

TMI-1 PREREQUISITE PROGRAM

GPU NUCLEAR CORP

8405170286 840511
PDR ADOCK 05000289
P PDR

PREREQUISITE PROGRAM TMI-1 RESTART

1.0 PURPOSE

This document describes the program used at TMI-1 to identify, record and closeout prerequisites for various Management Hold Points (Flags) in the TMI-1 Master Restart Schedule. It then describes in summary fashion, the general responsibilities, forms used and the major sequences that the program follows.

2.0 APPLICABILITY/SCOPE

This document is applicable to the TMI-1 plant as well as those off site Divisions supporting the Restart effort.

3.0 DEFINITIONS

The following definitions are applicable to the Prerequisite Program.

3.1 Flags - Management hold points within the Master Restart Schedule have been termed "Flags". The following Flag Reviews were established for this program:

- 3.2.1 Flag No. 1 - Preceeds OTSG Testing - Complete
- 3.2.2 Flag No. 2 & 2A - Preceeds Final Hot Functional Testing
- 3.2.3 Flag No. 3 - Preceeds Increase of Power Above 48%
- 3.2.4 Flag No. 4 - Preceeds Sustained Operation at 100% Power

3.2 Prerequisites - Prerequisites are defined as Restart required work items (Hardware or Software) which must be satisfactorily completed or dispositioned prior to the Milestone (Flag) indicated.

3.3 Master Sign Off Sheets - Attachment No. 2, is an example of the document used for Divisional review and concurrence with 1) the initial Prerequisite List scope and 2) that work items within that Division's control and interest have been completed and/or satisfactorily dispositioned to support the Flag in question.

3.4 Scope Sign Off Sheet - Attachment No. 3, is an example of the document used to record the following:

- 3.4.1 Lead Responsibility
- 3.4.2 Section ID Number
- 3.4.3 Section Description
- 3.4.4 Scope of section being reviewed
- 3.4.5 Signatures for 1) Review completion and 2) O&M Director concurrence that all prerequisites identified are completed.

- 3.5 Prerequisite Sign Off Sheet - Attachment No. 4, is an example of the document used to record prerequisites for subsequent signoff when completed.
- 3.6 Lead Responsibility - This term refers to the individuals or organizations who have been assigned lead responsibility for coordinating review and prerequisite identification for a particular section in the Prerequisite List.
- 3.7 Completion - an item is complete when it has satisfied the original intent of the item, i.e. evaluation completed, construction completed etc. Such an item would be signed off and dated in the "Official Field Copy".
- 3.8 Exception - If an item was placed in the Prerequisite List and during a subsequent reevaluation it was determined that it was not Restart required, an "E-", signature and date are placed in the "Official Field Copy" after O&M Director concurrence. Documentation must also be provided for filing.
- 3.9 Deletion - An item placed in the Prerequisite List may be deleted if it was later found that the action described was not required or in error. The "Official Field Copy" is updated after O&M Director concurrence.

4.0 SELECTION OF COMMITTEE

The Restart Readiness Review Committee (RRC) was selected by the Office of the President with consultation of the V.P. & Director of TMI-1. Members were selected to reflect a broad range of knowledgeable senior officials of GPUN, plus knowledgeable persons outside of GPUN who have had some visibility of the TMI-1 situation so that they could effectively review and probe the issues.

The members of the RRC are listed in Attachment No. 6 with a brief outline of pertinent education and experience.

5.0 RESPONSIBILITIES

The below listed subsections present the major responsibilities of those indicated:

- 5.1 Restart Readiness Review Committee - The Readiness Review Committee (RRC) is a management tool intended to assure that:

- a. The preparations for Restart have been accomplished in a careful, thorough, prudent manner and reasonably devised to assure that the people, plant, facilities and procedures are in all regards in a state of readiness such that the plant will be safely started and operated.

- b. There are adequate mechanisms in place to identify, evaluate and address newly emerging items.
- c. Responsibility of members of the RRC is separate and distinct from the responsibilities the individual has in his normal assignment. The RRC is not a mechanism for discharging those other responsibilities.

- 5.2 Divisional Vice Presidents - All Divisional Vice Presidents review the Prerequisite List for completeness within their area of responsibility and insure that their staffs conduct proper reviews associated with Prerequisite identification. Each Vice President also participates in final approvals and recommendations to proceed through each Flag.
- 5.3 Vice President & Director IMI-1 - The Plant Director is responsible for the overall administration of the Prerequisite Program. Approval to seek Readiness Review Committee authorization to proceed must first be obtained from the Plant Director after satisfactory demonstration of readiness.
- 5.4 O&M Director IMI-1 - The O&M Director has oversight responsibility for reviewing and approving all additions and revisions to the Prerequisite List. In addition, the O&M Director provides final sign off for each section located in the Prerequisite List. This sign off will appear only after all listed Prerequisites are satisfactorily completed and/or dispositioned.
- 5.5 Manager of Plans & Programs Department - The Plans & Programs Department has overall coordination responsibility which includes 1) Development of the Prerequisite List itself 2) Maintenance of related document files and 3) Action item/status report and tracking.
- 5.6 Section Leads - Those individuals assigned lead responsibility for the various sections of the Prerequisite list are responsible for a proper review per the subject scope sheet, identification of Prerequisites and Sign Offs when complete.

6.0 PROGRAM OUTLINE

The below listed subsections present the general sequence of the Prerequisite Program (see Attachment No. 1 for Flow Diagram).

- 6.1 Table of Contents - The first step in development of the Prerequisite List is to identify those areas/programs within various Divisions that have Restart related or other required actions to be completed. These areas are evaluated by the O&M Director. A listing is produced, that represents the foundation on which to build the detailed Prerequisites. After the list has been grouped by Function, (i.e. Mods, Deficiencies, etc.) lead responsibilities are assigned. Those assigned this responsibility, as described in 5.6 above, will be responsible for coordinating reviews and prerequisite identification. The final form the above list will take, is the "Table of Contents". (See Attachment No. 5)
- 6.2 Scope Sheet Development - Each section identified and approved per the Table of Contents described in section 6.1, requires a Scope Sheet to be developed. This Scope Sheet describes the review required by the lead individual(s). Upon completion of the subject review, sign offs are obtained from key individuals in the various organizations participating in the review. This sign off signifies a validation of the review and agreement that the detailed Prerequisite List provided to the O&M Director is consistent with the subject scope and completion and/or disposition prior to Restart is required. (See Attachment No. 3)
- 6.3 Prerequisite Identification - Given the scope described on each Scope Sheet, various evaluation meetings are conducted by key individuals in each GPUNC Organization for those sections in the Prerequisite List requiring such a group review. The criteria for evaluating each item at a typical meeting is discussed beforehand. Those items meeting the Restart criteria are typed on the required form (See Attachment No. 4). After O&M Director TMI-1 approval, they are inserted into the Field Copy for subsequent sign off.
- 6.4 Official Field Copy - A controlled field copy of the Prerequisite List is maintained for all sign offs. Each page of the Prerequisite List is 1) Stamped in red "Official Field Copy" and 2) date stamped when it is placed in the book. The field copy, bound in a 3-ring binder, is placed in the Office of the O&M Director, TMI-1, where sign offs may take place.
- 6.5 Sign Off Control - All Sign Offs within the Prerequisite List must be made by 1) responsible individuals assigned 2) individuals delegated sign off authority or 3) an individual who has direct control over the item in question and can properly certify its completion. All Sign Offs will be monitored by the Plans & Programs Department for adherence with the above.

6.6 Documentation - The Plans & Programs Department maintains files for 1) Prerequisite List originals 2) Letters of Exceptions/Delection on tehcnical issues and 3) general correspondence pertaining to the program. An automated action items system, which mirrors the Official Field Copy, is also maintained.

6.7 Operation of the Committee (RRC) - Review by the Committee Members individually and then in a meeting with GPUN Staff consisted of the following:

6.7.1 The proposed Prerequisite List for each Flag - and the methods and procedures used to develop it.

6.7.2 The designation of those organizations and the position within the organization authorized to sign off on completion of each prerequisite.

6.7.3 Review of Prerequisite Lists and questioning the Staff to test the basis for some items which had been signed off, some which have been identified as possible exceptions and the efforts remaining to complete and sign off open items.

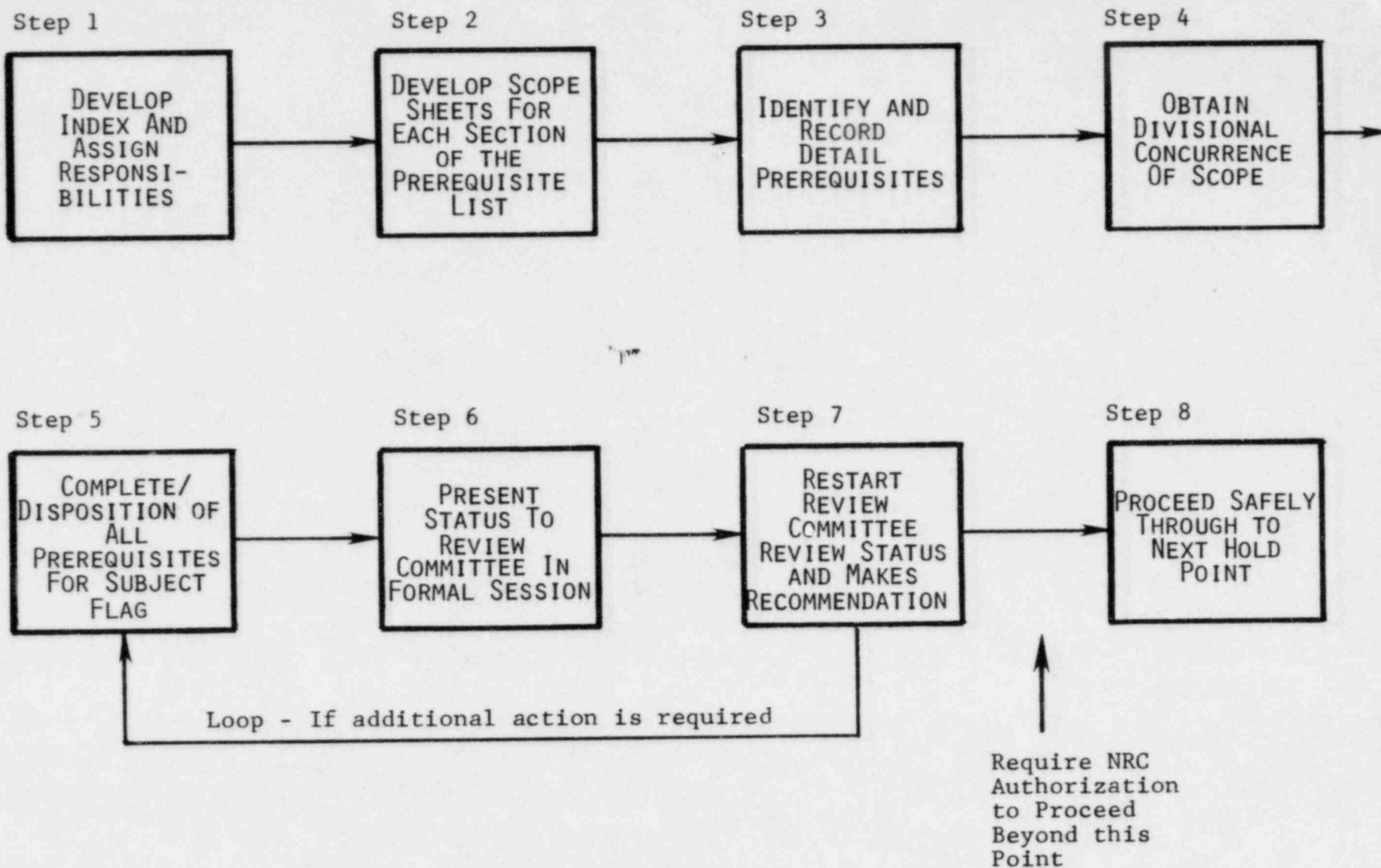
7.0 MEETINGS

The Committee met twice before signing off for Heatup prior to Steam Generator Testing and three times prior to signing off for Final Heatup and Criticality and proceeding to Power. Because of the time lag after the last Flag 2 Meeting, it will be necessary to meet again for Flag 2A prior to Final Heatup and Criticality.

Dates, times and attendance at the meetings is listed in Attachment No. 7.

TMI-1 RESTART PREREQUISITE PROGRAM

SUMMARY



OFFICIAL FIELD COPY

EXAMPLE

"TMI-1 RESTART READINESS"
PREREQUISITE LIST MASTER SIGN OFF SHEET
FLAG NO. 2 - FINAL HEATUP/CRITICALITY

DIVISIONAL VICE PRESIDENT CONCURRENCE

1. The Tech Functions Division has reviewed the prerequisite listing developed for Flag No. 2 and is satisfied with its completeness as it pertains to areas within the Tech Functions Division's responsibilities and interests.

R. F. Wilson
V. P. & Dir. Tech Functions Division

Date

List Attached ☐ Y ☐ N

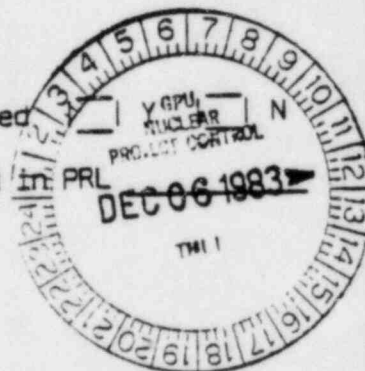
2. The Tech Functions Division has reviewed the status of prerequisites for Flag No. 2 and is satisfied that all those assigned to the Tech Functions Division have been completed or have been properly dispositioned as exceptions. The signature below confirms this review of status and also signifies the Tech Functions Division's readiness to support the plant through the period represented by this Management Flag.

R. F. Wilson
V. P. & Dir. Tech Functions Division

Date

List Attached ☐ Y ☐ N

Date placed in PRL



1.1.6

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EXAMPLE

"TMI-1 RESTART READINESS"
PREREQUISITE LIST SIGN OFF SHEET
FLAG NO. 2

- ° Section 6 - Open Engineering/Licensing Issues
- ° Item No. 6.5 - Open Licensing Action Items
- ° Lead Responsibility - C. Smyth
- ° Scope of Sign Off -

All open Licensing Action Items and commitments have been reviewed for their potential impact on Flag No. 2. All Action Items identified as potentially impacting this milestone have been listed on the attached prerequisite sheet.

- ° Signoffs - To Support ☐ Flag 2 (List Attached ☒ Y ☐ N)

- Review completed, exceptions and/or prerequisites listed

Licensing _____ Date _____

- Exceptions dispositioned and/or prerequisites completed

O&M Director _____ Date _____

(6.5)

Date Placed 15 PRL



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Flag 1 ☐Flag 2 ☒Flag 3 ☐Flag 4 ☐

EXAMPLE

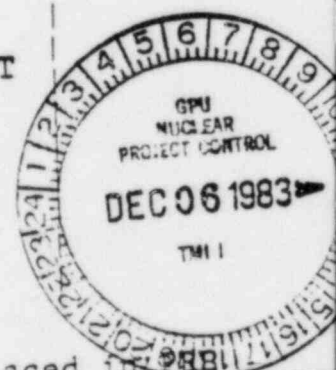
"TMI-1 RESTART READINESS"
PREREQUISITE LIST SIGN OFF SHEETPREREQUISITES

OPENING LICENSING ACTION ITEMS

ITEM NO.	DESCRIPTION OF PREREQUISITE	RESP.	SIGN OFF/DATE
*6.5.1	Revise SP 1300-3H A/B to reflect (Palates to MU System operability (AI 83-0052)	JRB	
*6.5.2	Notify NRC to independently review plant valve lineups (Certification item 23 and 116)	MJR	
6.5.3	Verify completion of Post Accident RCS/RB Sampling System modification and procedures (AI 81-0079)	RJT	
6.5.4	Complete procedure changes necessary to implement the action statements of Tech Spec. 3.22.2.5 per TSCR 34B (AI 81-0300 & AI 81-0645)	JGR	
6.5.5	Assure that procedures are in place and training conducted to perform Low Power Natural Circulation Testing/Training (AI 81-0358 & 82-0044)	MJR	
6.5.6	Verify that procedures are complete to perform testing during PET (AI 82-0046, 82-0047 and 82-0048)	TMH	
6.5.7	Verify completion of alarms and alarm response procedures for the MU-V16 & 475 psi/275 F & 475 psi alarms (AI 82-0372)	MJR	
6.5.8	Verify completion of LM-25A and associated procedures and IWL's (AI 82-0379) (AI 83-0012)	RJT	
6.5.9	Assure that Plant procedures address obtaining saturation margin using other than the Saturation margin monitor (AI 83-0061)	RJT	
6.5.10	Assure that plant procedures provide guidance do not use normal letdown under significant core damage situations when RCS high point vents should be used to prevent overexposure of safety related equipment in the Aux. Building (AI 83-0067)	RJT	

*Exception brought forward from

Date placed in



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TMI-1 RESTART READINESS
PREREQUISITE LIST TABLE OF CONTENTS
FLAG NO. 2 - FINAL HEATUP/CRITICALITY

EXAMPLE

Responsibility

Section 1 - Summary

- 1.1 Master Sign Off Sheets

All VP's

Section 2 - Plant Readiness

- 2.1 Systems Readiness Review
- 2.2 Elect, Mech Jumper, Lifted Lead Log Review
- 2.3 Open Switching/Tagging Review
- 2.4 Fire Barrier Seals Breach Log Review
- 2.5 Emergency/Abnormal/Alarm Response Procedures
- 2.6 Surveillance Procedures Required for Flag No. 2
- 2.7 Transient Monitoring system is Operable
- 2.8 RMS System Upgrade
- 2.9 Combustibles Review (Walkdown)
- 2.10 Operator Interface with Bailey/Mod Computers
- 2.11 Not Used for Flag No. 2
- 2.12 Chemistry Program Upgrade
(including Bulk Chemicals Control)
- 2.13 INFO Commitments Review
- 2.14 Staffing Adequate and Trained to Support
Operating TMI-1
- 2.15 Plant Cleanliness (Walkdown)
- 2.16 Removal of Temp. Lead Shielding
- 2.17 Loose Parts Vibration Monitoring Sys. Operable
- 2.18 Not Used for Flag No. 2

Ross/Broughton
Ross
Ross
Ross
Ross/Broughton
Ross/Colitz
Hawkins
Shovlin
Toole/Troffer
Ross
—
Fuhrer
Toole
Ross
Toole
Toole/Kuehn
Orlandi
—

Section 3 - Review of Work Currently in Process

- 3.1 Open Job Tickets/Retests Review
- 3.2 Open M&C Job Orders/Work Authorization
- 3.3 Open SU/Test Work in Process Review

Shovlin
Troffer
Hawkins

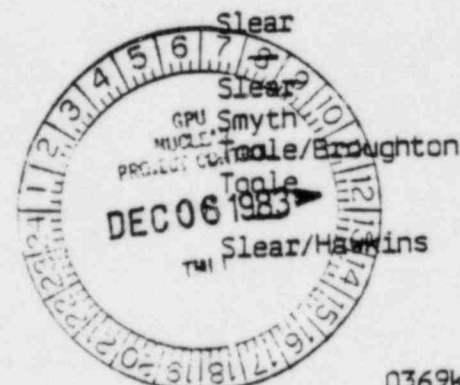
Section 4 - Review of Modifications

- 4.1 Restart Modifications
- 4.2 OTSG Mods (OTSG A&B Repair)
- 4.3 Task 8 Mods (Primary/Secondary System)
- 4.4 IWL Listing Review

Troffer/Toole
Troffer/Toole
Troffer/Toole
Troffer/Toole

Section 5 - OTSG Readiness Review for Operability

- 5.1 OTSG Repair Readiness for Operability
- 5.2 Not Used for Flag No. 2
- 5.3 Safety Evaluation Review
- 5.4 Tech. Spec. Change Request Status
- 5.5 Emergency Response for OTSG Tube Rupture
- 5.6 GORB OTSG Subcommittee Review
- 5.7 Not Used for Flag No. 2
- 5.8* Results of OTSG Test and Evaluation



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EXAMPLE

TMI-1 RESTART READINESS
PREREQUISITE LIST TABLE OF CONTENTS
FLAG NO. 2 - FINAL HEATUP/Criticality

- continued -

Responsibility

Section 6 - Open Engineering/Licensing Issues

6.1	Outstanding FQs, FCRs, DRFs and EDMs	Shorts
6.2	Outstanding TFWRs	Langenbach
6.3	Outstanding Engin. Evaluation Review	Colitz
6.4	Outstanding Change Mod Request Review	Colitz
6.5	Review of Open Licensing Action Items	Smyth
6.6	Tech. Spec. Changes/Status	Smyth
6.7	Outstanding Emergency Plan Items	Rogan
6.8	Drawing Update Status	Slear
6.9	Hanger/Snubber Check Program and Systems Balance (TP 800/3)	Croneberger
6.10**	Misc. Engineering/Maintenance	Slear/Toole

Section 7 - Outstanding Deficiency Reviews

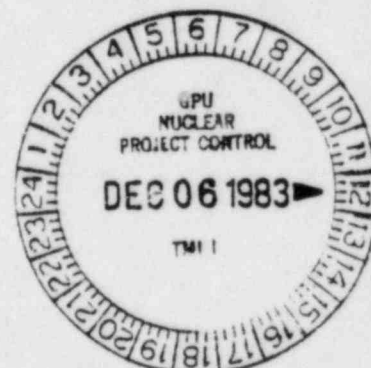
7.1	Startup Problem Reports	Hawkins
7.2	MNCRs, QDRs, RDNs, Qualified Releases and Audit Findings	Ballard/Toole
7.3	RDRs and RIRs	Kuehn
7.4	Restart Validation Problem Reports	Ballard
7.5	Post Mod Turnover Package Review	Ballard

Section 8 - Startup & Test Group Readiness

8.1	Test Instrumen./Equipment for Support of Flag No. 2	Hawkins
8.2	Test Procedures (TP) Approved to Support Flag No. 2	Hawkins
8.3	Functional Mod Tests Scheduled As Part of the Test Program	Hawkins
8.4	Training/Dry Run for Restart Completed	Hawkins
8.5	SU/Test Manpower Requirements Review	Hawkins

*Changed description and scope of this section

**This section was added to Flag No. 2



READINESS REVIEW COMMITTEE

Attachment 6

Page 1 of 3

MEMBERSHIP

NAME/TITLE	EDUCATION	EXPERIENCE
P. R. Clark - GPUNC President GPUNC	-Bachelor of Civil Engineering-Cum Laude Polytechnic Institute of Brooklyn -Graduate Study in Civil Engineering Polytechnic Institute of Brooklyn -Oak Ridge School of Reactor Tech.	-Associate Director Reactors, Naval Reactors Division, U.S. Dept. of Energy Chief Reactor Engine- ering Division, Nuclear Power Directorate, Naval Sea Systems Command, Department of the Navy. In which position he directed a major element of the U.S. Naval Nuclear Propulsion Program. Retired U.S. Government
R. C. Arnold - GPUNC Former President GPUNC (On Committee thru 11/25/83)	-BS, Science/Engineering University University of Michigan	-Sr. Vice President, Metropolitan Edison Co. & Vice President GPU Service Corp.; Vice President - Generation, GPU Service Corpora- tion; Vice President - Generation, Met Ed Co.; U.S. Navy, Lt. Commander USS Log Beach, Main Propulsion Assistant responsible for Operations and Maintenance of a two reactor nuclear propulsion plant.

NAME/TITLE	EDUCATION	EXPERIENCE
H. D. Hukill -GPUNC V.P. & Director, TMI-1	-B.S. Naval Academy -Naval Nuclear Power Training	-Department of the Navy Senior Civilian Special Assistant to the Commander Naval Sea Systems Command; Burns & Roe, Inc. Project Operations Manager, Clinch River Breeder Reactor Plant Project; retired Navy after 22 years of Construction, Maintenance and Operations of Nuclear Submarines and 4 years as the Senior Naval Office Special Assistant to the Director of the Navy's Nuclear Propulsion Program.
R. L. Long - GPUNC V.P. Nuclear Assurance Division	-P.H.D. Nuclear Engineering Purdue University -M.S. Nuclear Engineering Purdue University -B.S., Electrical Engineering Bucknell University	-Chairman, Department of Chemical & Nuclear Engineering; Professor of Chemical & Nuclear Engineering, University of New Mexico; Associate Reactor Engineer, Indian Point Nuclear Plant; Research participant in the field of Fast Burst Reactor Sandia Corp.; Research Associate, Nuclear Research Division, Atomic Weapons Research Aldermaston, Berkshire, England.
R.F. Wilson - GPUNC V.P. Technical Functions Division	-M.S. Mechanical Engineering University of Michigan -B.S. Mechanical Engineering University of California at Berkeley -Nuclear Engineer/Reactor Technology, Oak Ridge School of Technology	-Manager of Manufacturing Engineering with Offshore Power Systems, Inc. two proposed Nuclear Plants to be built off the N.J. Shore; Chief Program Engineer on the Liquid Metal Fast Breeder Reactor Program for Atomic International.
R. W. Heward, Jr. GPUNC V.P. Rad & Environ.	-B.S. Swarthmore College -Oak Ridge School of Reactor Tech.	-Chief Naval Nuclear Engineer, New York Shipbuilding Corp; GPU Service Corp., Safety and Licensing Manager; Project Manager Forked River Project; Project Manager Three Mile Island; Manager of Nuclear Projects.

NAME/TITLE	EDUCATION	EXPERIENCE
S. Bartnoff - GPUSC Exec. V.P. - Elect Operations	-PHD, Physics Massachusetts Institute of Tech. -M.A. Physics Syracuse University	-President and Chief Operating Officer Jersey Central Power & Light Co.; Manager of Engineering, GPU Service Corp; Manager Nuclear Fuels Division GPU Nuclear Power Activities Group; Advisory Engineer, Westinghouse Atomic Power Division.
I. R. Finfrock, Jr. G.O.R.B. Chairman	-B.S. Electrical Engineering Drexel Institute of Technology -International School of Nuclear Science and Engineering - Argonne Laboratories	-Vice President & Director Oyster Creek Plant; Vice President, Generation JCP&L; Manager Nuclear Generating Stations JCP&L; Mana- ger of Safety and Licensing GPU Nuclear Power activities.
T. L. Gerber - Outside GORB Member	-PHD, Mechanical Engineering Stanford University -M.S., Mechanical Engineering Stanford University	-Executive Vice President-Structural Integrity Associates, San Jose Calif.; Senior Consultant-S. Levy Inc. Campbell California; Sub- section Manager/General Electric Co., San Jose, Calif.

FLAG NO. 1 MEETING NO. 1
ATTENDANCE

Committee Members Present

Clark
Arnold
Hukill
Long
Finfrock
Bartnoff
Wilson
Gerber
Kuehn (Acting) for Heward

Adamiak
Toole
Kintner
Colitz
Ballard
Fenti
Hawkins
Niedig
Croneberger
Keaton
Slear
Langenbach
Broughton
Troffer
Faulkner
Smyth
Carroll
Christman

Place: Unit 1 South Auditorium
Date: July 26, 1983
Duration: 7 Hours

FLAG NO. 1 MEETING NO. 2
ATTENDANCE

Committee Members Present

Clark
Arnold
Finfrock
Toole (Acting for Hukill)
Keaton (Acting for Wilson)
Kuehn (Acting for Heward)
Gerber
Bartnoff
Long

Adamiak
Toole
Colitz
Ballard
Fenti
Hawkins
Langenbach
Niedig
Slear
Broughton
Troffer
Faulkner
Smyth
Croneberger
Carroll
Christman

Place: Unit 2 Admin. Bldg.
Date: August 19, 1983
Duration: 5.5 Hours

FLAG NO. 2 MEETING NO. 1
ATTENDANCE

Committee Members Present

Clark
Hukill
Long
Kuehn (Acting for Heward)
Keaton (Acting for Wilson)
Bartnoff
Finfrock
Gerber

Adamiak
Toole
Colitz
Niedig
Faulkner
Croneberger
Slear
Langenbach
Smyth
Hawkins
Carroll
Ballard
Fenti
Christman
Shorts

Place: TMI Training Center
Date: October 20, 1983
Duration: 7 Hours

FLAG NO. 2 MEETING NO.2
ATTENDANCE

Committee Members Present

Clark
Finfrock
Gerber
Wilson
Hukill
Long
Kuehn (Acting for Heward)
Bartnoff (Not Attending)

Adamiak
Toole
Slear
Shorts
Hawkins
Colitz
Troffer
Faulkner
Farr
Carroll
Christman
Fidler
Croneberger
Smyth

Place: TMI Training Center
Date: December 20, 1983
Duration: 6.5 Hours

FLAG NO. 2 MEETING NO.3
ATTENDANCE

Committee Members Present

Clark
Finfrock
Gerber
Keaton (Acting for Wilson)
Hukill
Long
Heward
Bartnoff

Adamiak
Toole
Colitz
Troffer
Kintner
Broughton
Slear
Shorts
Fenti
Neidig
Hawkins
Carroll
Kuehn
Smyth

Place: TMI Training Center
Date: January 12, 1984
Duration: 6 hours