Each Director/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 approves and the Quality Assurance Department concurs with the resolution of nonconformances.

8.3.4 Each Manager is responsible for ensuring that nonconforming conditions are identified and controlled in accordance with approved procedures.

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 that 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.

9.2.2 Planned and scheduled autits 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

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-2. 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.

Both GPUN and organizations providing goods and/or services are subject to the audit requirements of this Program. Audits will be performed by the Quality Assurance Program Development and Audits section.

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 to assure 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 of previous audit findings.

9.2.3 Documentation

Audit results shall be documented in a written report to the audited organizaton. 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.

9.3 Responsibilities

9.3.1 Vice President - Nuclear Assurance

The Vice-President - Nuclear Assurance is responsible through the Director - Quality Assurance to:

a. Establish and implement 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 evaluates the effectiveness of the overall audit progam, analyzes the reports and related information for quality trends and appraises Office of the Director TMI-2 and the Vice President - Nuclear Assurance of significant findings of the program. The Director-Quality Assurance further ensures that an overall Quality Assurance Audit Program Schedule is established and implemented.

b. Schedule and perform audits and to identify quality or management control problems and provide recommended solutions.

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

10 CFR 50, App. B		ANSI N45.2		10 CFR 71, App. E		ANSI N18.7 - 1976			
Criterion	QA Plan	Paragraph	QA Plan	Criterion	QA Plan	Paragraph	QA Plan	Paragraph	QA Plan
I	1.0	2.0	2.0	1	1.0	3.1	1.0	5.2.11	8.0
II	2.0	3.0	1.0	2	2.0	3.2	1.0	5.2.12	3.3
III	4.0	4.0	4.0	3	4.0	3.3	1.0	5.2.13	5.0
IV	5.1	5.0	5.1	4	5.1	3.4	1.0	5.2.14	8.0
V	3.1	6.0	3.1	5	3.1	3.5	2.0	5.2.15	3.0
VI	3.2	7.0	3.2	6	3.2	4.1	2.0/9.0	5.2.16	6.2.1.5
VII	5.1	8.0	5.1	7	5.1	4.2	2.0/9.0	5.2.17	6.2.1.1
VIII	5.2	9.0	5.2	8	5.2	4.3	2.0	5.2.18	6.2.1.3
IX	6.2.1.3	10.0	6.2.1.3	9	6.2.1.3	4.4	2.0	5.2.19	6.2.1.4
X	6.2.1.1	11.0	6.2.1.1		7.0	4.5	9.0	5.3	6.2.1.11
XI	6.2.1.4	12.0	6.2.1.4	10	6.2.1.4	5.1	2.0		
XII	6.2.1.5	13.0	6.2.1.5		7.0	5.2.1	2.0		
XIII	6.2.1.6	14.0	6.2.1.6	11	6.2.1.4	5.2.2	3.1		
XIV	6.2.1.7	15.0	6.2.1.7		7.0	5.2.3	3.1		
XV	8.0	16.0	8.0	12	6.2.1.5	5.2.4	3.1		
XVI	8.0	17.0	8.0		7.0	5.2.5	3.1		
XVII	3.3	18.0	3.3	13	6.2.1.6	5.2.6	6.2.1.9		
XVIII	9.0	19.0	9.0		7.0	5.2.7	6.2.1.10		
				14	6.2.1.7	5.2.8	6.2.1.12		
					7.0	5.2.9	6.2.1.2.0		
				15	8.0	5.2.10	6.2.1.8		
				16	8.0				
				17	3.3				
				18	9.0				

APPENDIX B

MINIMUM DOCUMENT CONTROL RESPONSIBILITY FOR "IMPORTANT TO SAFETY" DOCUMENTS

DOCUMENT	PREPARED BY	APPROVED BY (*)/CONCURRENCE	ISSUED BY	NOTES 1,2,3,7
A.1 QA Plan (Significant Changes)	QA Department	*Office of the President *Vice President-Nuclear Assurance *Office of the Director-TMI-2 *Vice President-Technical Functions *Vice President-Administration *Vice President-Radiological & Environmental Control *Director-Quality Assurance	QA Department	I I
A.2 QA Plan (Other Changes)	QA Department	*Vice President-Nuclear Assurance Vice President/Director Affected *Director-Quality Assurance	QA Department	I
B.1 QA Department Procedures	QA Department	*Director-Quality Assurance QA Section Manager Affected	QA Department	I
B.2 QA Project Procedures	QA Department	*Director-Quality Assurance Vice President/Director Affected	QA Department	I
B.3 QA Section Procedures	QA Section	*QA Section Manager QA Subsection Manager/Supervisor	QA Department QA Department	
C.1 GPUN Policy Directives	GPUN Administration	*Office of the President Vice President-Nuclear Assurance	GPUN Administration	
C.2 GPUN Division/Department Procedures	GPUN Division/Department	*Division Vice President/ Department Manager Director-Quality Assurance	GPUN Administration/ Issuing Department	I

Rev. 1

APPENDIX B

MINIMUM DOCUMENT CONTROL RESPONSIBILITY FOR "IMPORTANT TO SAFETY" DOCUMENTS

DOCUMENT	PREPARED BY	APPROVED BY (*)/CONCURRENCE	ISSUED BY	NOTES 1,2,3,7
C.3 TMI-2 Station Administrative Procedures	Office of the Director TMI-2	*Office of the Director-TMI-2 QA Modification/Operations Manager	Administration Division	
C.4 TMI-2 Station Section Procedures	TMI-2 Sections	*TMI-2 Station Section Manager/ Supervisor Office of the Director-TMI-2	Administration Division	
C.5 TMI-2 Station Section Instructions	TMI-2 Sections	*TMI Station Section Manager/ Supervisor Organization Head Affected (Station)	Administration Division	Note 6
C.6 TMI-2 Special Test Procedures (per 10 CFR 50.59)	Office of the Director TMI-2	*Office of the Director-TMI-2 PORC GRC	Administration Division	Note 6
C.7 Radiological Control Procedures	Radiological Controls	*Director-Radiological Controls Manager-Radiological Technical Support	Administration Division	Note 6
C.8 TMI-2 Work Authorization Documents	Site Organizations	*Construction or Maintenance or Start Up and Test QA Modifications/Operations	Originating Department	
D.1 Procurement Requisition	Off Site Organizations	*Originating Department Director/ Manager QA Design/Procurement Manager Director Materials Management	Originating Department	
D.2 Procurement Requisition	Site Organizations	*Originating Department Director/ Manager QA Design/Procurement Supervisor Director-Materials Management	Originating, Organizations	

APPENDIX B

MINIMUM DOCUMENT CONTROL RESPONSIBILITY FOR "IMPORTANT TO SAFETY" DOCUMENTS

DOCUMENT	PREPARED BY	APPROVED BY (*)/CONCURRENCE	ISSUED BY	NOTES 1,2,3,7
E.1 Engineering Change Documents	Recovery Programs	*Designated Engineering Manager QA Deisgn/Procurement Manager Applicable Section Manager	Recovery Programs	Notes 4,5

Rev. 1

NOTE:

1) Responsible organizations or positions may have documented designated alternates who are authorized to perform the function.

2) Designated support organization (within GPUN or outside contractors) may be authorized and designated to perform certain functions.

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

4) Drawings need not be reviewed by QA unless used in lieu of specifications.

5) Engineering Change Documents are defined as any formalized documents providing description and approval of changes prepared for incorporation at TMI-2.

6) In these cases QA review may be conducted after the document is issued.

7) An asterisk indicates approval and, therefore, accountability.

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 the Office of the Director-TMI-2 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-2 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 - Engineering and Design.

APPENDIX C, PART I

COMMITMENT TO QUALITY ASSURANCE REGULATORY GUIDES FOR THREE MILE ISLAND APRIL, 1980

REG. GUIDE		ANSI STD.		DEGREE OF COMPLIANCE	REMARKS
• 1.8 5/77, Rev. 1-R	Personnel Selection and Training	N18.1	1971	Full	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	1977	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".

** Qualification requirements for Radiation Protection Manager are satisfied by Radiation Protection Manager or his deputy.

APRIL, 1980

REG. GUIDE		ANSI STD.	DEGREE OF 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		Full	
1.63 7/78, Rev. 2	Electrical Penetration Assemblies in Containment Structures for Light Water Cooled Nuclear Power Plants	IEEE-317 1976	Modified	See clarification attached.
1.29 9/78, Rev. 3	Seismic Design Classification		Modified	Same comment as for Reg. Guide 1.26.

NRC Regulatory Guide 1.30, August 1972

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

GPUN 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 technical requirements or better (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements).

NRC 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 the "master surveillance" shcedule, a technical specification 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 titles "Inspections"

   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 serving as the record; however, records of inspections will be identified and retrievable.

NRC Regulatory Guide 1.37, 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 clarifictions:

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 quality required for normal operation. This requirement does not apply to dissolved oxygen or nitrogen limits nor does it 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:

   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 contain no more than trace elements of lead, zinc, copper, mercury or other low melting alloys or compounds. Maximum levels of water leachable chloride ions, total halogens and sulfur compounds shall be imposed on the aforementioned materials.

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 nickel 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 A.3.4.1 Appendix to ANSI N45.2.2 - 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."

5. 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. Tapes will be of a contrasting color rather than "Brightly Colored" as required by A.3.5.1(3).

6. 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 TMI-2 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 referenced in ANSI N45.2.3, 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 systems considered important to safety. 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 and repair.

   Additional housekeeping requirements will be implemented as required for control of 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 TMI-2 Quality Assurance Program complies with this guide with the following clarification:

1. GPUN 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 (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements) shall be the original requirements or better.

2. The guidelines of 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, Proposed Rev. 1, July 1979

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

Endorses ANSI N45.2.6 - 1978

The TMI-2 Quality Assurance 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:

   A. review and approve inspection and testing procedures,

   B. Evaluate the adequacy of activities to accomplish the inspection and test objectives,

C. Evaluate the adequacy of specific programs used to train and test inspection and test personnel.

D. Certify Level III individuals in specific categories or classes,

will be certified as meeting the Level III capability requirements of ANSI N45.2.6-1978.

Rather these personnel will be determined by management through evaluation of their education experience, and training to be fully qualified and competent to perform these functions. 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

GPUN 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 (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements) associated with maintenance and modifications shall be the original requirements or better.

The TMI-2 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 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 TMI-2 Quality Assurance Program complies with this guide with the following clarification:

GPUN 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 1.116, Rev. 0-R, May 1977

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

Endorses ANSI N45.2.8

The TMI-2 Quality Assurance Program complies with this guide with the following clarification:

GPUN 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, TMI 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 by Recovery Programs 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 more recent applicable 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

GPUN 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 same or more recent applicable 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

GPUN is in basic agreement with the position set forth in the Regulatory Guide subject to the following comments:

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. Accordingly, minimum schedule frequency will be as defined in Regulatory Guide 1.33.

2. Section C.3.b(1)

   Source inspection provides a controlled basis for replacing the need for external audits. Quality assurance program surveillance will also be used as another alternative.

3. Section C.3.b(2)

   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, will be treated as a quality assurance tool used for

evaluation. Furthermore, the recommendation to audit will 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

GPUN will comply with the intent of this regulatory guide by compliance with the requirements of ANSI/ASME NQA-1-1979, Supplement 17S-1 and Appendix 17A-1.

APPENDIX D

Definitions

Words and phrases used in this Plan shall be as defined in ANSI N45.2.10, 1973, as endorsed by Regulatory Guide 1.74, "Quality Assurance Terms and Definitions," and as listed below. Items shown below with an asterisk (*) have been modified from the ANSI definitions.

1. Acceptance Criteria: Specified limits placed on characteristics of an item, process, or service defined in codes, standards, or other documents.

2. ALARA: (Acronym for As Low As Reasonably Achievable) - a method of analysis of the performance of activities in radiological areas to determine specific methods for reducing man-rem exposure.

3. Architect/Engineer (A/E): A firm under contract to provide engineering or design services.

4. Agent: A person or firm empowered to provide a service on behalf of GPUN and under the GPUN QA Program.

5. Approval:* An act of endorsing and adding positive authorization (signature) to a document by the person(s) responsible for the document.

6. As-Built Data: Documented data that describes the condition actually achieved in a product.

7. Condition Adverse to Quality: An all inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, and nonconformances. A significant condition adverse to quality is one which, if uncorrected, could have a serious effect on safety or operability.

8. Contractor:* A person or firm under contract to provide an on-site service and working under the requirements of their own Quality Assurance Program. Firms engaged in construction management are considered contractors.

9. Corrective Action: Measures taken by the responsible Manager to initiate action to correct the observed deficiency and others like it in the system, and will modify operating practices so as to prevent future recurrence.

10. Engineering (Engineer): This term refers to the technical responsibilities of Recovery Programs, Plant Engineering or A/E's.

11. External Organizations: Any organization participating in the project which is not a part of General Public Utilities. This term includes vendors, A/E's and contractors.

12. Important to Safety: As used in the Introduction to Appendix A to 10CFR50, this term refers to, "structures, systems, and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public". The GPUN interpretation is:

    > Items or activities having direct or indirect affect on the physical, functional or human ability to operate the facility, to protect the integrity of the core, and to do so without undue risk to the health and safety of the public.

13. Independent Review Groups: Committees or organizations with responsibilities for the deliberately critical evaluation of methods, procedures or conditions. They have no direct responsibility for the documents, methods or activities being evaluated.

14. Monitoring: An act of assuring compliance of activities to program requirements by direct observation.

15. Qualification (Personnel): The characteristics or abilities gained through education, training or experience, as measured against established requirements, such as standards, or tests, that qualify an individual to perform a required function.

16. QA Plan (Plan): The basic document which describes the method and extent of compliance of the QA Program to the applicable regulatory requirements.

17. QA Program (Program): The planned and systematic actions which constitute the compliance with regulatory quality assurance requirements and the controlled documents which describe and prescribe those actions.

18. QA Records: Those documents required to be maintained in accordance with Regulatory Guide 1.88, and ANSI N45.2.9 as referenced in Appendix C.

19. Quality Classification List (QCL): The controlled document used to record the results of quality classification evaluations.

20. Safety Review Groups: Committees or organizations with responsibilities for evaluation of methods, procedures or conditions affecting plant safety during the operational phase.

21. Special Process: A process, the results of which are highly dependent on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

22. Surveillance: An act of assuring compliance of a manufacturing process or activity to specified requirements.

23. Traceability: The ability to trace the history, application, or location of an item and like items or activities by means of recorded information.

24. Trend Analysis: A quantitative method of collecting and analysing nonconformance/deviation events with the goal of systematically determining programmatic/procedural weaknesses.

25. Vendor: A firm which manufactures items at an off-site facility and operates under the requirements of their own quality assurance program.

26. Verification:* An act of confirming, substantiating and assuring that an activity or condition is suitable, proper and has been implemented in conformance with the specified requirements.