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October 14, 1985

Office of Inspection and Enforcement
Attn: Dr. T. E. Murley
Regional Administrator
US Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Dr. Murley:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Recovery Quality Assurance Plan, Revision 4

This letter transmits Revision 4 to the Recovery Quality Assurance Plan (RQAP) for Three Mile Island, Unit 2 (Attachment 1). This revision is being forwarded in accordance with 10 CFR 50.54(a)(3) and 10 CFR 50.71. The changes made via this RQAP revision are detailed in Attachment 2 to this letter.

This RQAP revision incorporates the commitment made by Mr. B. Ballard, GPU Nuclear's Manager of TMI Quality Assurance Modifications/Operations, to Mr. G. Napuda, of your staff, via telephone on June 13, 1984, and subsequently documented in the June 15, 1984, NRC letter from Mr. T. Martin to Mr. B. Kanga. Also, this RQAP revision notes changes made to the organizational structure. These changes, however, do not reflect TMI-2 Organization Plan, Revision 11, which was approved for use by the NRC TMI Program Office via letter NRC/TMI-85-058, dated August 9, 1985. The changes to this RQAP required as a result of Revision 11 to the TMI-2 Organization Plan will be included in the next RQAP revision.

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The changes to the RQAP do not reduce commitments to the NRC and are being forwarded to you for information only.

Sincerely,

F. R. Standerfer
Vice President/Director, TMI-2

FRS/JCA/eml

Attachments

cc: Director - Office of Nuclear Reactor Regulation, Dr. H. R. Denton
Program Director - TMI Program Office, Dr. B. J. Snyder
Deputy Program Director - TMI Program Office, Dr. W. D. Travers

ATTACHMENT 1
(4410-85-L-0176) 131 Pages

GPU Nuclear	RECOVERY QUALITY ASSURANCE PLAN	Number 1000-PLN-7200.02
Title GPUNC Recovery Quality Assurance Plan for Three Mile Island Unit 2		Revision No 4-00
Applicability/Scope This Plan has GPUNC-Wide Applicability		Responsible Office Quality Assurance 6100
This document is important to safety ☒ Yes ☐ No		Effective Date

List of Effective Pages

See Page v for List of Effective Pages.

	Signature	Concurring Organizational Element	Date
Originator	Nicholas C Kazanas	Director, Quality Assurance	2/10/85
Concurred by	/s/ F. R. Standerfer	Office of the Director-TMI-2	5/21/85
	/s/ R. F. Wilson	Vice President-Technical Functions	5/21/85
	Robert L Long	Vice President-Nuclear Assurance	6/14/85
	/s/ R. P. Fasulo	Vice President-Administration	5/20/85
	/s/ R. W. Heward	Vice President-Rad. & Environ. Controls	6/14/85
	/s/ R. S. Renzi	Sr. Analyst Admin. Proj./Org. Policy	5/20/85
	John O Barnes	Responsible Technical Reviewer	7/17/85
Approved by	H Hukuse	Office of the President	7/17/85

FORM 1000 ADM 1218.01 1 (11 82)

GPU Nuclear (GPUN) is responsible for the recovery of TMI Unit 2. The Quality Assurance Plan contained herein describes the formal and comprehensive plan which has been established to assure compliance with 10CFR50, Appendix B; 10CFR71, Subpart H; and applicable Regulatory Guides, 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 as 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 on site. 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 controls are generic and apply to all subsequent sections. Control of documents and records is 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 important to safety 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 measuring 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 the definitions of terms used throughout the Plan.

LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Content Changed	Page No.	Rev. No.	Content Changed	Page No.	Rev. No.	Content Changed	Page No.	Rev. No.	Content Changed
i	4-00	*	35.0	4-00		75.0	4-00	*	115.0	4-00	*
ii	4-00	*	36.0	4-00		76.0	4-00		116.0	4-00	
iii	4-00		37.0	4-00	*	77.0	4-00		117.0	4-00	
iv	4-00		38.0	4-00	*	78.0	4-00	*	118.0	4-00	
v	4-00	*	39.0	4-00	*	79.0	4-00		119.0	4-00	
			40.0	4-00	*	80.0	4-00		120.0	4-00	
1.0	4-00	*	41.0	4-00	*	81.0	4-00		121.0	4-00	
2.0	4-00	*	42.0	4-00	*	82.0	4-00		122.0	4-00	*
3.0	4-00	*	43.0	4-00		83.0	4-00	*	123.0	4-00	*
4.0	4-00		44.0	4-00		84.0	4-00		124.0	4-00	
5.0	4-00	*	45.0	4-00	*	85.0	4-00		125.0	4-00	
6.0	4-00	*	46.0	4-00		86.0	4-00	*			
7.0	4-00		47.0	4-00	*	87.0	4-00				
8.0	4-00	*	48.0	4-00	*	88.0	4-00				
9.0	4-00	*	49.0	4-00		89.0	4-00	*			
10.0	4-00		50.0	4-00		90.0	4-00				
11.0	4-00	*	51.0	4-00		91.0	4-00				
12.0	4-00	*	52.0	4-00		92.0	4-00				
13.0	4-00	*	53.0	4-00	*	93.0	4-00				
14.0	4-00	*	54.0	4-00		94.0	4-00	*			
15.0	4-00	*	55.0	4-00		95.0	4-00				
16.0	4-00	*	56.0	4-00		96.0	4-00	*			
17.0	4-00	*	57.0	4-00		97.0	4-00	*			
18.0	4-00	*	58.0	4-00	*	98.0	4-00	*			
19.0	4-00	*	59.0	4-00	*	99.0	4-00				
20.0	4-00	*	60.0	4-00		100.0	4-00				
21.0	4-00	*	61.0	4-00	*	101.0	4-00				
22.0	4-00	*	62.0	4-00		102.0	4-00	*			
23.0	4-00		63.0	4-00		103.0	4-00				
24.0	4-00	*	64.0	4-00		104.0	4-00				
25.0	4-00	*	65.0	4-00	*	105.0	4-00				
26.0	4-00	*	66.0	4-00		106.0	4-00				
27.0	4-00	*	67.0	4-00	*	107.0	4-00				
28.0	4-00		68.0	4-00		108.0	4-00				
29.0	4-00	*	69.0	4-00		109.0	4-00				
30.0	4-00		70.0	4-00		110.0	4-00				
31.0	4-00		71.0	4-00		111.0	4-00				
32.0	4-00		72.0	4-00		112.0	4-00				
33.0	4-00	*	73.0	4-00		113.0	4-00	*			
34.0	4-00	*	74.0	4-00		114.0	4-00				

RECORD OF REVISIONS

Rev.	Effective Date
0	07/14/80
1	09/01/82
2	01/19/83
2A	02/16/83
3	03/16/84
4-00	11/01/85

* INDICATES PAGES CONTAINING CONTENT CHANGES IN THIS REVISION.

Policy

It is the policy of GPUN to conduct recovery activities at TMI-2 in such a manner as to ensure the safety and health of the public and the personnel on site. To implement this policy, GPUN will meet the applicable quality assurance requirements of the Nuclear Regulatory Commission as presented in the Code of Federal Regulations and applicable Regulatory Guides, codes and standards; the ASME Boiler and Pressure Vessel Code as applicable to the State of Pennsylvania; other pertinent federal, state and local quality assurance regulatory requirements; and the GPUN corporate policies.

To comply with these requirements, the Office of the President has authorized the establishment of a formal and comprehensive Quality Assurance Program. This Program, which is described in the following sections, shall be implemented through documented and approved policies, procedures and instructions which comply with this Plan.

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

Responsibilities

The general structure of the organizational elements responsible for the recovery of TMI-2 is illustrated in Figure 1. This organization chart identifies those functions normally located on site and off site. The GPUN Organization Plan sets forth specific responsibilities and the implementing procedures identify the interface requirements.

1.1 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 Director - TMI-2
Director - Technical Functions
Director - Nuclear Assurance
Director - Administration
Director - Radiological & Environmental Controls

1.2 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.

1.3 Office of the President

The President and the Executive Vice President constitute the Office of the President. The two officers work in close co-operation 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.

1.4 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 this 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 in Figure 2. The Office of the Director - TMI-2 is responsible to operate and conduct recovery operations of TMI-2 in a safe, environmentally sound, reliable and efficient manner in accordance with corporate policies and all applicable laws, regulations, licenses, and technical requirements. This includes design and construction of required facilities. The Office of the Director - TMI-2 is responsible for the following major functions:

a. Direct and control the plant decontamination and recovery programs, including the design and construction of required facilities.

b. Provide and maintain a qualified staff.

c. Operate and maintain all systems and equipment required for decontamination and recovery of systems in a safe, reliable and efficient manner.

d. Direct all licensing matters related to TMI-2.

e. Provide safety review of significant procedures, plans and design changes independent of Engineering and Operation Groups.

f. Provide risk assessment of all major TMI-2 activities.

g. Establish cardinal dates for plant evolution, decontamination and recovery activities.

h. Control the scope of work in the plant.

i. Define and establish priorities for the preventive and corrective maintenance and refurbishment work needed to ensure needed materiel condition.

j. Establish and maintain plans and schedules, policies, procedures, standards and practices for the Division.

k. Develop, gain approval, and operate within approved annual budget, annual operating plan, and the multi-year strategic plan.

l. Establish day to day priorities for plant support.

m. Develop and maintain effective consultation and advice with other Divisions to help assure efficient functioning of GPU Nuclear.

The Office of the Director - TMI-2 gives full support 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.

The office of the Director - TMI-2 utilizes the following management staff members in carrying out his responsibilities:

Site Operations Director
Manager - Recovery Programs
Director Licensing and Nuclear Safety
Technical Planning Director
Manager Government and Industry Programs
Manager Program Controls

1.4.1 Site Operations Director

The Site Operations Director is responsible to conduct plant operations, maintenance and engineering at TMI-2 in a safe, reliable and efficient manner consistent with corporate requirements and in compliance with all applicable laws, licenses, regulatory and technical requirements.

The major functions of Site Operations are to:

a. Conduct plant operations and maintenance activities to provide for efficient recovery in a manner consistent with license, regulatory and corporate requirements.

b. Direct the implementation of preventive and corrective maintenance programs including the prioritization to assure the plant is maintained in a safe, efficient and reliable manner.

c. Direct the operation of Radioactive Waste Facilities including the conduct of the Radioactive Material On-Site Movement and Shipment Programs.

d. Coordinate with Recovery Programs, Technical Planning, Administration and Radiological Control to assure proper support and control of activities, is achieved with respect to plant operations.

e. Follow Technical Specifications compliance.

1.4.2 Manager - Recovery Programs

The Manager - Recovery Programs reports to the Office of the Director - TMI-2 and is responsible to provide 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 of existing facilities required for recovery. Activities shall be conducted in a safe, reliable and efficient manner and in compliance with all applicable laws, licenses, regulating and technical requirements.

The Design Engineering organization is located in the Bechtel office in Gaithersburg MD and performs their activities in accordance with the Bechtel Nuclear Quality Assurance Plan for TMI-2. This plan, and all revisions thereto, are reviewed and approved by the GPUN Director - Quality Assurance and the Office of the Director TMI-2.

The major functions of the Recovery Programs Office are to:

a. Direct and control TMI-2 recovery through the decontamination and cleanup of buildings and spaces and the construction of required support facilities in a safe and efficient manner.

b. Direct and control the activities required to remove the damaged core from the reactor including the construction

of required support facilities in a safe and efficient manner.

c. Provide technical support services to Site Operations for modification to existing plant systems and structures.

d. Direct Engineering services, including configuration control of systems, structures and components, in support of Site Operations.

e. Direct the maintenance of the master recovery cost and schedule and attendant performance measurement systems for the Recovery Program Office scope of work.

1.4.3 Director Licensing and Nuclear Safety

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

a. Provide primary interface with NRC and provide Licensing services for TMI-2.

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

The major functions of the Director Licensing and Nuclear Safety are to:

a. Act as interface with the NRC on licensing matters related to TMI-2.

b. Responsible for preparation and/or coordination of responses to NRC including I&E bulletins, circulars, notices and inspections.

c. Provide systems for control of Licensing Basis Documents-technical specifications, SAR, Technical Evaluation Reports, System Descriptions, and License.

d. Negotiate, within limits established by management, with NRC on requirements, schedules, or commitments.

e. Coordinate the evaluation and reporting of responsible items under technical specifications, NPDES permits (as assigned), 10CFR21, 10CFR50.55(e), or other regulations or licenses.

f. Provide principal interfaces with NRC's Inspection and Enforcement inspectors and resident inspectors. Resolve issues in apparent conflict with licensing or permit documents or TMI-2 licensing positions.

g. Perform independent safety review of Review Significant procedures, design changes, tests, experiments, and proposed activities.

h. Review audits performed by QA in specified areas and make appropriate recommendations.

i. Provide for the technical assessment of fire protection.

j. Prepare Licensee Event Reports and investigate same.

k. Follow Recovery Operations Plan surveillance, results review and trend analysis.

l. Generally review all TMI-2 activities from a safety perspective.

1.4.4 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 and Site Operations Department, in the form of technical plans which detail the approach to be employed, functional criteria, sequences, priorities, and objectives of major recovery steps.

The major functions of the Technical Planning Director are to:

a. Identify, prepare, issue and routinely update technical plans needed for recovery. Ensure that these plans are concise, quantitative and practically useful documents.

b. Identify, cause to be resolved, and document resolution of key technical decisions related to recovery planning.

c. Establish functional criteria applicable to major recovery steps.

d. Manage the acquisition, evaluation, recording and reporting of technical data applicable to recovery.

e. Review recovery scheduling activities as necessary to ensure that planning requirements (sequences, priorities, and the like) are appropriately reflected therein.

f. Interact closely with Recovery Programs and other TMI-2 Departments to ensure that technical planning is useful and constructive in the overall recovery effort.

g. Serve as the primary technical interface with the Technical Assessment and Assistance Group (TAAG).

1.4.5 Manager Government and Industry Programs

The Manager Government and Industry Programs reports to the Office of the Director TMI-2 and is responsible to:

a. Provide coordination and overview functions in connection with government and industry sponsored programs at TMI-2.

b. Develop a broadened base for financial support of the TMI-2 recovery and improved methods for transfer of outside funding into the GPUNC work effort.

c. Maintain technical interface with the worldwide external community in order to benefit from the expertise available in such organizations, and to ensure that the valuable experience gained during the recovery is disseminated appropriately.

d. Maintain interface and provide support to the Safety Advisory Board and other such advisory/assistance groups as required.

The major function of the Manager Government and Industry Programs is to direct the interface with sponsors of government and industry/funded programs including coordination of proposal preparations and overview of performance.

1.4.6 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.

The major functions of Program Controls are to:

a. Provide management of Program Plans and Summary Schedules.

b. Coordinate Program Plan Estimates, Budgets and Costs.

c. Provide administrative support to the Office of the Director - TMI-2.

d. Coordinate administrative activities between the TMI-2 Division and the Administration Division in the area of Information Management, Materials Management, Human Resources, and Security.

e. Prepare and issue summary Program Plan Management Reports internal/external.

f. Provide Program Controls, Policies/Methods/Procedures and administer their execution.

1.5 Director - Technical Functions

The Director - Technical Functions reports directly to the Office of the President and, with regard to TMI-2, is responsible for providing, when requested, technical support of the recovery effort.

1.6 Director - Nuclear Assurance

The Director - Nuclear Assurance reports directly to the Office of the President and is responsible to ensure that an appropriate Quality Assurance Program whose scope covers all the systems and activities that affect safety and reliability is established, implemented and verified in accordance with corporate Policies, applicable laws, regulations, licenses and technical requirements; selectively review both nuclear station and corporate activities with the aim of identifying areas where changes could lead to improvements in the nuclear safety and/or reliability of plant operations; provide training and education of corporation personnel as needed to carry out their duties and to meet corporate policies and all applicable laws, regulations, licenses and technical requirements; assure that a high level of emergency preparedness is maintained in accordance with corporate policies and all applicable laws, regulations, licenses and technical requirements. The Director - Nuclear Assurance has direct access to the GPU Nuclear Board of Directors for reporting on issues with substantial safety implications. The major functions of the Nuclear Assurance Division with regard to TMI-2, are as follows:

a. Establish and maintain plans and schedules, policies, procedures, standards and practices for the Division.

b. Provide and maintain qualified staff.

c. Develop, gain approval and operate within approved annual budget, annual operating plan, and the multi-year strategic plan.

d. Audit, monitor, inspect, evaluate and assure that all activities having the potential for compromising nuclear safety are adequately addressed.

e. Develop and implement necessary training programs.

f. Develop the site emergency plans, implement procedures and plans, conduct and evaluate emergency drills.

g. Develop and maintain effective consultation and advice with other divisions to help assure efficient functioning of GPU Nuclear.

The Director - Nuclear Assurance 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.

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

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

1.6.1 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 Director - Nuclear Assurance. Additionally, he has direct unencumbered access to the Office of the Director - TMI Unit 2 and the President of GPUN 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 the authority and responsibility to:

a. Develop and administer the Recovery Quality Assurance Plan and procedures required to assure that all GPUN activities provide the required high degree of safety and reliability.

b. Audit, monitor, inspect and evaluate activities of GPUN to assure that they provide the required high degree of safety and reliability and are carried out in accordance with all applicable laws, regulations, licenses, corporate policies and other requirements.

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

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

e. Stop work on nonconforming materials or activities if:

   - o it is the only process available to protect the health and safety of the public and/or plant personnel;
   - o its continuance will require significant rework or repair to backfit corrective action;
   - o its continuance may jeopardize nuclear safety;
   - o its repetitive failure to comply with program controls constitutes a significant QA Program deficiency.

f. Direct and manage the Quality Assurance Department.

The major functions of the Quality Assurance Department include the following:

a. Develop the Recovery Quality Assurance Plan and procedures necessary to fulfill GPUN QA responsibilities.

b. Provide for the review and acceptance of Contractor and Vendor Quality Assurance Programs within the scope of this Quality Assurance Program.

c. Provide for the review and acceptance of procedures prepared by other than QA organizations within the scope of the Quality Assurance Program.

d. Provide a working interface and communication with the TMI-2 organizations, contractors, vendors, and others with respect to QA matters. Additionally, in conjunction with the licensing organization provide a working interface and communications with the NRC with respect to QA matters.

e. Provide for the monitoring and evaluation of the implementation and effectiveness of the QA Program by means of:

Review	Surveillance
Survey	Monitoring
Audit	Inspection

of all organizations, contractors, and vendors for all important to safety activities.

f. Establish with Training and Education Department the scope and content of an indoctrination and training program for QA and QC personnel.

g. Stop work or further processing, delivery or installation or take other warranted actions on nonconforming materials or activities.

h. Immediately notify the Office of the President and the Office of the Director TMI-2 of any significant quality related problem or deficiency or repetitive failure to comply with program controls which constitute a significant QA Program deficiency.

i. Assure QA indoctrination of appropriate personnel outside of the QA organization is provided.

j. Issue periodic reports to the Office of the Director TMI-2 and the Director - Nuclear Assurance, on the

status of quality activities, and bring to their attention immediately any significant quality-related problem or deficiency.

k. Provide for QA review and acceptance of design and engineering documents.

l. Provide for QA review and acceptance of procurement documents within the scope of the program.

m. Provide for and maintain QA records generated by QAD until turnover to document control for storage.

The Director - Quality Assurance utilizes the following management staff members in carrying out his responsibilities:

- Manager - Quality Assurance Design and Procurement
- Manager - TMI Quality Assurance Modifications/Operations
- Manager - Quality Assurance Program Development and Audit
- Manager - Special Processes and Programs

1.6.1.1 Manager - Quality Assurance Design and Procurement

The Manager - Quality Assurance Design and Procurement is responsible to:

a. Review and approve contractor and vendor quality programs for those supplying Important-to-Safety services or items.

b. Review and accept design control procedures prepared by other organizations when these procedures control or exercise an effect upon Important-to-Safety systems, components or activities.

c. Perform the necessary post-award quality related activities, including post-award surveys and source surveillance, in compliance with this Quality Assurance Program.

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

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

1.6.1.2 Manager - TMI Quality Assurance Modifications/Operations

The Manager - TMI Quality Assurance Modifications/Operations is responsible for the following:

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. Coordinate and direct QAD activities at TMI-2.

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

e. Provide nondestructive examination support for modifications, maintenance and investigative activities in support of the recovery program.

f. Notify the Office of the Director TMI-2 and the Director - Quality Assurance immediately of any condition, as defined in the appropriate QAD procedures, that warrants stop work.

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

h. Review site procedures for compliance with the requirements of the QA Program.

The Manager - TMI Quality Assurance Modifications/Operations reports directly to the Director - Quality Assurance and periodically reports on the implementation and effectiveness of the Quality Assurance Program to the Director - TMI-2 and the Director - Quality Assurance. The Manager - TMI Quality Assurance Modifications/Operations has the authority to stop work on all important-to-safety activities associated with this Quality Assurance Program.

1.6.1.3 Manager - Quality Assurance Program Development and Audit

The Manager - Quality Assurance Program Development and Audit is responsible to:

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

b. Coordinate the development and administration of the QAD 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; initiate, recommend or provide solutions through designated channels; and verify implementation of the resolutions.

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

1.6.1.4 Manager - Special Processes and Programs

The Manager - Special Processes and Programs is responsible to:

a. Direct and supervise the GPUN organizations which have the responsibility for welding, NDE and ISI programs.

b. Develop the ISI program for TMI-2, excluding IST, hydro testing, leak testing and functional tests.

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

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

e. Provide support related to manufacturing and systems materials technology problems.

f. Develop and implement certification program for GPUN NDE personnel.

g. Review and approve contractor NDE programs and procedures.

h. Develop a comprehensive program of administrative controls and technical requirements for NDE activities.

The Manager - Special Processes and Programs, through a full-time staff of qualified engineering personal at both the corporate and Site Offices, establishes and implements the engineering and technical requirements for welding, ISI and NDE programs for GPUNC. The Special Processes and Programs activities provide effective interfaces and technical support efforts with and for other GPUNC Divisions.

1.6.1.5 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 Assurance Department Section and Sub-section Managers 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 of related experience.

1.6.2 Director - Training and Education

The Director - Training and Education reports directly to the Director - Nuclear Assurance. He has the overall authority and responsibility for providing training of corporation personnel, as needed, to carry out their duties and to meet corporate policies and all applicable laws, regulations, licenses and technical requirements. The Director - Training and Education is responsible for the following major functions:

a. Develop and implement all necessary general employee, operator, technician and management training programs.

b. Ensure the integrity, control and administration of the Training Program and the existence of, and compliance with, the policies and requirements of this QA Plan.

1.6.3 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 NSAD will have access to documents and reports including those identifying conditions adverse to quality (audit reports, nonconformance reports, surveillance/inspection reports, reportable occurrences, NRC inspections, etc.).

An independent office of Ombudsman is located within the NSAD. This office is available to all members of the corporation having a concern for nuclear or radiation safety.

The major functions of the NSAD at Unit 2 are to:

a. Serve as an Office of Ombudsman for all members of GPUN having a concern for nuclear plant or personnel radiation safety.

b. Provide staff support for the General Office Review Board as required.

1.6.4 Manager - Emergency Preparedness

The Manager - Emergency Preparedness is responsible to assure that TMI Emergency Plans and Preparedness are in accordance with corporate policies and all applicable laws, regulations, licenses and technical requirements. Additionally, he is to

provide support and guidance in the Emergency Planning area for the Three Mile Island station and to 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 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 the Three Mile Island stations' Emergency Plan is consistent with the latest requirements of the NRC and with the FEMA-approved Pennsylvania 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. Preparation and submittal of comments will be coordinated through the Director Licensing and Nuclear Safety.

1.7 Director - Administration

The Director - Administration reports directly to the Office of the President. He is responsible to establish and implement uniform policies and programs in Materials Management, Human Resources, Security, Operations Analysis, Information Management and Strategic Planning to help achieve Company objectives in accordance with corporate policies and all applicable laws, regulations, licenses and technical requirements. With regard to TMI-2 the Administration Division is responsible for the following major functions:

a. Provide contracting, procurement, warehousing and inventory control services.

b. Provide and maintain a qualified staff.

c. Develop and administer the security program.

d. Develop and administer a comprehensive Human Resources Management function.

e. Provide Operations Analyses.

f. Develop and coordinate GPUN's strategic planning process including issue management, and assure its integration with other levels of planning within the company.

g. Manage GPUN information management centers and coordinate GPUN policies and procedure system.

h. Establish and maintain plans and schedules, policies, procedures, standards and practices for the Division.

i. Develop, gain approval and operate within approved annual budget, annual operating plan, and the multi-year strategic plan.

j. Develop and maintain effective consultation and advice with other Divisions to help assure efficient functioning of GPU Nuclear.

The Director - Administration is assisted in the performance of these responsibilities at the site by individuals with assigned responsibility for security, contracting, procurement, warehousing, information management, and document control.

The Director - Administration 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.

The Director - Administration utilizes the following management staff members in carrying out his responsibilities:

Director - Materials Management
Director Security
Manager Information Management Centers

1.7.1 Director - Materials Management

The Director - Materials Management is responsible to provide contracting and procurement, contract administration, warehousing and inventory control services to TMI-2.

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.

1.7.2 Director Security

The Director Security is responsible to develop and administer security 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:

- Insure that TMI-2 is adequately protected against acts of sabotage, arson, theft and civil disturbances.

- Develop and execute plans and procedures for the physical security of TMI-2.

- Provide liaison to regulatory agencies.

- Implement company and NRC rules and regulations.

- Assure all non-company employees and contractors are properly screened for unescorted access to the facility.

- Provide access control through the use of security surveillance equipment.

- Provide physical access control and carry out search requirements.

- Plan defenses for civil disturbances and demonstrations.

- Investigate all security incidents.

1.7.3 Manager Information Management Centers

The Manager Information Management Centers is responsible for the following major functions:

a. Implement and maintain New Information Systems.

b. Provide necessary management, documentation and correspondence control to meet corporate requirements and satisfy ANSI Standard requirements as committed to in Appendix C of the Plan.

c. Manage corporate and plant libraries as required.

d. Establish, maintain and coordinate GPUN corporate administrative policies and procedures.

e. Provide configuration control support.

1.8 Director - Radiological and Environmental Controls

The Director - Radiological and Environmental Controls reports directly to the Office of the President. He is responsible for the establishment and implementation of uniform health, safety, 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 and licenses. With regard to TMI-2 the Radiological and Environmental Controls Division is responsible for the following major functions:

a. Establish and maintain corporate level policies, procedures, standards and practices relating to health, safety, medical, radiological and environmental activities.

b. Provide and maintain a qualified staff.

c. Establish and maintain plans and schedules, policies, procedures, standards and practices for the Division.

d. Provide the personnel, procedures and administrative controls to implement the plant health, safety, medical, radiological and environmental protection programs.

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

f. Provide professional medical and radiological guidance.

g. Provide administrative and technical guidance applicable to industrial safety, occupational health, environmental protection, environmental monitoring and NPDES.

h. Develop and administer industrial safety programs.

i. Develop, gain approval and operate within approved annual budget, annual operating plan, and the multi-year strategic plan.

j. Develop and maintain effective consultation and advice with other divisions to help assure efficient functioning of GPU Nuclear.

k. Coordinate company activities at Saxton.

The Director - 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.

The following management staff is utilized in carrying out the responsibilities of the Radiological and Environmental Controls Division:

Safety and Environmental Controls Director
TMI-2 Radiological Controls Director
TMI Radiological Assessment Department
Medical Director

1.8.1 Safety and Environmental Controls Director

The Safety and Environmental Controls Director reports directly to the Director - Radiological and Environmental Controls. He is responsible for all environmental, and industrial safety and health matters at Three Mile Island. This is accomplished through the implementation of all monitoring and study requirements of USNRC, USEPA, and PaDEP as contained in Appendix B of the Environmental Technical Specifications, the National Pollutant Discharge Elimination System permits, OSHA, NIOSH and other company commitments.

The major functions of the Safety and Environmental Controls Department are:

a. Perform Radiological Environmental Monitoring Programs to assess impact of radiological releases on surrounding populations.

b. Operate and maintain the meteorological towers.

c. Assess the impact of plant operation on terrestrial and aquatic life.

d. Monitor depth of water in adjacent rivers and bays to ensure sufficient cooling water and determine if navigability has been affected by plant operation.

e. Conduct other environmental monitoring and reporting and assure corporate compliance with appropriate Environmental Regulations and Licensing requirements.

f. Support corporate attorneys in civil and administrative environmental hearings.

g. Industrial Safety and Health systems, surveys, equipment, training and implementation of policy procedures, OSHA, NIOSH and other commitments.

1.8.2 TMI-2 - Radiological Controls Director

The TMI-2 - Radiological Controls Director reports directly to the Director - Radiological and Environmental Control. He is responsible for the implementation of the TMI-2 Radiation Protection Plan and for monitoring and enforcing the implementation of all radiological control policies and procedures consistent with the requirements of the plan in support of the TMI-2 operations, maintenance and recovery effort.

The major functions of the Radiological Controls Department are as follows:

a. Control external exposure through the administration of a Dosimetry Program.

b. Control internal exposure through administration of a Respirator Protection, Bioassay and Whole Body Counting Program.

c. Control radioactive contamination.

d. Control radioactive materials.

e. Perform reviews of the Radiological Controls Program.

f. Maintain procedures to ensure exposure to workers and the general population is as low as reasonably achievable.

g. Assure corporate compliance with appropriate Radiological Regulations and Licensing requirements.

h. Train and qualify TMI-2 radiological technicians in Radiological Control Procedures and techniques. Approve radiological training of others.

i. Provide dosimetry program services for both TMI-1 and TMI-2.

j. Provide respirator protection, bioassay, and whole body counting services for TMI-1 and TMI-2.

k. Maintain and calibrate all radiological equipment used by the TMI-1 and TMI-2 Radiological Controls Department.

l. Stop work not being accomplished in accordance with appropriate Radiological Control practices and procedures when deemed appropriate.

m. Support plant operations and provide extra support during the recovery effort.

1.8.3 TMI Radiological Assessment Department

A Radiological Assessment Department is provided at Three Mile Island. The department performs independent analysis of the implementation of the radiological controls program and radiological control practices at the station. The major functions of the department are to:

a. Conduct frequent tours in areas where radiological work is being performed.

b. Review compliance with Federal Regulations, license requirements and radiological control procedures.

c. Prepare periodic radiological assessment reports for management.

d. Review radiological work practices for ALARA considerations.

e. Stop work not being accomplished in accordance with appropriate Radiological Control practices and procedures when deemed appropriate.

1.8.4 Medical Department

The Medical Department is responsible for the direction of the GPU Nuclear Medical Program. This includes direction of contract physicians and GPU Nuclear medical personnel as well as provision of professional medical guidance and participation in radiological matters. The major functions of the Medical Department are to:

a. Recommend sound medical policies for conduct of business by GPU Nuclear Corporation.

b. Direct and implement the GPU Nuclear Medical Program, and certify professional qualifications of the medical staff.

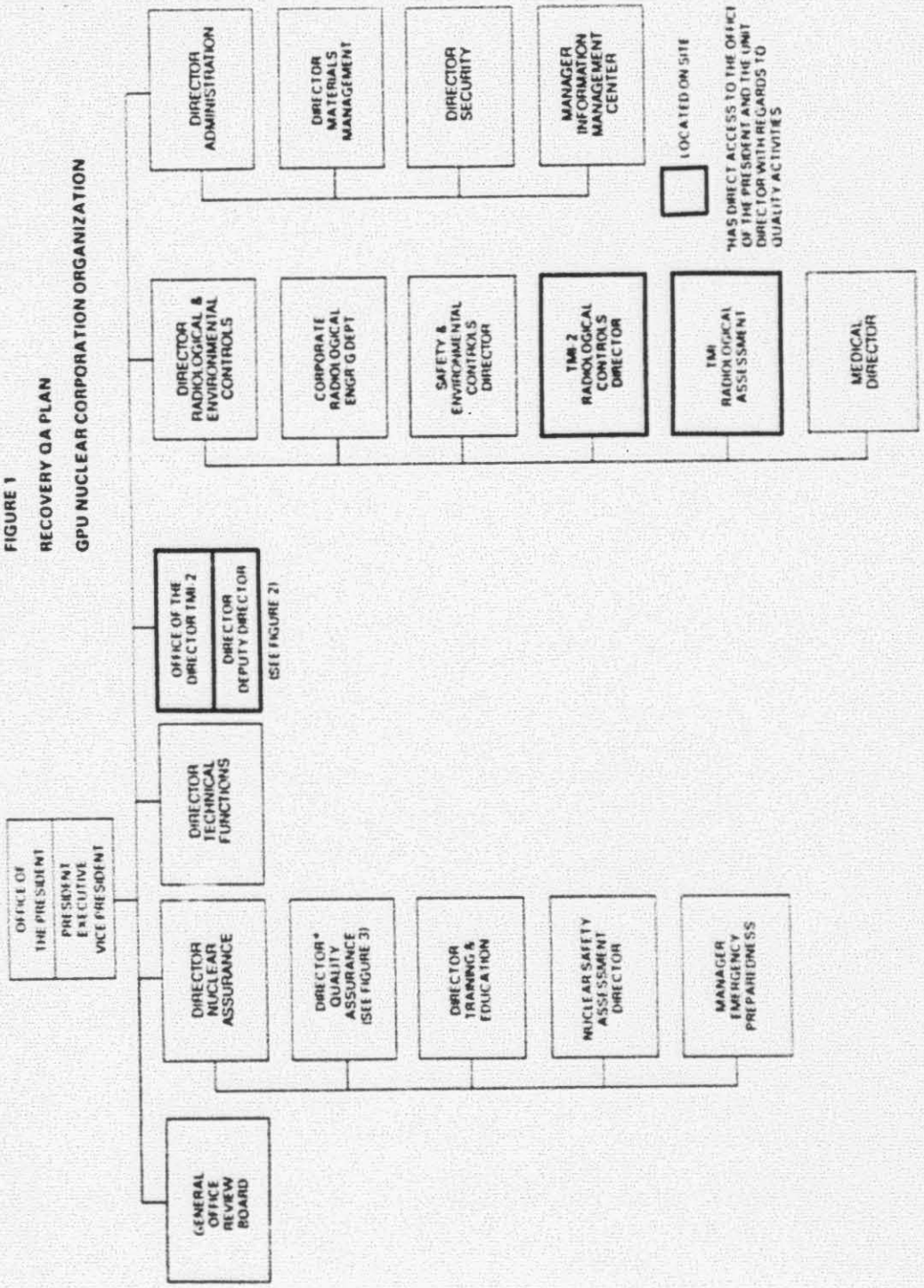
c. Provide medical guidance to the division directors in the medical aspects of radiation exposure and other occupational health hazards.

d. Establish and maintain technically clear and concise medical records.

FIGURE 1

RECOVERY QA PLAN

GPU NUCLEAR CORPORATION ORGANIZATION



GPU Nuclear

RECOVERY QUALITY ASSURANCE PLAN

Title: 1.0 ORGANIZATION

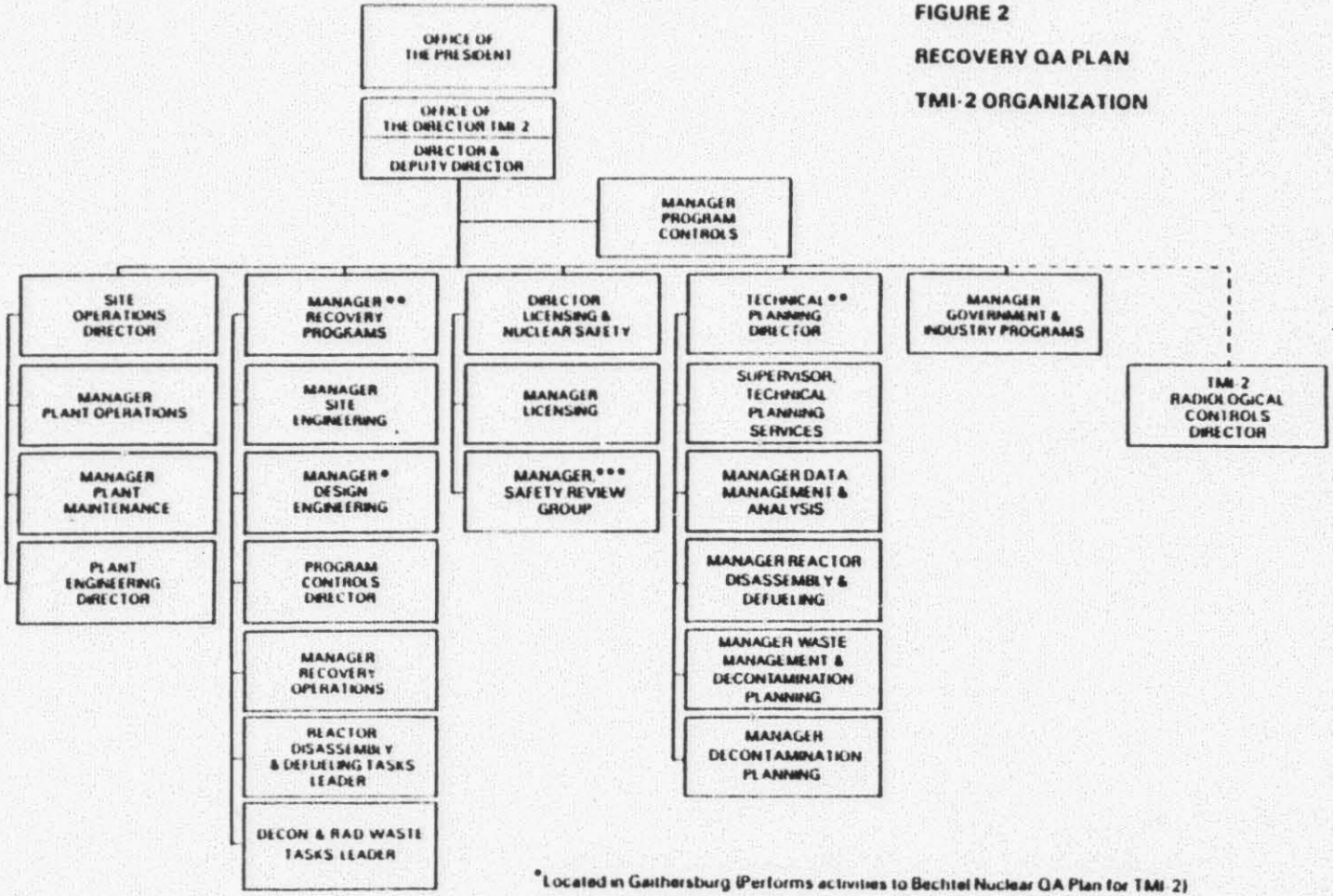
Number: 1000-PLN-7200.02

Revision No: 4-00

FIGURE 2

RECOVERY QA PLAN

TMI-2 ORGANIZATION



*Located in Gaithersburg (Performs activities to Bechtel Nuclear QA Plan for TMI 2)

**The offices of the Manager, Recovery Programs and Technical Planning Director include a Deputy

***In cases of disagreement, has direct access to the Office of the President on matters of safety significance

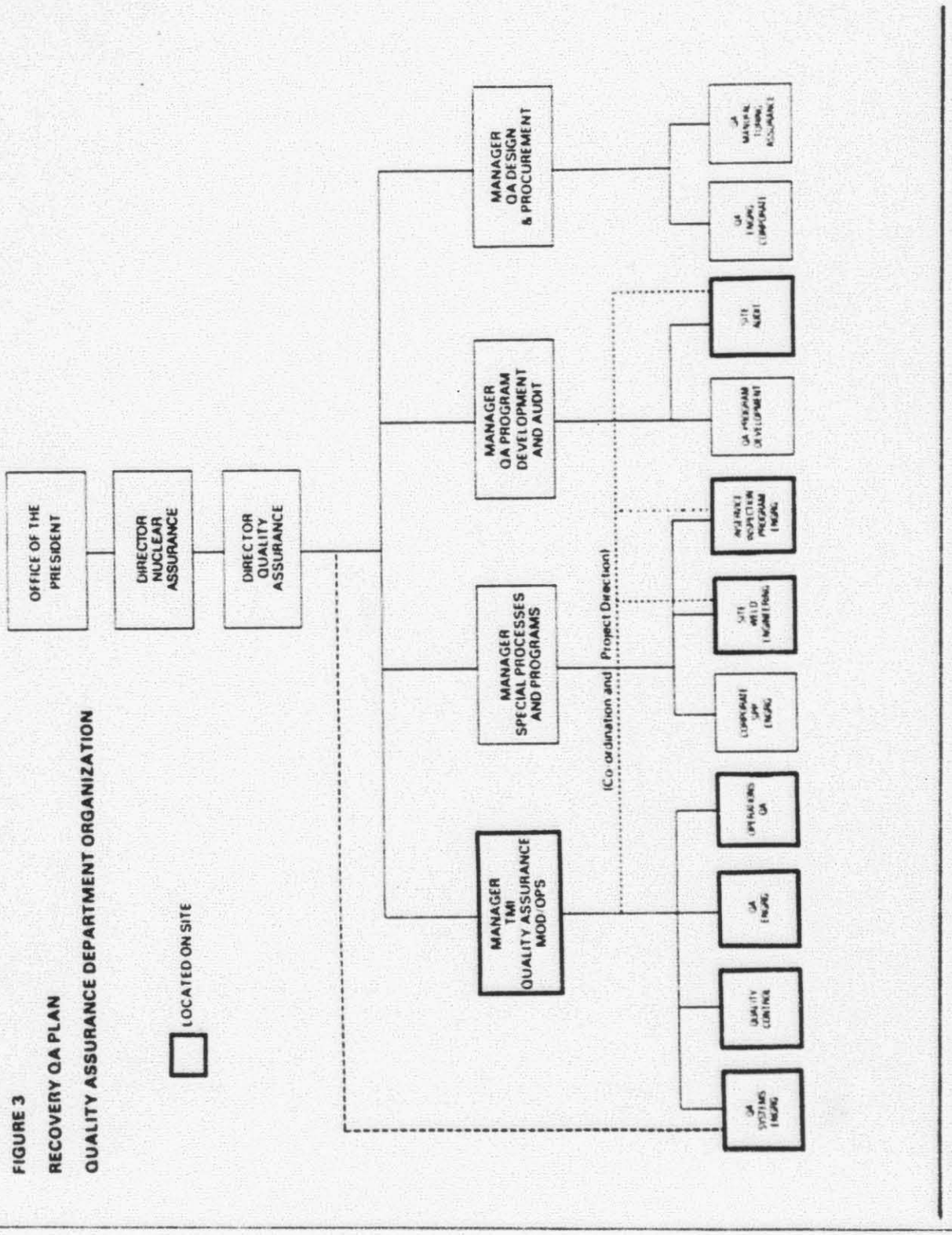


FIGURE 3

RECOVERY QA PLAN

QUALITY ASSURANCE DEPARTMENT ORGANIZATION

FORM 1000 ADM 1218.01 4/11 82

A0001050 11 82

Policy

2.1 General

The GPUN 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 Recovery 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, which cannot be resolved at the Department or Section level, regarding interpretation or implementation of this Plan shall be promptly reported to the Director - Quality Assurance for resolution.

2.2 Scope

The scope of the GPUN Recovery Quality Assurance Program includes all items and activities applicable to the recovery, operation and maintenance of TMI-2 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 Protection. 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, Subpart H "Quality Assurance for Shipping Packages for Radioactive Material"

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

e. United States Nuclear Regulatory Commission Regulatory Guide 1.143 "Design Guidance for Radioactive Waste Management Systems, Structures and Components Installed in Light Water Cooled Nuclear Power Plants"

f. U. S. Nuclear Regulatory Commission Regulatory Guide 1.29 "Seismic Design Classification" and the seismic aspects of components which have impact on items important to safety

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

Appendix A provides a comparison of the sections of this Plan with the requirements of 10CFR50, Appendix B; 10CFR71, Subpart H; ANSI N18.7; and ANSI N45.2.

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

2.2.1 Activities which are Important to Safety shall include, but not be limited to:

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

b. The requirements of other Regulatory Guides applicable to operations, maintenance, modification, repair, radwaste shipments and operation of radwaste systems of TMI-2 as identified in Appendix C herein.

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

d. Those activities related to Plant Security as covered by Title 10, Code of Federal Regulations, Part 73.55 "Requirements for Physical Protection of Licensed Activities in Nuclear Power Plants Against Industrial Sabotage."

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

f. Those activities associated with decontamination and damage assessment.

2.3 Recovery Quality Assurance Plan

This Recovery Quality Assurance Plan is the primary document which establishes the policies, goals and objectives of the Program. This Plan is authorized by the Office of the President and requires that the appropriate levels of management, as designated herein, implement the Program. This Plan is controlled to assure that only the latest approved revision is implemented. This Plan is implemented through approved detailed procedures and instructions.

With the exception of the Organization, Section 1.0, and the QA Program, Section 2.0, each section of this Plan contains three major subsections:

Policy--A summary description of the policy of GPUN regarding the specific subject of the section.

Requirements--A description of the requirements applicable to the specific subject of the section.

Responsibilities--Identification of those organizations and their responsibilities relative to the specific subject of the section.

The purpose of this Plan is to establish the principles which, when implemented, will provide that level of quality assurance which is appropriate to each 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.

2.3.1 Graded Approach

2.3.1.1 Application

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 department and concurred with by the Quality Assurance Department for those items which are Important to Safety.

2.3.1.2 Verification

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.

Level I - Activities at this level consist of inspections, checks and tests. First-level activities include independent inspections, checks, or tests performed for the purpose of establishing acceptance and/or verification of equipment, systems and activities Important to Safety. 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. Level I activities are performed by Quality Assurance, Operations, Recovery Programs, Radiological Controls, and contractor personnel.

- Operations, Recovery Programs and Radiological Controls personnel perform activities such as surveillance tests, calibration of instruments, radiation surveys, analyses of samples, valve line-ups, pump and valve maintenance and overhaul, inspections of the reactor internals and fuel, etc.

- Quality Control personnel perform receipt inspection and checks and inspections of modifications and maintenance activities.

- Contractors perform inspections as applicable to their scope of work.

In all cases, the inspection, check and testing activities are performed by individuals who are knowledgeable of the activity being performed and are qualified to perform the work. Checklists, weld history records, travelers, etc., are used for documenting the results of the activity and for providing a record of the performance of the activity.

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 Sections. The level of surveillance/monitoring applied is consistent with the importance of the item to safety and the extent of administrative controls utilized for the Level I activity. For activities where GPUN Quality Control is performing first-level inspection, no second-level activity is 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.

Level III - The purpose of this level of activity is to assure, through a comprehensive program of review and auditing, that the first and second levels of the program are properly functioning. The purpose of this level is also to establish that all other organizations, including Operations, Maintenance, Engineering, Materials Management, etc., are properly satisfying all the requirements of the Recovery 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 shall be satisfied. Qualified audit personnel shall be utilized who 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.

2.3.2 Recovery Quality Assurance Plan Control

2.3.2.1 Approval

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

This Plan shall be approved by the Office of the President and shall be reviewed for concurrence by the following:

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

2.3.2.2 Revisions

The Director - Quality Assurance in conjunction with the Director Licensing and Nuclear Safety, shall for each revision to this Quality Assurance Plan, determine if the changes reduce or do not reduce the commitments previously accepted by the NRC.

Revisions to the Quality Assurance Plan that do not reduce the commitments to the NRC shall be approved by the Office of the President with the concurrence of the Director - Nuclear Assurance and submitted by the Director - Quality Assurance as indicated on an Approvals Page which shall be added to the manual behind the Cover Page. The Cover Page containing the approval and concurrence signatures of the Office of the President and the Division Directors shall be retained. Revisions of this type do not require approval by the NRC prior to issuance, but must be submitted to the NRC at least annually.

Revisions to the Quality Assurance Plan that reduce the commitments to the NRC shall be submitted to the NRC and receive NRC approval prior to issuance. Revisions shall be regarded as approved by the NRC upon receipt of a letter to this effect from the appropriate reviewing office or 60 days after submittal to the NRC whichever comes first. The submittal of the revision to the Quality Assurance Plan must include all pages affected by that change and must be accompanied by a transmittal letter identifying the change, and the basis for concluding that the revision continues to satisfy 10CFR50, Appendix B and the Safety Analysis Report quality assurance program description commitments previously accepted by the NRC (the letter need not provide the basis for changes that correct spelling, punctuation, or editorial items). A copy of this letter must be maintained as a facility record for three years. Revisions of this type shall be approved by the Office of the President, concurred with by the Division Directors and submitted by the Director - Quality Assurance as indicated by their signatures on a revised Cover Page.

2.3.2.3 Distribution

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

2.3.2.4 Effective Date of Implementation

Changes to this Plan shall be incorporated in the implementing procedures within 60 days of the issuance date of the Plan unless an interim action plan is defined and approved by the Director - Quality Assurance.

2.4 Quality Assurance Program Review

The effectiveness of the QA Program and its implementation is periodically reviewed by various organizations at various levels and the results of these reviews are documented in reports to the Office of the Director TMI-2, the Division Directors and the Office of the President for evaluation and corrective action as required. The effectiveness of the QA Program is evaluated and reported by the QA Department through the surveillance, monitoring and auditing functions. In addition, the QA Department periodically prepares evaluation reports on the Program effectiveness. Other divisions provide additional information/ evaluations as requested.

In addition to the reviews and evaluations performed by the QA Department, the Office of the President shall have, at least once per year, an independent assessment performed of the QA Program implementation to ensure that the activities meet the regulatory requirements and the policies of GPUN. This assessment may be performed utilizing the safety review groups, an independent consultant, representatives of other utilities and/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.

2.5 Indoctrination and Training

The GPUN Quality Assurance Program includes requirements for formal indoctrination and training programs of personnel performing or verifying activities Important to Safety. Training departments are established and staffed at the Corporate office and at the TMI site. These training departments are each responsible for planning, scheduling and providing training to GPUN personnel. The specific needs and the subject material to be covered in the indoctrination and training programs are established by both on-site and off-site 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 in the principles and techniques of the activities being performed. Training requirements will be established consistent with the importance to safety of the activity requiring qualification.

c. Proficiency is maintained by retraining, and/or reexamining.

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.

For personnel performing inspection, examination, and special processes, the qualification criteria shall be delineated to the techniques of inspection or items being inspected and the technical abilities of the person being certified will be consistent with the assigned tasks (e.g., electrical inspection, mechanical inspection, etc.).

2.6 Classification

2.6.1 General

The significance of an item or activity to an Important to Safety function shall be considered in its classification. Procedures shall be prepared, at the Corporate and/or Division levels, which establish the requirements for identification and control of classification of Important to Safety items and activities. These procedures shall be reviewed and concurred with by the Quality Assurance Department prior to issuance.

Procedures, or portions thereof, for controlling Important to Safety activities shall be identified as such. Systems and major components, but not parts thereof, which are Important to Safety will be identified on a Quality Classification List (QCL). A QCL will be established and maintained, by Recovery Programs. The classification of the systems and components on the QCL will be subject to independent design verification by Recovery Programs.

For procurement of spare or replacement parts, where there is a change to a lower classification, the classification will be determined by Plant Engineering or Recovery Programs and concurred with by Quality Assurance. The determinations will be documented and retained.

2.7 Regulatory Commitments

Records of commitments to regulatory requirements are maintained by Licensing and Nuclear Safety Department. Appendix C herein lists those Regulatory Guides which contain specific Quality Assurance requirements with the stated Company position, exceptions and/or clarifications. These must be complied with in conjunction with the QA Plan. Appendix C will be revised, as necessary, to reflect any change in the GPUN commitment to the Regulatory Guides. Licensing and Nuclear Safety Department is responsible for providing GPUN positions and interpretations on all other Regulatory Guides.

2.8 Safety Reviews

2.8.1 The safety review program involves three major elements:

2.8.1.1 The first element of the safety review program requires a review of each document by someone other than the individual doing the work. This review will be performed by a qualified Responsible Technical Reviewer (RTR) on all activities Important to Safety including design work or changes, plant operating, emergency and alarm procedures, radiological control procedures and plant maintenance procedures.

2.8.1.2 The second element of the safety review program is the Safety Review Group (SRG). The SRG is a full time organization with primary responsibility for Independent Safety Review and does not have line responsibility for operations or recovery. It is independent of the plant staff and reports to the Director Licensing and Nuclear Safety. This group will perform or arrange to have performed (by qualified individuals) safety reviews of all activities Important to Safety including those required by Technical Specifications and/or Organization Plan prior to implementation. In addition, the SRG may review, on a selective and overview basis, any items determined by an RTR and the cognizant department head not to be Important to Safety. These reviews may be performed at the discretion of the SRG, the Director Licensing and Nuclear Safety or the Office of the Director TMI-2. These reviews may be performed after implementation. An additional activity performed by SRG is the review of specified audits performed by Quality Assurance and recommending actions as a result of these reviews. Reports of these reviews shall be prepared, approved and then transmitted to the Office of the Director TMI-2 through the Director Licensing and Nuclear Safety and the management position responsible for the area reviewed. The SRG will be staffed by a full-time group of engineers, located on-site, each of whom shall have an academic degree in engineering or a physical science field and 5 years of professional level experience in the nuclear power field including technical supporting functions or 9 years of appropriate experience. Credit toward experience will be given for advanced degrees on a one-to-one basis up to a maximum of two years.

2.8.1.3 The SRG shall have access to the unit and unit records as necessary to perform its evaluations and assessments. Based on its reviews, the SRG shall provide recommendations to the Office of the Director TMI-2 through Director Licensing and Nuclear Safety.

2.8.1.4 The third element of the safety review program is the General Office Review Board. This is a group of senior level individuals with diverse backgrounds. It reports to and takes general direction from the Office of the President but has direct access to the Chief Executive Officer and the Board of Directors. Its charter is broadly defined to encompass all matters potentially affecting safety so as to foresee potentially significant nuclear and radiation problems.

2.8.2 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.

2.9 Responsibilities

2.9.1 Office of the President

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 10CFR50, Appendix B. This assessment shall be the combined result of:

a. Review of audit reports, periodic status reports, etc. on the effectiveness and implementation of the Quality Assurance Program.

b. Performance at least once a year of an independent assessment of the effectiveness of the Quality Assurance Program to assure that the Program meets regulatory requirements and the policies and directives of GPUN. This assessment may be performed utilizing the safety review groups, an independent consultant, representatives from other utilities and/or the President's own staff. Any corrective action which may be deemed necessary as a result of these assessments shall be formally identified and tracked through resolution.

2.9.2 Director - Nuclear Assurance

The Director - Nuclear Assurance has overall responsibility for establishment of the GPUN Recovery Quality Assurance Plan. He also has overall responsibility for establishment and management of the Nuclear Safety Assessment Department, the Quality Assurance Department, the Training and Education Department and Emergency Preparedness. He shall provide periodic status reports to the Office of the President on the effectiveness and implementation of the Quality Assurance Program.

2.9.3 Director - Quality Assurance

The Director - Quality Assurance has the responsibility for verifying the effective implementation of the Quality Assurance Program. He shall establish and implement a formally documented and procedurally controlled program to evaluate and report to the Director - Nuclear Assurance on the adequacy and continued effectiveness of the Quality Assurance Program. The basis for the evaluation reports to the Director - Nuclear Assurance includes reports of audits performed by the Quality Assurance Department or their agents; surveillance/monitoring of station activities performed by the site QA organizations; reports of evaluations, surveillance and audits of vendors; and quality trend analyses based on nonconformance and deficiency reports and reports of inspections, examinations, surveillance/monitoring and audits. Corrective actions shall be implemented by responsible management as deemed appropriate when analyses reveal adverse quality trends. These actions may involve specific actions to provide compliance with the Quality Assurance Program and may include follow-up system attribute audits and revision to the Quality Assurance Program. Implementation and close-out 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 Recovery Quality Assurance Plan and for ensuring that the Plan is modified and updated as standards, regulations, requirements and experience dictate. Proposed revisions to this 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 also responsible to provide the required training and qualification of QA Department personnel and the indoctrination and training of other GPUN personnel in the Quality Assurance Program.

2.9.4 Office of the Director - TMI Unit 2

The Office of the Director - TMI Unit 2 is responsible, via the Manager Recovery Programs, 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.

The Office of the Director TMI-2 is responsible via the Director Licensing and Nuclear Safety for performance of the Safety Review Group.

2.9.5 GPUN - Management

Management personnel in each department are responsible for the implementation of the Quality Assurance Program by their department or group, including the development of procedures, training and indoctrination of personnel and implementation of the Program on all Important to Safety activities.

2.9.6 External Organizations

Quality Assurance Programs and implementing procedures for suppliers or contractors providing materials and services for GPUN 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 Important to Safety activity.

2.9.7 Resolution of Disputes and Escalations

Resolution of disputes involving quality arising from a difference of opinion between QA/QC personnel and other organizations (engineering, procurement, manufacturing, construction, operation, maintenance, etc.) 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 achieved.

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. The Office of the Director TMI-2 shall make the decision on matters concerning plant safety.

The Director - Quality Assurance shall be responsible for evaluating deficiencies for trends. Significant or repetitive failures to comply with administrative, technical or operational Quality Assurance controls will be further evaluated to determine the safety significance of the condition. In these cases, management of the organization shall be notified of the condition and shall be afforded an opportunity to take appropriate corrective action. If this action is not taken, a Stop Work Notification will be issued.

3.1 Instructions, Procedures, Drawings and Policies

3.1.1 Policy

The GPUN Quality Assurance Program requires that activities Important to Safety be prescribed by documented procedures, instructions, and/or drawings and that these activities be accomplished in accordance with these documents. All user personnel must be indoctrinated to the above prior to implementation.

3.1.2 Requirements

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 to Safety activities have been satisfactorily accomplished.

b. Require approval and concurrence of responsible personnel prior to the initiation of the important to safety 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 and with sufficient number of copies to assure availability to responsible personnel.

g. Require that changes be documented and approved prior to being implemented.

h. Require that revisions be reviewed and approved by the same organizations that performed the original review and approval or by organizations designated by the originating organizations.

Measures shall be established to control and coordinate the approval and issuance of instructions, procedures and drawings including changes, which prescribe all Important to Safety activities. These measures shall include the requirements for review of the documents by the Quality Assurance Department. This review is to provide an independent verification that the documents 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 but are not limited to, operating and special orders, operating procedures, test procedures, equipment and material control procedures, maintenance or modification procedures, etc.

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. A revision of a procedure may constitute the above review provided the results of the review are documented.

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 Plan. They are responsible to assure that provisions are made for interface controls for internal and external lines of communications among participating organizations and technical disciplines. Where references are required to implement the procedure, they shall be so indicated along with the identification of the specific requirements of the references which are applicable to the procedure.

3.1.3.2 Quality Assurance Department (QAD)

The QAD shall review those administrative policies, procedures, and instructions which delineate the methods of complying with the requirements of this Plan.

When specified in procurement documents, contractor and vendor Quality Assurance Plans/Manuals, special process procedures, and inspection and test procedures shall be reviewed and approved by QAD prior to releasing the contractor or vendor to start work. Compliance shall be verified through the audit, surveillance/monitoring and inspection program.

3.1.3.3 External Organizations

Those activities Important to Safety which are performed by contractors, suppliers, 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 all Important to Safety activities. These procedures shall address all of the Important to Safety activities performed by GPUN, including, but not limited to the following:

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, analysis) 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. Quality Classification List (QCL)

q. GPUN 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. The user of documents is responsible for assuring that the latest issue of the document is being used to perform work, thus assuring that voided, superseded or obsolete documents are not used. Master lists which identify the current revision number of documents will be maintained to assist users. As an alternative to master lists, documents may be issued as controlled documents, and as such, shall be stamped "official copy" or "controlled copy." Holders of controlled documents or master lists are responsible for maintaining their assigned copies in a current status. Documents distributed for information only will not be considered current, and, as such, will not be used in performing an activity Important to Safety.

g. In the special case of documents containing information pertaining to plant security, provisions shall be made to prohibit unauthorized disclosure of certain safeguards information. These provisions shall include identification of the documents, restrictions on their distribution and storage in locked security storage containers.

3.2.3 Responsibilities

3.2.3.1 Director - Administration

Responsible to develop, maintain and administer GPUN Policies, Procedures and Plans including procedures for the control of documents and to establish and implement the GPUN Document Control Program.

3.2.3.2 Director - Nuclear Assurance

Responsible via the Director - Quality Assurance for the review and approval of GPUN Document Control Program procedures for quality assurance requirements and document control measures; and to evaluate the overall document control system effectiveness through review and audit.

3.2.3.3 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 GPUN 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 Quality Assurance records shall meet the following minimum requirements:

a. Design specifications, procurement documents, and GPUN procedures shall specify the records to be generated, supplied and maintained by or for GPUN including retention times. Typical records to be specified include operating logs, maintenance and modification procedures and related inspection results, reportable occurrences, inspection and verification procedures (excluding completed checklists when results are documented in a separate report), results of reviews, inspections, tests, audits, and material analysis; qualification of personnel, procedures, and equipment; other documentation such as calculations, design verifications, drawings, specifications, procurement documents, calibration procedures and reports; nonconformance reports; corrective action reports; and other records required by Technical Specifications.

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.

e. All records shall be legible and those required to be stored in the duplicate storage facility must be capable of being reproduced on commonly found copying equipment.

3.3.3 Responsibilities

3.3.3.1 Director - Nuclear Assurance

The Director - Nuclear Assurance is responsible via the Director - Quality Assurance, for:

a. Reviewing procedures for GPUN departments who perform activities related to the maintenance of Quality Assurance records.

b. Establishing a program for the identification, storage, retrieval, and maintenance of Quality Assurance records generated by QAD, until they are turned over for storage.

c. Performing planned and periodic audits to verify adequacy and implementation of Quality Assurance records requirements by both GPUN internal organizations and external organizations.

3.3.3.2 GPUN Division Directors and the Office of the Director TMI-2

Each Division Director and the Office of the Director - TMI-2 is responsible for:

a. The initiation, collection, maintenance, and storage of records in accordance with approved written procedures which conform to the requirements and policy of this section until such time as they are transferred to the Director - Administration for storage.

b. 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 by this Plan.

3.3.3.3 Director - Administration

The Director - Administration is responsible, via:
The Manager Information Management Centers, for:

a. The collection, maintenance, and storage of records in accordance with approved written procedures and instructions which conform to the requirements and policy of this section.

b. 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 by this Plan.

c. Establishing and implementing the GPUN 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 GPUN 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 at which time the records required by procurement documents are to be submitted to GPUN.

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, monitoring 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 and/or Engineering to provide the required degree of confidence in the adequacy of compliance of the vendor with the requirements of this section.

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

Design control measures require that:

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

4.2.2 The design bases, safety analysis, design regulations, codes and standards and Plant Technical Specifications including all amendments will be reviewed in the design process. They will be adhered to unless specific NRC approval of the changes is obtained.

4.2.3 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 and the suitability of commercial grade materials, parts and equipment to the application.

4.2.4 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.

4.2.5 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. In addition, any errors or deficiencies resulting from the application or use of the design documents shall be identified and corrected.

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

4.2.7 Review of standard "off the shelf" commercial materials, parts, and equipment for suitability of application to structures, systems, and components Important to Safety shall be conducted prior to selection.

4.2.8 Design verification methods (design review, alternate calculations or qualification testing) shall be established.

4.2.9 Design verification procedures shall be established which assure the following:

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

b. Verification shall be complete prior to turnover of the component or system to Operations.

c. Design documents subject to procedural control include, but are not limited to, specifications, calculations, computer programs, system design descriptions and drawings, including flow diagrams, piping and instrument diagrams, system diagrams, facility drawings showing equipment locations and site arrangements.

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

4.2.10 When verifications are to be accomplished by test:

a. Prototype, component or feature testing shall be performed prior to installation of equipment, or prior to the point when the installation would become irreversible.

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

4.2.11 Procedures shall be established to assure that computer codes, and changes thereto, are verified, certified and controlled to prevent unauthorized changes.

4.2.12 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.

4.2.13 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.

4.2.14 Design activities directed toward the assessment of the damage to TMI Unit 2 which include Important to Safety activities 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.

4.2.15 Methods shall be employed to ensure that adequate precautions or evaluations are in place during recovery activities (including the installation and/or removal of hardware) to preclude damaging, impeding operational movements, or in any way adversely impacting the ability of ITS items or items required by the Technical Specifications to maintain the plant in a safe condition.

4.3 Responsibilities

4.3.1 Office of the Director - TMI-2

4.3.1.1 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).

4.3.1.2 The Office of the Director - TMI-2 is responsible through the Manager - Recovery Programs for the development and implementation of the design control measures utilized by the engineering departments and for the coordination and direction of engineering tasks which are outside the scope of Plant Engineering. To fulfill these responsibilities, the Manager - Recovery Programs will:

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

b. Assure the review and approval of 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.

c. Ensure Quality Assurance review and concurrence of design criteria documents and specifications.

d. Provide technical administration of nuclear fuel-related engineering activities.

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

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

4.3.2 Director - Nuclear Assurance

The Director - Nuclear Assurance is responsible through the Director Quality Assurance for providing Quality Assurance review and acceptance or 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.

4.3.3 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.

5.1 Control of Procurement

5.1.1 Policy

5.1.1.1 Procurement of material, equipment and services which are considered Important to Safety shall be performed in accordance with written policies, procedures and instructions which 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 and services conform to procurement document requirements. The programs of all participants shall be in accordance with the applicable requirements of the GPUN Recovery Quality Assurance Program.

5.1.1.2 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.

5.1.1.3 Quality Assurance measures shall apply to the procurement of materials including new and spare parts, replacement parts, commercial grade 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, as superseded by regulatory commitments, 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 the technical and quality assurance requirements commensurate with the requirements of this Plan.

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

c. Specify or reference design basis technical requirements, including applicable regulatory requirements, material, and component identification requirements, drawings, specifications, codes and standards, test, calibration, 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 technical requirements at least equivalent to those used for the original procurement.

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

j. Require design organizations performing design activities for GPUN to have and implement quality programs which include design control provisions equivalent to those provided in the GPUN Quality Assurance Program.

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 GPUN Quality Assurance Program, as applicable to the items or services to be supplied.

c. A pre-award survey of the 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:

d. 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

e. The external organization will be required, by procurement documents, to work under the direct control of the GPUN Quality Assurance Program. In these instances, the supplier will not be required to have a separate quality assurance program.

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

In the case of "commercial grade items" the supplier does not have to be evaluated; however, the procurement documents shall specifically describe the items to be provided to ensure the appropriate quality is maintained.

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 attributes of the manufacturing assurance program shall include:

a. Provisions for the review and approval of the vendor's drawings, Quality Assurance manual and manufacturing and quality procedures prior to fabrication. When specified in procurement documents vendors may not implement procedures until written notice of GPUN approval is received.

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 nonconformances where the vendor's suggested disposition is "Use-as-is" or "Repair". Such nonconformances require approval by the responsible engineer and 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 which render the quality status of item(s) furnished indeterminate shall be sufficient cause for rejection of the item(s).

f. Assessments of vendor control of quality shall be made at a frequency and depth commensurate with the importance, complexity and quantity of the items furnished. These assessments shall utilize the qualitative and

quantitative information provided by vendor noncompliance documents; surveillance, inspection and audit reports; and receiving inspection and test records.

g. Material acceptance procedures that assure:

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. The material, component or equipment meets the technical requirements specified in the procurement documents, inspection plans, checklists or other special engineering documents.

5. Items delivered which are not in compliance with requirements are documented in accordance with the nonconformance procedure, tagged (As item configuration or storage conditions permit. Additional administrative controls shall be used if tagging is not possible.), segregated (if possible), and prevented from being inadvertently issued for installation or use.

6. 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 Director - Administration

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

a. Administration and operation of contracting, procurement and warehousing activities associated with the recovery operation.

b. Assurance that the technical and quality requirements, as established by requisitioners, are incorporated into contract/procurement documents without revision.

c. Assurance that the contractual, legal and commercial requirements are incorporated into the procurement documents in a manner which will enable enforcement of the technical and quality requirements.

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

e. Assurance that purchase orders and contracts for Important to Safety items and services are issued to external organizations that have been evaluated and meet the requirements of this QA Plan.

5.1.3.2 Director - Nuclear Assurance

The Director - 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 GPUN procedures necessary for the control of purchased equipment, material, and services within the scope of this 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.

g. Establish and maintain a Supplier Quality Classification List (SQCL) which documents the results of the evaluations of prospective suppliers.

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, installation 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

5.2.2.1 Identification and traceability requirements shall be included in specifications and drawings.

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

5.2.2.3 Materials and parts Important to Safety shall be identified so that they can be traced to the appropriate documentation, including, but not limited to:

a. Specifications

b. Drawings (including as-builts)

c. Procurement Documents

d. Physical and Chemical Test Reports

e. Nonconformance Reports

f. Inspection Reports and Checklists

g. Storage Maintenance Instructions

h. NDE Reports

i. Vendor Certificates of Compliance

5.2.2.4 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.

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

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

5.2.2.7 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 Responsible Department Manager

Each Department Manager is responsible for ensuring that procurement documents issued by their departments contain appropriate requirements for the identification and control of materials, parts, or components and that only materials, parts or components which have been accepted are used.

5.2.3.2 Director - Nuclear Assurance

The Director - 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.

6.1 Policy

6.1.1 Station activities considered important to safety shall be conducted in accordance with the requirements of this Plan. These activities include but are not limited to design changes, procurement, fabrication, handling, shipping, storage, cleaning, erecting, installation, inspection, testing, operation, maintenance, repair, defueling, decontamination, damage assessment and modification.

6.1.2 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 procedures governing station activities. The requirements of this Plan apply to all organizations or positions performing functions which affect the quality of structures, systems, components, or activities important to safety.

6.1.3 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 objectives of this Plan 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, to applicable station administration controls, and to 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, 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 Plan

are controlled to an extent consistent with their importance to safety.

6.2 Control of Inspections

6.2.1 Requirements

6.2.1.1 A program for performance of inspections of Important to Safety activities 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 requirements for performance of inspections. 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. Methods to be used including necessary measuring and test equipment and the accuracy requirements.

c. Identification of organization responsible for performing the inspection.

d. Acceptance and rejection criteria.

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

f. Documentation of inspection results including identification of the individual performing the inspection.

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

6.2.1.3 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 the inspections are not part of the responsible Quality Assurance organization, the

procedures and personnel qualification criteria shall be reviewed and concurred with by the responsible Quality Assurance organization prior to the initiation of the activity. Inspections 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 activities, 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 the personnel are reviewed and found acceptable by the Quality Assurance organization prior to initiating the inspection.

6.2.1.4 Work authorizing documents used to implement work in the field 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 organization, performing the inspection

c. Identification of witness and hold points

d. Documenting results

6.2.1.5 When QA Hold Points have been established, either contractually, by procurement, or internally by plant procedures, work may not proceed beyond the Hold Point until either inspection is performed or waived by the responsible Quality Assurance organization.

6.2.1.6 Inspections, of modifications, repairs, and replacements shall be by the same method and to the same criteria as the original 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. The sampling plan shall be determined by Quality Assurance. 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.

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

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

6.2.2 Responsibilities

6.2.2.1 Office of the Director - TMI-2

The Office of the Director - TMI-2 through the Site Operations Director and the Manager Recovery Programs is responsible for ensuring that requirements for inspections, are included in design specifications, drawings, procedures and instructions and that these requirements include acceptance criteria and, as applicable, references to codes, standards and regulatory documents.

6.2.2.2 Director - Nuclear Assurance

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

a. Assuring that inspectors are qualified in accordance with applicable codes, standards, and GPUN training programs.

b. Reviewing and concurring with procedures and work authorizing documents for inclusion of inspection and test requirements and QA Hold Points.

c. Reviewing and concurring with the personnel qualification criteria of individuals performing inspections, including those who are not part of the QA organization.

d. Identification of inspection plans to be used for verification of inspections on previously accepted lots.

6.2.2.3 Responsible Department Manager

Each responsible Department Manager performing work requiring inspections is responsible for:

(a) Notifying the QA Department of the work being performed

(b) Obtaining QA concurrence with the procedure and/or work authorizing document.

(c) Assuring that established QA Hold Points are not bypassed without prior QA authorization.

(d) Assuring that all information, records or copies of records associated with their work are made available to QA personnel.

Each responsible Department Manager performing inspections, is responsible for:

(e) Assuring that the personnel performing the inspection is qualified in accordance with applicable codes, standards, training programs and procedures.

(f) Assuring that the results of all inspections are properly documented and the results are evaluated by designated personnel.

6.3 QA Monitoring

6.3.1 Requirements

6.3.1.1 A program for QA Monitoring of activities affecting Important to Safety items or processes shall be established and executed by the QA Department.

6.3.1.2 Monitoring is used to establish adequate confidence levels that Important to Safety activities are being performed in accordance with the QA Program requirements and plant administrative controls. Monitoring will be performed on a graded approach and the degree of monitoring performed shall be based typically upon the status and safety importance of activities, extent of previous experience, thoroughness of overall coverage, uniqueness of testing or operating activities and trending data.

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

6.3.1.4 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 each nonconformance document when such nonconformances exist and are identified as a result of the monitoring.

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

6.3.2 Responsibilities

6.3.2.1 Director - Nuclear Assurance

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

a. Establishing the requirements for QA monitoring of activities affecting Important to Safety materials, parts, components and practices.

b. Assuring that QA Monitors are adequately trained and are qualified to perform their duties.

c. Assuring that reports of the monitoring activities have sufficient details and provide adequate confirmation of the monitoring program.

6.4 Control of Special Processes

6.4.1 Requirements

6.4.1.1 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.

6.4.1.2 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.

6.4.1.3 Procedures for special processes shall be established to meet the requirements, of applicable codes and standards or to meet the requirements of special process specifications which may be produced by or for GPUN. These procedures shall provide for recording evidence of acceptable completion 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 in the procedure.

6.4.2 Responsibilities

6.4.2.1 Responsible Department Manager

Each responsible Department Director/Manager performing special processes is responsible for:

a. Assuring that the established program requirements for controlling and accomplishing special processes are implemented.

b. Assuring that the procedures, including changes, are reviewed, approved and qualified prior to use.

c. Assuring that personnel and equipment used in the performance of special processes are qualified and the records of qualification are maintained.

6.5 Test Control

6.5.1 Requirements

6.5.1.1 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, hydrotesting, 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. Mandatory hold or witness points for inspection by GPUN Quality Assurance and/or other designated personnel.

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

i. Provisions for returning a system to normal configuration upon completion of the test, including verification.

j. Provisions for assuring test prerequisites have been met.

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

6.5.1.3 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.

6.5.1.4 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.

6.5.2 Responsibilities

6.5.2.1 Office of the Director - TMI-2

The Office of the Director - TMI-2 is responsible for assuring that testing is performed in accordance with the requirements of this Plan including, as a minimum, the following:

a. Assuring that testing is performed in accordance with written, approved and controlled procedures.

b. Assuring that the test results are documented and are evaluated for acceptability by a responsible individual or group.

c. Assuring that identified discrepancies are addressed, resolved and reported as required by the License and Technical Specifications of the Unit.

d. Directing testing and ensuring that operations personnel and other supporting personnel have the required special training and skills.

e. Coordinating technical assistance of testing.

f. Assuring that all construction testing performed as part of maintenance and modifications, including hydrotesting, is performed, documented and the results acceptable prior to turnover.

6.6 Control of Measuring and Test Equipment

6.6.1 Requirements

6.6.1.1 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, including operations, maintenance, modifications, plant chemistry and radiological and environmental control activities, covered under the scope of the QA Program be properly controlled and calibrated or adjusted at specified periods to maintain accuracy within specified limits. Additional measures shall be established to ensure that the range, type and accuracy of the measuring and test equipment conforms to the specified requirements.

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

a. Establish the calibration technique and frequency requirements, maintenance requirements , and controls for 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 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 labeled, 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 labeled to indicate the date on which the current calibration expires. Measuring and test equipment that has exceeded the approved calibration interval shall not be used for measurements or tests until recalibrated.

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. Establish 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. Measuring and Test equipment (M &TE) used to calibrate instruments and gages (flowmeters, pressure gauges, level indicators, etc.) shall have been calibrated against working standards with accuracies at least four (4) times greater than that of the equipment being calibrated. The instrument or gage calibration accuracy in reference to the M & TE shall be at least 1:1.

In cases where the instrument or gage is calibrated directly against working standards, the working standard shall have an accuracy of at least 1:1 and the secondary standards used to calibrate the working standards shall have an accuracy of four (4) times greater than that of the working standards.

When the above requirements cannot be met, the standards used shall have a precision and repeatability that assures the equipment being calibrated will be within the required tolerance. The basis of acceptance will be 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 shall be controlled and calibrated in accordance with the industry code governing its use.

6.6.2 Responsibilities

6.5.2.1 Responsible Department Manager

Each Department Manager utilizing tools, gauges, instruments and other measuring and testing devices in activities affecting the function or quality of structures, systems, components and activities Important to Safety shall assure that the equipment is controlled in accordance with an approved calibration control program which complies with the requirements of this Plan.

6.7 Handling, Storage and Shipping

6.7.1 Requirements

6.7.1.1 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. The requirements for handling, storage, packaging and shipping of radioactive wastes are contained in Section 7.0 of this Plan.

6.7.1.2 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 be implemented by suitably trained individuals. The procedures shall include 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, moisture contents, and temperature controls 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 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).

6.7.2 Responsibilities

6.7.2.1 Responsible Department Managers

Each Department Director/Manager with responsibility for handling, storage or shipment is responsible for identifying in procedures, drawings, specifications or procurement documents those handling, storage and shipping requirements necessary to assure compliance with the requirements of this Plan.

6.7.2.2 Director - Administration

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

a. Providing the procedures applicable to receiving and storage of materials, parts and components.

b. Assuring that the personnel responsible for the handling and storage of materials, parts and components are adequately trained in the performance of their duties and that they implement the procedures properly.

c. Providing adequate facilities for storage of Important to Safety materials, components and parts.

6.7.2.3 Office of the Director - TMI-2

The Office of the Director - TMI-2 is responsible for assuring that the handling, cleaning, storage and shipment activities, under his direction, is performed in accordance with the requirements of this Plan.

6.8 Inspection, Test, and Operating Status

6.8.1 Requirements

6.8.1.1 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 this Plan shall be controlled in accordance with approved procedures. These procedures shall include the use of appropriate tags, markings, lists, logs, diagrams, electrical and mechanical jumpers, 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.

6.8.1.2 The requirements for an acceptable inspection, test and operating status program for structures, systems, and components throughout fabrication, installation, test and operation 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, jumpers, 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 with concurrence by the Quality Assurance organization. The

procedures shall provide for the identification of items which have satisfactorily passed such inspections and tests, where necessary to preclude inadvertent bypassing of required inspection and tests.

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. Methods which ensure 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 modifications.

g. Methods which ensure that nonconforming services and inoperative or malfunctioning structures, system, components or materials shall be identified in accordance with the requirements of this Plan.

6.8.2 Responsibilities

6.8.2.1 Office of the Director - TMI-2

The Office of the Director - TMI-2 is responsible for assuring that the appropriate requirements for controlling the inspection, test and operating status, including independent verification, are incorporated in the procedures used on all fabrication, installation, test and operation activities.

6.9 Housekeeping and Cleanliness

6.9.1 Requirements

6.9.1.1 Good housekeeping practices shall be utilized at all times to maintain the work areas in a neat and clean condition and to assure the control of radioactive contamination areas and the control of work activities, conditions and environments that can affect the quality of Important to Safety parts of the nuclear plant.

6.9.1.2 Housekeeping encompasses all activities related to the control of cleanliness of facilities, materials and equipment; fire prevention and protection including disposal of combustible material and debris; control of access to areas, protection of equipment, radioactive contamination control; and, storage of solid radioactive waste.

6.9.1.3 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, and tool accountability 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 and components.

6.9.2 Responsibilities

6.9.2.1 Office of the Director - TMI-2

The Office of the Director - TMI-2 is responsible for establishing and maintaining programs and practices for housekeeping and cleanliness control of all work activities performed by the plant site staff, support organizations and contractors in accordance with the requirements of the GPUN QA Program.

6.9.2.2 Director - Nuclear Assurance

The Director - Nuclear Assurance, through the Director - Quality Assurance is responsible for monitoring the house-

keeping and cleanliness practices at the nuclear generating stations and for identifying problems and initiating, recommending and providing solutions through designated channels.

6.10 Equipment Control

6.10.1 Requirements

6.10.1.1 Authorization to remove plant installed operational equipment or systems from service, for recovery tasks, maintenance or modification, shall be granted by the on duty Shift Supervisor.

6.10.1.2 Procedures shall be provided for control of equipment, as necessary, to maintain personnel and reactor safety, to avoid unauthorized operation of equipment, and to assure that operational equipment is in a ready status. Work on equipment and systems, critical to operations, shall not be performed while the system is operating without specific advanced approval by the designated Operations management personnel in each instance. The procedures for controlling the removal from service and the placement back into service of equipment shall require:

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

b. Independent verifications when necessary 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 of installation and removal (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 equipment shall

be identified in such a manner that it can be traced to its associated documentation.

6.10.2 Responsibilities

6.10.2.1 Office of the Director - TMI-2

The Office of the Director - TMI-2 is responsible for establishing and maintaining procedures and assuring implementation of the procedures for identification and control of equipment to avoid unauthorized use and to assure that operational equipment is in a ready status. These requirements shall include independent verifications to ensure proper implementation.

6.11 Control of Recovery, Defueling, Maintenance (Preventive/ Corrective) and Modifications

6.11.1 Requirements

6.11.1.1 Recovery, defueling, 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 except for temporary systems and structures which shall have quality commensurate with their function. 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. Recovery, maintenance, or modification of equipment and defueling shall be preplanned and performed in accordance with written procedures, instructions or drawings appropriate to the circumstances which conform to applicable codes, standards, specifications, and criteria. In this regard, work in areas and on systems of the plant, critical to safe operation, shall not be performed while the system or associated systems are operating without specific advanced approval by the designated Operations management personnel in each instance. Methods shall be employed to ensure that adequate precautions or evaluations are in place during recovery activities (including the installation and/or removal of hardware) to preclude damaging, impeding operational movements, or in any way adversely impacting the ability of ITS items or items required by the Technical Specifications to maintain the plant in a safe condition.

6.11.1.2 Detailed step by step procedures are not required for all maintenance and modification work. The supervisor planning the

job must consider the skills required to ensure proper completion of the work and identify the procedural requirements accordingly. Work such as replacing chart or drive speed gears, replacing fuses or tightening valve packing may not require written procedures. Whereas, work involving inter-departmental coordination or risk of nuclear or personnel safety requires a higher level of administrative control such as approved procedures and sign offs to properly coordinate, direct and document the activity.

6.11.1.3 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 operation personnel to work and for logging such work.

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

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

d. Considerations for system/equipment cleanliness control.

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

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

g. Considerations for other activities already taking place in the general area.

6.11.1.4 Means for assuring quality of maintenance, modifications, recovery or defueling 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, recovery or defueling activities.

6.11.1.5 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.

6.11.1.6 A preventive maintenance program including procedures as appropriate for operational and accessible 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.

6.11.1.7 Proposed modifications shall be reviewed, approved and controlled in accordance with the applicable requirements of the License and Technical Specifications and procedures governing the design, procurement, construction, testing and inspection. Modifications to structures, systems and components Important to Safety shall be reviewed and accepted in accordance with the requirements of this Plan.

6.11.1.8 Design, procurement, construction, testing and inspection of all modifications shall be performed in accordance with the applicable portions of this Plan.

6.11.2 Responsibilities

6.11.2.1 Office of the Director - TMI-2

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

a. Establishing and implementing preventive and corrective maintenance programs to maintain the station in a safe, reliable and efficient condition.

b. Ensuring that maintenance, modification, recovery, and defueling activities are performed in accordance with the requirements of this Plan and the applicable Operating License and Technical Specifications.

c. Establishing administrative control procedures for maintenance, modification, recovery, and defueling work.

d. Ensuring that design and procurement activities associated with the recovery, defueling and modifications are implemented in accordance with approved procedures.

e. Providing the drawings and specifications used for plant modifications.

f. Preparing and issuing as-built drawings of plant modifications, as appropriate.

g. Ensuring that modifications are designed, procured and installed in accordance with requirements which are either equal to or better than the original requirements.

h. Preparing and filing design, engineering, procurement and installation records in accordance with the QA Records requirements of this Plan.

i. Providing the design and engineering support during installation and testing of plant modifications including the resolution of engineering problems identified during installation.

j. Maintaining control of technical configuration of the plant and maintaining the associated drawings current.

k. Providing the supervision and labor necessary to complete the recovery, modifications and defueling.

6.11.2.2 Director - Nuclear Assurance

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

a. Review and concurrence with installation procedures.

b. Performing inspections and examinations required for completion and acceptance of the installation.

c. Concurrence with the quality requirements in fabrication and installation specifications.

6.12 Control of Surveillance Testing and Inspection

6.12.1 Requirements

6.12.1.1 A surveillance testing and inspection program shall be established and implemented in accordance with the Operating License and Technical Specification requirements of the plant 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.

6.12.1.2 Provisions shall be made for performing required surveillance testing and 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.

6.12.1.3 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 proper review of surveillance test data and 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.

6.12.2 Responsibilities

6.12.2.1 Office of the Director - TMI-2

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

a. Providing the procedures, schedules and manpower necessary to implement the Surveillance Testing and Inspection requirements of the License and Technical Specifications.

b. Ensuring that the requirements for Surveillance Testing and Inspection are completed as required.

6.13 Radiological Control

6.13.1 Requirements

6.13.1.1 A radiological controls program shall be established and implemented to:

a. Control radiation hazards

b. Avoid accidental radiation exposures

c. Maintain exposures to workers and the general population as low as reasonably achievable (ALARA) and within regulatory requirements.

d. Provide guidance and specify appropriate methods or techniques to ensure that the performance of activities are in accordance with sound radiological control principles and in compliance with applicable regulatory requirements.

6.13.1.2 The radiological controls program is to be fully integrated into each and every phase of the recovery, defueling, operation, maintenance and modification activities at TMI-2.

6.13.1.3 Procedures shall be provided for the implementation of the radiological controls program. These procedures shall contain the requirements for implementation of the program by the Radiological Controls Department and the requirements for inclusion of radiological controls in the plant operation, maintenance and testing procedures.

6.13.1.4 The radiological controls program includes the acquisition of data and provision of equipment to perform necessary radiation surveys, measurements and evaluations for assessment and control of radiation conditions.

6.13.2 Responsibilities

6.13.2.1 Responsible Department Manager

Each Department Manager is responsible for assuring that the requirements of the radiological controls program, as applicable to their activities, are adequately included in procedures and that the procedures are implemented properly.

6.13.2.2 Director - Radiological & Environmental Controls

The Director - Radiological & Environmental Controls is responsible for:

a. Establishing and maintaining the radiological controls program.

b. Providing the personnel, procedures and administrative controls to implement the radiological controls program.

c. Providing administrative and technical guidance applicable to radiological controls, radioactive materials, respiratory protection and radiological engineering including ALARA programs and dosimetry control.

7.1 Policy

7.1.1 Measures shall be established and documented to assure that the requirements of the Code of Federal Regulations, Title 10, Part 71 and Title 49, Parts 100 through 199 applicable to the packaging and transporting of radioactive wastes are satisfied.

7.1.2 Subpart H to 10 CFR 71 identifies the quality assurance criteria applicable to the control of radioactive waste. The portions of this Plan that relate to the criteria in Subpart H 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. A comparison of the requirements of 10 CFR 71, Subpart H and the applicable sections of this Plan are listed in Appendix A. These sections of this Plan will be implemented to satisfy the requirements of Subpart H to 10 CFR 71.

7.1.3 It is the policy of GPUN to minimize the generation of radwaste materials consistent with the ALARA concept to minimize personnel exposures and environmental contamination.

7.2 Requirements

7.2.1 Procedures and administrative controls 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), radiological control inspections of the packaging prior to release, proper markings on the outside of the package and the preparation of shipping papers and certificates.

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

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

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

g. Minimization of the generation of radwaste materials through training programs, prudent scheduling and use of equipment and personnel and good housekeeping practices.

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

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

7.2.4 Operations procedures relating to radwaste shipping and packaging 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 on-site staffs shall develop and implement procedures for minimizing the

generation of radwaste materials and the processing of radioactive waste and movement of radioactive materials. These procedures shall include the following:

a. Training of personnel in the methods to minimize the generation of radwaste materials.

b. Processing and packaging of liquid and solid wastes.

c. Collection and identification of radioactive solids such as rags, papers, boots, gloves, etc. and have 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 Control 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. Review and accept 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 Director - Radiological and Environmental Control

The Director - Radiological and Environmental Control is responsible, through the TMI-2 Radiological Controls Director 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 Director - Nuclear Assurance

The Director - Nuclear Assurance is responsible, thru the Director - Quality Assurance to:

a. Review and concur with procedures describing control of radioactive waste.

b. Monitor, inspect and audit radioactive waste processing operations to the extent necessary to verify they are performed in accordance with established procedures, applicable administrative controls and regulatory requirements.

7.3.4 Responsible Department Managers

Each manager shall establish the requirements for personnel qualification and institute training and indoctrination to satisfy these requirements. Training requirements shall be commensurate with the importance and complexity of the activity performed.

8.1 Policy

8.1.1 Nonconforming materials, parts, components, services or activities within the scope of the GPUN Quality Assurance Program shall be identified and controlled to prevent their inadvertent utilization. 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 significant conditions adverse to quality shall be determined and appropriate action taken to prevent recurrence. The identification, cause, and actions taken to correct significant conditions adverse to quality shall be documented and reported to the appropriate levels of management.

8.1.2 Significant conditions within the intent of 10 CFR 21 shall be reported to appropriate management levels within the affected organization for review and evaluation.

8.2 Requirements

8.2.1 Nonconformances include both hardware problems involving materials, parts, components or systems which do not comply with established requirements and non-hardware problems such as failure to comply with the Operating License and Technical Specifications, procedures, regulations and/or other established requirements.

8.2.2 It is the responsibility of all organizations and individuals involved with the TMI-2 recovery operations to identify and report all nonconformances that affect Important to Safety structures, systems, equipment, materials, parts and components. These nonconformances may be of a minor nature as a result of work activities, inspections, monitoring or reviews; or of a major nature such as those reportable directly to the NRC under 10 CFR Parts 21, 50 and 71 or the station's Operating License and Technical Specifications.

8.2.3 Activities such as examinations or checks performed to assess the condition of equipment or its operation are not considered to be nonconformances until it has been determined that it does not comply with an established acceptance criteria. These activities shall, however, be documented on an appropriate form

to control the activity. Once it has been determined that a nonconformance exists the condition shall be reported as a nonconformance and the item controlled to prevent inadvertent use prior to correction.

8.2.4 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 of significant deficiencies shall include identification, cause, and actions taken to correct and to preclude the similar recurrence. QAD concurrence is required for corrective action disposition for all QAD identified nonconformances. Reportable Occurrences require the review of independent organizations.

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

d. Significant deficiencies, nonconformances and defects which are potentially reportable to the NRC shall be identified to appropriate management levels for evaluation and reporting to the NRC, as appropriate.

8.2.5 Procedures shall be established which detail and implement the requirements for identification and control of nonconforming items and activities and for the identification of the cause of the conditions and the actions to be taken to correct the conditions to prevent recurrence. These procedures shall include requirements for the following:

a. Identification of the form to be used for reporting the nonconformance.

b. Description of the nonconforming item or activity and date of identification.

c. Identification of the initiator of the non-conformance report.

d. Description of the nonconformance.

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

f. Disposition of nonconformance. The disposition 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. QAD concurrence of material nonconformances is required to close out all nonconformances.

g. Notification to the affected organizations of the nonconformance.

h. Verification and close out.

i. Record retention.

j. Required approval signatures of the disposition and the verification.

k. Evidence of review for reportability to the NRC.

8.2.6 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.

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

8.2.8 Nonconformance reports shall be periodically analyzed to show quality trends. Such analysis will be based upon severity, number, frequency of nonconformances, the causes of the nonconformances and the timeliness of the reporting and resolution of nonconformances. The results of analyses shall be periodically reported to management for review and assessment. When significant conditions are identified or when actions are required by upper management to correct problems, such as a generic problem identified by the trend analysis or repetitive failure to disposition nonconformances, these problems shall be elevated to upper levels of management for resolution.

8.3 Responsibilities

8.3.1 Director - Nuclear Assurance

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

a. Review and concurrence of all procedures for reporting and controlling of nonconformances for compliance with the requirements of this Plan.

8.3.2 Office of the Director - TMI-2

The Office of the Director - TMI-2 is responsible for ensuring that nonconformances are reported and corrected for activities involving recovery, defueling operation, maintenance, repair, replacement, addition, modification, radiological control, and environmental monitoring. 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 Responsible Department Manager

8.3.3.1 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 Director/Manager approves and the Quality Assurance Department concurs with the resolution of nonconformances.

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

9.1 Policy

A comprehensive and documented audit system shall be established and implemented to ensure that:

a. Policies, plans, procedures and instructions define sufficient organizational responsibilities; and, methods consistent with regulatory requirements and this Plan.

b. Policies, plans, procedures and instructions are implemented.

c. Corrective action systems and management reviews provide for timely completion of requisite action for identified deficiencies/non-conformances/occurrences/events.

d. Corrective action systems and management reviews provide effective identification and prevention of recurrent and/or significant conditions adverse to quality.

e. Data is provided for GPUN management to utilize/optimize the efficiency of methods utilized to ensure regulatory compliance.

f. Data is provided for the continuing appraisal of the effectiveness of all elements of the GPUN Quality Assurance Program.

9.2 Requirements

9.2.1 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 GPUN Quality Assurance Program.

9.2.2 Planned and scheduled audits shall verify compliance with the following:

a. GPUN Quality Assurance Program.

b. Code of Federal Regulations.

c. Regulatory Guides, ANSI, and other codes and standards as endorsed in this Plan or other GPUN licensing based documents.

d. Plant License and Technical Specifications.

e. Policies, plans, procedures and instructions affecting Important to Safety items and activities.

f. Contractual requirements associated with external organizations providing Important to Safety items and services.

9.2.3 Audits shall include an objective evaluation of quality related practices, procedures and instructions including an objective review of activities, items and records which demonstrate effective and proper implementation.

9.2.4 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.

9.2.5 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. In addition, audits shall 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 Plan.

9.2.6 Both GPUN and organizations providing Important to Safety items and/or services are subject to the audit requirements of this Plan.

9.2.7 Audits will be performed by the Quality Assurance Program Development and Audit Section.

9.2.8 Audited organizations shall provide sufficient support to assure the accuracy of the audit results, review and response to audit non-conformances, and effective resolution/prevention of deficiencies. The corrective actions required to resolve audit findings and observations shall be addressed in a timely manner.

9.2.9 Audit frequencies shall be based upon the status and safety importance of activities, degree of previous experience, thoroughness of overall coverage, unique testing/operating activities, and follow-up of previous audit findings. In planning and scheduling audits the areas which should be included are activities associated with:

a. The determination of plant features and activities which affect plant safety, including taking systems out of service for maintenance and modifications and turning them back over to Operations.

b. Preparation, review, approval and control of procurement activities.

c. Indoctrination and training.

d. Interface control among the various Divisions of GPUN and between GPUN and contractors/vendors.

e. Corrective action, calibration and nonconformance control systems.

f. Regulatory commitments.

g. Activities associated with computer codes.

9.2.10 Sufficient record types shall be maintained to provide documentation of audit system scope, individual audit coverage (i.e. checklists or equivalent), audit results, audit team leader certifications, follow-up and verification and results of trending/analysis.

9.2.11 Audits shall be performed by personnel who are trained and qualified to the requirements defined in ANSI N45.2.23. 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.

9.3 Responsibilities

9.3.1 Director - Nuclear Assurance

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

a. Establish and implement the audit program and assure all required areas are audited.

b. Provide the auditing organization which meets the requirements of this Plan.

c. Evaluate the effectiveness of the audit program.

d. Ensure the development and implementation of the audit schedule.

e. Analyze the results of audits for quality trends and inform the Office of the President and the affected Division Director of the results.

9.3.2 Division Director(s) - Audited Organization(s)

The Division Director(s) of the audited organization(s) are responsible through Directors/Managers to ensure:

a. Sufficient support is given to the audit process to optimize the accuracy of the audit results.

b. Sufficient review of audit results is provided to assure that effective preventive measures for audit non-conformances are defined and implemented.

c. Responses to audit findings are reviewed and approved by their organizations prior to submittal to the auditing organization.

d. Responses to audit findings are submitted to the auditing organization in a timely manner as defined in implementing policies, plans, procedures and/or instructions.

e. Corrective actions to resolve audit findings are taken in a timely manner.

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

Sections 5.2 and 6.2 of ANSI N45.2.4 list tests which are to be conducted during the construction phase. In lieu of this, GPUN utilizes its Engineering and/or Maintenance organizations to establish the need for specific tests or test procedures during the operational phase.

NRC Regulatory Guide 1.33, Rev. 2, February 1978

Quality Assurance Program Requirements (Operation)

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

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

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

   In lieu of a "master surveillance" scheuule, 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 titled "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.

5. ANSI N 18.7-1976 in Section 5.2.2. Procedure Adherence requires for temporary changes that at least one approval shall be by an SRO. The Technical Specifications for TMI-2 do not require an SRO for temporary changes that do not affect the operational status of unit systems or equipment, but do require the approval of a manager within the Department having cognizance of the procedure being changed.

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 GPUN Quality Assurance Program complies with the regulatory position of this guide with the following clarifications:

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 disolved 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 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 allowable levels of water leachable chloride ions, total halogens and sulfur compounds shall be defined and imposed on the aforementioned materials.

3. Section 2.1 of ANSI N45.2.1 states that required planning is frequently performed on a generic basis for application to many installations on one or more projects. This results in standard procedures or plans for installation and inspection and testing which meet the requirements of the Standard. Individual plans for each item or system are not normally prepared unless the work

operations are unique. However, standard procedures or plans will be reviewed for applicability in each case. Installation plans or procedures are also limited in scope to those actions or activities which are essential to maintain or achieve required quality. This is consistent with Section 11 Paragraphs 2 and 3 of ANSI N45.2-1977 which provides for examination, measurement or testing to assure quality or indirect control by monitoring of processing methods. However, final cleaning or flushing activities will be performed in accordance with procedures specific to the system.

4. Section 3.1.2.1 of ANSI N45.2.1 states that surfaces shall be examined without magnification under a lighting level (background plus supplementary lighting) of at least 100 foot candles. GPUN intends to permit the use of 18% neutral gray card for determining acceptability of illumination in lieu of the 100 foot candles.

5. Section 4.0 of ANSI N45.2.1 states that items are not to be delivered to the point of installation sooner than necessary unless the installation location is considered a better storage area. The strategy for the storage of items is based on many factors, one of which is to not adversely affect the items acceptability while in storage. If other factors make it desirable to store an item at the installation site, and the location is acceptable from a quality standpoint, it is not our intention to eliminate that site as a potential storage area. As an alternate to this requirement, items may be delivered to the installation site sooner than absolutely necessary when determined to be advantageous for other considerations. Example - reduced handling or easier access, thereby reducing susceptibility to handling damage. In all such cases, equipment stored in place will be protected in accordance with Section 5 of ANSI N45.2.1.

6. Section 6.0 of ANSI N45.2.1 states that where environmental contamination causes degradation of quality, seals are installed and the item is tagged with identifications and instructions for seal removal. GPUN utilizes procedural controls which specify the authorization requirements for seal removal. "Tags" are not normally utilized.

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 GPUN Quality Assurance Program complies with the regulatory position of this guide with the following modifications or clarifications to ANSI N45.2.2-1972:

1. Section 2.7, Classification of Items. The four-level classification system for storage of items will be followed, however, the designated classification level may not be explicitly identified on the item. The classification level will, however, be traceable through the procurement documents. Classification differing from Section 2.7 will be considered acceptable provided no degradation is assured; for example, electric motors designed for outside service may be stored in a level C area rather than a level B.

2. Section 3.2, Levels of Packaging. The four level classification system for packaging of items may not be used explicitly. For commercial grade items standard commercial grade packaging requirements may be specified.

3. Section 3.6 concerns prevention of halogenated materials from contacting stainless steel or nickel alloy materials. The clarifications applicable to Regulatory Guide 1.37, identified previously, also apply to this section of ANSI N45.2.2.

4. Section 3.7.1 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-8-601) allow this. Special qualification testing shall be required for loads in excess of 1000 lbs.

5. Section 5.5, Correction of Nonconformances. This section provides for "rework" and "use as is" dispositions for nonconforming items. As an alternate, the "repair" disposition (as defined in ANSI N45.2.10-1973) will also be used.

6. Section 6.2.1 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.

7. Section 7.4 states that a system should be established to indicate acceptability of all equipment and rigging after each inspection, specify control of nonconforming lifting equipment, and supplement periodic inspections with special visual and nondestructive examinations and dynamic load tests. In lieu of this, GPUN does perform dynamic load tests on new equipment, preventive maintenance on cranes, nondestructive examination of lifting hooks annually, and a visual inspection of lifting equipment prior to use.

8. Appendix A.3.4.1 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."

9. Appendix A 3.4.2, Inert Gas Blankets. There may be cases involving large or complex shapes for which an inert or dry air purge flow is provided rather than static gas blanket in order to provide adequate protection due to difficulty of providing a leak proof barrier. In these cases a positive pressure purge flow may be utilized as an alternate to leak proof barrier.

10. Appendix A.3.5.2 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).

11. Appendix A.3.7.1 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 GPUN Quality Assurance Program complies with this guide with the following clarification to ANSI N45.2.3-1973.

1. Sections 2.1 and 3.2; TMI-2 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 or repair.

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

2. Section 3.2.3 discusses fire protection. Except for the quality assurance aspects of fire protection, no specific commitments are made in this Plan. As part of other activities, GPUN has established positions or commitments relating to fire safety or protection.

NRC Regulatory Guide 1.54, June 1973

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

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

1. GPUN will 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 quality assurance program for protective coatings includes the planned and systematic actions necessary to provide adequate confidence that shop or field coating work for nuclear facilities will perform satisfactorily in service.

All protective coatings, except those noted in 3.0 below, applied to surfaces within containment are tested to demonstrate that they can withstand LOCA conditions. These tests are performed in accordance with Section 4 of ANSI N101.2, Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities, under LOCA conditions which equal or exceed those described in the FSAR.

The quality assurance program is applied for Protective Coatings consistent with the nature and scope of work specified in the technical specifications. The following elements are included:

(a) Preparation of coatings specification and procedures for generic coating materials/systems.

(b) Review and evaluation of coating manufacturers' demonstration test data and quality assurance measures for control of manufacture, identification, and performance verification of applied coating systems.

(c) Review and evaluation of supplier quality assurance measures to control storage and handling, surface preparation, application, touch-up, repair, curing and inspection of the coating systems.

(d) Training and qualification of inspection personnel in coatings inspection requirements.

(e) Supplier surveillance inspection.

The coatings qualification program and the associated quality assurance requirements are necessary only for coatings whose failure or failure mechanism would have a significant effect on safety.

3. Regulatory Guide 1.54 is not imposed for:

(a) Surfaces to be insulated.

(b) Surfaces "contained" within a cabinet or enclosure (for example, the interior surfaces of ducts).

(c) Field repair on any Q-class coated item less than 30 square inches of surface area such as:

. Cut ends or otherwise damaged galvanizing.

. Bolt heads, nuts, and miscellaneous fasteners.

. Damage resulting from spot, tack, or stud welding.

Field touch-up and repair of larger areas shall be in accordance with item (1).

(d) Small "production line" items such as small motors, hand-wheels, electrical cabinets, control panels, loudspeakers, etc. where special painting requirements would be impracti-cable.

(e) Stainless steel or galvanized surfaces.

(f) Coating used for the banding of piping.

(g) Strippable coatings used for cleanup.

4. Quality Assurance documentation may not be similar to records and documents listed in Section 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, Rev. 1, September 1980

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

The GPUN 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 QA inspection personnel who verify conformance of work activities to quality requirements. The qualification of other QA personnel shall be in accordance with GPUN established requirements. The qualifications of plant operation personnel concerned with day-to-day operation, maintenance, and certain technical services shall conform to Regulatory Guide 1.8. NDE Level III personnel shall be recertified at an interval of every 5 years as noted by ASME Code Cases N-341 and N-356, rather than the 3 year interval recommended by ASNT-SNT-TC-1A 1980.

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

GPUN will 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 Quality Assurance Program complies with this guide with the following clarification to paragraph C.2(1): If 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 1.88, 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, including Addendum 17-1 NQA-1a-1981.

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

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

For Important to Safety, but not Safety Related, the Regulatory Guide will be used as guidance, but is not mandatory. The requirements and the specific application will be determined commensurate with the importance to safety of the item.

QA programmatic/administrative requirements included in the Regulatory Guide 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

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

QA programmatic/administrative requirements included in the Regulatory Guide 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).

Much of N45.2.8 applies to construction and pre-operational testing. As a result, many of the listed tests are not appropriate in an operational plant. In lieu of this, GPUN utilizes its Engineering and/or Maintenance organizations to establish the need for specific tests or test procedures during the operational phase.

NRC Regulatory Guide 1.123, Rev. 1, July 1977

Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants

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

1. Section C.3 A corrective action system may, depending upon complexity and/or importance to safety of the item or service provided, be imposed upon the supplier. When a corrective action is imposed on a supplier, the applicable elements of Section 9.0 of the standard will be included and its implementation will be verified.

2. Section C.4 Applicable information concerning the method(s) of acceptance of an item or service will be made available to receiving inspection personnel.

3. Section 4.2.a of ANSI N45.2.13-1976 - When evaluation of a supplier is based solely on historical supplier data, these data will primarily include records that have been accumulated in connection with previous procurement actions. Data that includes experience of users of identical or similar products of the prospective supplier and product operating experience will be used if available.

4. Section 4.2 of ANSI N45.2.13-1976. In the special case of "commercial grade items" the supplier does not have to be evaluated by one of the methods identified; however, the procurement documents shall contain requirements specific to the item being procured.

5. Section 10.2.d of ANSI N45.2.13-1976. The requirements of this section are interpreted as follows: The person attesting to a certificate shall be an authorized and responsible employee of the supplier and shall be identified by the supplier.

6. Section 10.2.1, Verification of the Validity of Supplier Certificates and the Effectiveness of the Certification System, is as follows: The verification of the validity of supplier certificates and the effectiveness of the certification system are accomplished as an integral part of the total supplier control and product acceptance program, and no separate GPUN system exists that addresses itself solely to such verification. The degree of verification required will depend upon the type of item or service and their safety importance. The means of verification may include source witness/hold points, source audits, and document reviews; independent inspections at the time of material receipt; user tests on selected commodities, such as

concrete components; and tests after installation on selected components and systems. All of these means verify whether or not a supplier has fulfilled procurement document requirements and whether or not a certification system is effective.

NRC Regulatory Guide 1.142, October 1981 Rev. 1

Safety-Related Concrete Structures for Nuclear Power Plants (Other Than Reactor Vessels and Containments)

GPUN shall comply with the Regulatory Position established in this Regulatory Guide as augmented by ANSI N45.2.5, ANSI/ANS 6.4-1977 and ANSI/ACI 318-77 for the design and construction of new ITS structures and additions to existing ITS structures. Inspectors will be qualified according to either ANSI N45.2.6 or Appendix VII of Section III, Division 2, of the ASME Boiler and Pressure Vessel Code.

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. The use of 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.

Terms and Definitions

This Appendix contains certain terms and their definitions that are important to a uniform understanding of the requirements of the GPUN Operational Quality Assurance Program. ANSI N45.2.10-1973, as endorsed by Regulatory Guide 1.74, and NQA-1a-1981 contain terms and definitions applicable to the nuclear industry. The terms and definitions found in these documents are applicable to the GPUN Operational Quality Assurance Program and, for convenience, are included, in part, herein. Those terms and definitions which are the same as listed in ANSI N45.2.10-1973 or NQA-1a-1981 are identified by footnote (1). Certain exceptions to the terms and definitions found in ANSI N45.2.10-1973 and NQA-1a-1981 have also been taken. These exceptions are identified by footnote (2).

ACCEPTANCE (as used in relation to acceptance of a document):
Generally approved, believed or recognized. Does not require signature of person accepting.

ACCEPTANCE CRITERIA: Specified limits placed on characteristics of an item, process, or service defined in codes, standards, or other documents. (1)

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.

ARCHITECT/ENGINEERING (A/E): A firm under contract to provide engineering or design services.

APPROVAL: An act of endorsing and adding positive authorization (signature) to a document by the person(s) responsible for the document. (2)

AS-BUILT DATA: Documented data that describes the condition actually achieved in a product. (1)

COMMERCIAL GRADE ITEM: An item that meets all of the following conditions:

- Is used in applications other than nuclear power plant facilities or activities;
- Is not subject to design or specification requirements unique to NRC requirements for nuclear power plants;

- May be ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (e.g., a catalog).

  Note: The specification set forth in the published product description must match the requirements needed to satisfy the design function of the item.

CONCURRENCE: Written agreement that the provisions in a document for which review has been requested are acceptable for implementation within, or from the standpoint of, the signer's area of responsibility.

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.

CONFIDENTIAL-SECURITY: Information, the disclosure of which could provide the intelligence required to defeat plant security systems.

CONTRACTOR: Any organization under contract for furnishing items or services. It includes the term Vendor, Supplier, Subcontractor, Fabricator and subcontractor levels, where appropriate. (1)

CONTROLLED DOCUMENT: A document which is assigned and distributed to an individual or organization and requires that individual or organization to be accountable for the document and to acknowledge receipt of the document in writing. The distributing agent is responsible for providing the recipients with current revisions to the document and for maintenance of the return acknowledgment receipts.

CORRECTIVE ACTION: Measures taken to rectify conditions adverse to quality and, where necessary, to preclude repetition. (1)

DESIGN CHANGE NOTICE (DCN): A formal document for authorizing (by appropriate engineering authority) changes to be incorporated into drawings, specifications, system design descriptions, or project design criteria documents. Demonstrates and applies change controls responsive to regulatory, policy, and operating requirements.

DOCUMENT: Any written or pictorial information describing, defining, specifiying, reporting, or certifying activities, requirements, procedures or results. A document is not considered to be a QA Record until it is completed and contains the required signatures. (2)

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

EXTERNAL ORGANIZATIONS: Any organization participating in the project which is not a part of GPUN or the TMI-2 on site organization. This term includes vendors, A/E's and contractors.

FIELD CHANGE REQUEST: A document which is generated in the field requesting engineering approval of a drawing, specification or procedure change.

GENERAL OFFICE REVIEW BOARD (GORB): An advisory board which reports to and gets general direction from the Office of the President and is responsible to provide independent review of major safety issues, foresee potentially significant nuclear and radiation safety problems and advise the Office of the President on these matters.

IMPORTANT TO SAFETY (ITS): A special classification or category of those structures, systems, components and activities that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public. It encompasses the broad class of plant features covered (not necessarily explicitly) in the General Design Criteria, (10CFR50 Appendix A) that contributes in important ways to the safe operation and protection of the public in all phases and aspects of facility operation (i.e., normal operation and transient control as well as accident mitigation). It includes "Safety-Related" as a subset. !

LICENSEE EVENT REPORT (LER): A report made to the NRC of events and occurrences defined in the technical specification which can be generally classified as failures of safety-related equipment or events that affect nuclear safety.

MONITORING/SURVEILLANCE: An act of assuring compliance of activities to program requirements by direct observation or record review. Generally, monitoring is performed on site and surveillance is performed at a vendor's facility.

PROCUREMENT DOCUMENT: Purchase requisitions, purchase orders, drawings, contracts, specifications or instructions used to define requirements for purchase. (1)

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

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

QA RECORD: A completed document that furnishes evidence of the quality of items and/or activities affecting quality. (1)

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. (1)

QUALIFICATION (Procedures): An approved procedure that has been demonstrated to meet the specified requirements for its intended purpose. (1)

QUALITY CLASSIFICATION LIST (QCL): The controlled document used to record the identification of systems and major components subject to the requirements of the Recovery Quality Assurance Plan.

SAFETY RELATED: As used in 10 CFR 100, Appendix A, this term refers to those structures, systems or components designed to remain functional for the Safe Shutdown Earthquake (SSE) necessary to assure required safety functions, i.e.:

(1) the integrity of the reactor coolant pressure boundary
(2) the capability to shut down the reactor and maintain it in a safe shutdown condition; or
(3) the capability to prevent or mitigate the consequences of accidents which could result in potential off-site exposures comparable to the guideline exposures of 10CFR.

Safety related is a sub-set of Important to Safety.

SAFETY GRADE: Applies to those structures, systems and components which are required for the critical accident prevention, safe shutdown, and accident consequence mitigation safety functions defined in Appendix A to 10 CFR Part 100.

SAFETY REVIEW GROUP (SRG): A full time group of engineers, reporting to the Licensing and Nuclear Safety Director who are responsible for performing independent evaluations and assessments of procedures and activities which have a direct effect on the safety of the plant.

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. (1)

SUPPLIER QUALITY CLASSIFICATION LIST (SQCL): A list of Suppliers who have been evaluated by the GPUN Quality Assurance Department for their capabilities to produce or provide items, equipment or services Important to Safety for nuclear power plants.

TRACEABILITY: The ability to trace the history, application, or location of an item and like items or activities by means of recorded information. (1)

TREND ANALYSIS: A quantitative method of collecting and analyzing non-conformance/deviation events with the goal of systematically determining progammatic/procedural weaknesses.

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

VERIFICATION: An act of confirming, substantiating and assuring that an activity or condition has been implemented in conformance with the specified requirements. (1)

ATTACHMENT 2
4410-85-L-0176

TEXT CHANGED IN 1000-PLN-7200.02 REV. 4-00
GPUNC Recovery Quality Assurance Plan for Three Mile Island Unit 2

PAGE	PARAGRAPH	CHANGE
i		Added "GPU Nuclear is responsible for the recovery of TMI Unit 2."
ii		Deleted "Statement of Policy and Authority" Added "LIST OF EFFECTIVE PAGES/RECORD OF REVISIONS" Changed "Vice President" to "Director"
v		Paged added
1.0	1.1	Changed "Vice President" to "Director"
2.0	1.4	Changed to reflect GPUNC Organization Plan responsibilities
3.0	1.4	Changed "Licensing and Nuclear Safety Director" to "Director Licensing and Nuclear Safety"
5.0	1.4.3	Changed "Licensing and Nuclear Safety Director" to "Director Licensing and Nuclear Safety"
6.0	1.4.3(g)	Capitilized "Review Significant"
8.0	1.4.6(d)	Revised for clarity
	1.5	Changed "Vice President" to "Director"
	1.6	Changed "Vice President" to "Director" and to reflect GPUNC Organization Plan responsibilities
9.0	1.6.1	Changed "Vice President" to "Director"
11.0	1.6.1(j)	Changed "Vice President" to "Director"
12.0	1.6.1(m)	Added "Quality Assurance" Changed "Audits" to "Audit"
13.0	1.6.1.3	Added "Quality Assurance" Changed "Audits" to "Audit"
14.0	1.6.1.3(e)	Added "Quality Assurance" Changed "Audits" to "Audit"
	1.6.1.4(a)	Changed "weld" to "welding"
	1.6.1.4	Former para (b) deleted Former para (e) deleted
15.0	1.6.1.4	Former para (h) deleted Former para (k) deleted Former para (l) deleted Last paragraph added
	1.6.1.5	Former para deleted
	1.6.1.5	Renumbered from 1.6.1.6

PAGE	PARAGRAPH	CHANGE
16.0	1.6.2	Changed "Vice President" to "Director"
17.0	1.6.4	Changed to "Director Licensing and Nuclear Safety"
	1.7	Changed "Vice President" to "Director" and to reflect GPUNC Organization Plan responsibilities
18.0	1.7	Changed "Vice President" to "Director" and to reflect GPUNC Organization Plan responsibilities Changed to "Director Security" Added "Manager Information Management Centers"
19.0	1.7.2	Revised for clarity
20.0	1.7.3	Paragraph added
	1.8	Changed "Vice President" to "Director" and to reflect GPUNC Organization Plan responsibilities
21.0	1.8	Changed to "Safety and Environmental Controls Director" Added "Medical Director"
22.0	1.8.1	Changed to "Safety and Environmental Controls Director" Changed to "environmental, and industrial safety and health matters..." Changed to "System permits, OSHA, NIOSH and..." Changed to "Safety and Environmental Controls Department..."
	1.8.1(g)	Paragraph added
24.0	1.8.4	Paragraph added
25.0	Figure 1	Revised to reflect current organizations
26.0	Figure 2	Revised to reflect current organizations
27.0	Figure 3	Revised to reflect current organizations
	2.2.1.b	Added reference to Appendix C
33.0	2.3.2.1	Changed "Vice President" to "Director"
	2.3.2.2	Changed to "Director Licensing and Nuclear Safety" Changed "Vice President" to "Director"
34.0	2.4	Changed "Vice President" to "Director"
37.0	2.8.1.2	Changed "Licensing and Nuclear Safety Director" to "Director Licensing and Nuclear Safety" Added ","
	2.8.1.3	Missing paragraph number 2.8.1.3 added Changed "Licensing and Nuclear Safety Director" to "Director Licensing and Nuclear Safety"
38.0	2.9.2	Changed "Vice President" to "Director"

PAGE	PARAGRAPH	CHANGE
39.0	2.9.3	Changed "Vice President" to "Director"
	2.9.4	Changed "Licensing and Nuclear Safety Director" to "Director Licensing and Nuclear Safety"
40.0	2.9.7	Paragrapn added
41.0	3.1.2(b)	Paragraph added
	3.1.2(f)	Paragraph added
42.0	3.1.2(g)	Paragrapn added
	3.1.2(h)	Paragraph added
44.0	3.2.3.1	Revised for clarity
45.0	3.2.3.1	Changed "Vice President" to "Director"
	3.2.3.2	Changed "Vice President" to "Director"
47.0	3.3.3.1	Changed "Vice President" to "Director"
48.0	3.3.3.2	Changed "Vice President" to "Director"
	3.3.3.3	Changed "Vice President" to "Director"
53.0	4.3.1.2(b)	Changed to "Assure the review and approval of baseline..."
	4.3.2	Changed "Vice President" to "Director"
58.0	5.1.2.3(g)(5)	Revised for clarity
	5.1.3.1	Changed "Vice President" to "Director"
	5.1.3.1(a)	Added "contracting"
59.0	5.1.3.1(b)	Revised for clarity
	5.1.3.1(c)	Revised for clarity
	5.1.3.2	Changed "Vice President" to "Director"
61.0	5.2.5.3	Changed "Vice President" to "Director"
65.0	6.2.2.2	Changed "Vice President" to "Director"
67.0	6.3.2.1	Changed "Vice President" to "Director"
75.0	6.7.2.2	Changed "Vice President" to "Director"
78.0	6.9.2.2	Changed "Vice President" to "Director"
83.0	6.11.2.2	Changed "Vice President" to "Director"
86.0	6.13.2.2	Changed "Vice President" to "Director"

PAGE	PARAGRAPH	CHANGE
89.0	7.3.2	Changed "Vice President" to "Director"
	7.3.3	Changed "Vice President" to "Director"
94.0	8.3.1	Changed "Vice President" to "Director"
96.0	9.2.2(f)	Typo "contractual"
97.0	9.2.7	Typo "Audit"
98.0	9.3.1	Changed "Vice President" to "Director"
	9.3.2	Changed "Vice President" to "Director"
102.0		Revised for clarity
113.0	R.G. 1.3.9	Former para 3 deleted
115.0	R.G. 1.58(1)	Revised for clarity
122.0		Changed ";" to "."
123.0	Important to Safety	Typo "contributes"