

**PG&E****Pacific Gas and Electric Company**NUCLEAR POWER GENERATION  
DEPARTMENTNUMBER W-606  
REVISION 0  
DATE 5/7/82  
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TITLE

PROCEDURE FOR OPERATING NUCLEAR  
PLAN<sup>m</sup> MODIFICATION

APPROVED BY

I. SCOPE

This procedure defines the methods and steps taken to implement the Operating Nuclear Plant Modification Program and effect changes to the design of Diablo Canyon Units 1 & 2. It is effective upon the date approved for Unit 1 and upon receipt of an operating license for Unit 2, or at such earlier time as directed by the Project Manager.

II. DISCUSSION

The instructions contained herein are provided to control the activities of personnel working on the Diablo Canyon Project (DCP) with regard to plant modifications. The goal of this procedure is to provide a well structured program for implementing plant modifications.

When a nuclear power plant receives an operating license, it is considered to be complete. The design, construction, and operating procedures for Diablo Canyon have been evaluated by the Nuclear Regulatory Commission (NRC) and determined to meet regulatory requirements as stated in the Safety Evaluation Report and Operating License including Appendix A (Technical Specifications) and Appendix B (Environmental Protection Plan). The NRC evaluation is based on licensee submittals including the Final Safety Analysis Report and Licensee Written Responses to NRC Staff questions. Any plant modification which would modify the evaluated basis for the plan create an unreviewed safety question or cause a change to the Technical Specification or "Environmental Protection Plan", must be evaluated in a similar manner. The applicable requirements when making a modification are set forth in 10CFR50.59 and the Operating License Technical Specifications.

For an operating nuclear power plant (a plant for which an operating license has been issued), it is imperative that an integrated and highly structured plant modification control program be in place. This program must provide for an orderly method of making plant modifications to improve safety, reliability, or maintainability. It must provide for documented review to assure that plant safety or environmental quality are not degraded in any manner when a modification is made and must also be conducted in accordance with regulatory requirements and the operating license.

Plant modifications consist of several stages: design, review and approval, installation, test, acceptance, release for operation and final

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documentation. Implementation of all phases is required before a modification can be considered complete and operable. The policy for Diablo Canyon is that this procedure provides the safest, most expeditious and cost effective sequence of accomplishing plant modifications and is the sequence to be followed. Exceptions to this policy shall be by written agreement between the Vice President of Nuclear Power Generation, Engineering and General Construction on a case-by-case basis and at the specific request of the Project Manager. For each case, the Project Manager shall define the reasons for exemption and propose alternate controls to assure that the objectives of the program are met.

In order to be effective, the operating nuclear power plant modification control program will be based on the following:

1. Schedules and commitments to allow sufficient time for an orderly and formal process containing the following steps: design, review and approval, installation, test, acceptance, training, release for operation and final documentation.
2. Schedules and resources adjusted as necessary to maintain this sequence.
3. The vast majority of modifications will be constructed from complete design issued via approved Engineering drawings.
4. The reasons for making the modification and justification for the conclusion that the modification is necessary and does not adversely affect safety or environmental quality, must be a part of the review and approval process. Review and approval must also be in accordance with regulatory requirements (10CFR50.59) and the operating license including submittals to the NRC when required.
5. The modifications must be constructed in accordance with approved design documents or authorization for variance must be obtained. Authorization for variance may be in the form of: (a) pre-established guidelines, (b) verbal authorization where the variance is minor and does not affect the intent or intended function of the present design, or (c) by formal signature and revision of the modification request and associated design.
6. The final documentation process makes provision for the following in a timely manner: (a) notification of all departments when a modification has been completed and accepted for operation, (b) distribution of as-built information to operating, maintenance and Engineering personnel, (c) incorporation of as-built information on Engineering drawings and (d) distribution of complete and up-to-date Engineering drawings.

The activities outlined herein are necessary to meet the above requirements and assure that plant modifications are handled in an orderly manner resulting in assurance of safe plant operations.

### III. RESPONSIBILITIES

The Project Manager is responsible for the following:

- The overall plant modification program.
- Interfaces between Nuclear Plant Operations (NPO), Engineering and General Construction.

The Project Engineer is responsible for the following:

- Furnishing design as required to meet project schedules.
- Furnishing information needed by the Licensing Group to prepare submittals in connection with plant modification.

The Project Construction Superintendent is responsible for the following:

- Completion of construction activities assigned to the General Construction Department.
- Providing as-built information to the Plant Manager.
- Notifying the Plant Manager and Project Manager that work is complete.
- Preparation of Plant Modification Followers for design activities within his delegation of authority.

The Plant Manager is responsible for the following:

- Safety aspects of all plant modifications.
- Approval of all plant modifications prior to start of construction or installation.
- Providing necessary information to the Licensing Group needed to prepare submittals regarding plant modifications.
- Preparation of Plant Modification Followers for design activities within his delegation of authority.

The Project Licensing Engineer is responsible for the following:

- Preparation of licensing submittals in connection with plant modifications.
- Updating the FSAR.

#### IV. DEFINITIONS

##### Design Change:

A design change is any modification, addition, or deletion to plant structures, systems, or components as described on approved specifications, drawings, or supplier documents which could affect:

- (1) The function and/or the design operating characteristics of the structure, system or component under normal and/or abnormal operating conditions.
- (2) The reliability or failure rate of the structure, system or component under normal and/or abnormal operating conditions.
- (3) The safety consequences of a malfunction or failure of the structure, system or component.

##### Plant Modification Followup (PMF):

A document employed to provide cover for the design resulting from an identified need for a plant modification and to provide documentation that each step necessary to accomplish design, approval, construction and verification of plant modifications is documented.

In the text of this procedure, the term PMF is considered to include the design package.

##### Construction:

Any activity undertaken to affect a modification or design change.

##### Important to Safety (as applied to Plant Modifications):

1. All changes to items designated as "Q" in the Diablo Canyon Q-list.
2. All changes to Fire Protection System components.
3. Any change which is itself not safety-related, but which could affect functioning of safety-related equipment. For example, a change to the supports for the Auxiliary Steam Line which runs through the Auxiliary Feedwater Pump Room.
4. A change which could result in a change to equipment, analyzed accidents, etc., as described in FSAR.
5. Any change which could result in a change to the Technical Specifications, Process Control Program, off-site dose calculation procedure, or environmental radiation monitoring program.

6. All changes to systems designed to contain radioactive materials including gaseous and liquid radioactive waste, sampling systems, etc., which are "described in the FSAR."

Important to Environmental Quality:

A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if:

- It concerns a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the final environmental statement (FES) as modified by Staff's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board;
- It results in a significant change in effluents or power level [in accordance with 10 CFR Part 51.1 (b) (2)] or
- It creates a significant environmental effect not previously reviewed and evaluated in the documents specified above.

V. INSTRUCTIONS

This section describes the actions by various departments to initiate, approve, implement and verify plant modifications.

A. Initiation

1. Engineering

- a. When a need for modification has been identified, the responsible engineer will initiate design activities in accordance with Engineering Manual procedure 3.6 ON.
- b. The complete and approved design package will be forwarded to the Project Engineer for review. The design package will be under the cover of a Plant Modification Follower (PMF) Attachment A and will contain as a minimum the following:
  - a description of the modification
  - the reason for the modification
  - Design Change Notice (refer to Engineering Manual or Action Request Transmittal (refer to NPG Procedure W-682)

- design drawing list
  - design drawings
  - safety evaluation
- c. The Project Engineer will forward the PMF and design package through the Project Control Section General Office (PCSGO) to the Power Plant Engineer.
2. General Construction
- a. When a need for a modification is identified, GC will either initiate a PMF, Attachment A, with the appropriate sections completed and a DCR and forward it to Engineering for processing, or based on delegated authority, prepare a PMF, approve the DCR, attach the design drawings and safety evaluation and forward via the Project Control Section Diablo Canyon (PCSDC) to the Power Plant Engineer.
3. Nuclear Plant Operations
- a. When the need for a plant modification is identified, NPO will either initiate a PMF, Attachment A, in accordance with AP C-1, or initiate a DCR in accordance with AP C-1, Suppl. 2. If a DCR is initiated, it will be forwarded to the Project Engineer for action. If a PMF is initiated under the NPO delegation of authority, it will be forwarded via the PCSDC to the Power Plant Engineer with a copy to the Project Engineer.
4. Systems Interaction Program (SIP)
- a. Plant modifications may be required to correct unacceptable conditions identified by the SIP. Postulated interactions, documented on an Interaction Documentation Sheet (IDS), shall be evaluated to determine whether a plant modification is necessary.
- b. If it is determined that a plant modification is necessary, an Action Request Transmittal (ART) or DCN shall be generated.
- c. The initiator of the ART shall initiate a PMF, Attachment A, and complete a safety evaluation.
- d. The approved ART and Safety Evaluation shall be forwarded under cover of the PMF to the SIP Project Engineer.

- e. The SIP Project Engineer is responsible for document control related to SIP activities.
- f. The SIP Project Engineer shall assure that all required steps - technical reviews, analyses, etc., are performed in accordance with NPG Procedure W-682. When the SIP Project Engineer approves the ART and appropriate section of the PMF, the package shall be forwarded to the Project Engineer for approval and transmittal to the Power Plant Engineer.

#### B. Approval

Regardless of who originated the plant modification or provided the design, all plant modification and significant changes thereto must be approved by the Plant Manager or his delegate. As required by the operating license, the Plant Staff Review Committee (PSRC) reviews each plant modification which is important to safety or environmental quality and recommends to the Plant Manager what action he should take.

1. Approved design, under cover of a PHF, will be furnished to the Power Plant Engineer as prescribed in Section A above.
2. The Power Plant Engineer is responsible for screening all modification and assuring that the PSRC reviews all those that affect any structure, system or component important to safety or environmental quality. The Plant Manager may approve those not affecting any structure, system, or component important to safety or environmental quality without Plant Staff Review Committee review.
3. The Plant Manager assigns the work required by plant modifications to either GC or the Plant Staff.
4. After Plant Manager approval, distribution shall be made in accordance with Nuclear Plant Administrative Procedure (NPAP) C-1, Suppl. 1. At this time, a status notation will be entered against each affected drawing into the RMS.

#### C. Construction

1. Construction activities shall be conducted under procedures established by the group to which the work was assigned.
2. During the course of construction, system interaction evaluation should take place.

## D. Revisions

1. Minor revisions (MR's) to the PMF which do not alter the safety classification, safety review, or intent of the original PMF may be approved jointly by the GC resident or DCPD department head and the Power Plant Engineer without PSRC review. MR's shall be appropriately documented using the form provided as Attachment B.
2. If the revision is more extensive than an MR, the Power Plant Engineer shall be notified and the implementing organization shall request a PMF revision from the organization that developed the PMF. The revision shall be forwarded to the Plant Engineer and handled similar to a new PMF.

## E. Post Construction

1. At the completion of construction, Start-up or Post Installation tests shall be conducted.
2. When the modification has been verified complete and prior to acceptance for operation by the Plant Manager, a final Systems Interaction inspection shall be completed.
3. The work shall be verified complete by the responsible organizations. Verification will be noted on the PMF.
4. After verification, the PMF shall be forwarded to the Power Plant Engineer. Any as-built information must be attached to the PMF.
5. The Power Plant Engineer will notify the Diablo Canyon Project Manager and Project Engineer that work is complete and submit as built information using Field Correction Transmittals (FCT) for any discrepancies which do not constitute "design changes" to the Project Engineer for processing. Such FCT's shall be referenced on the PMF.

Plant Drawing Control will be notified to distribute as-built copies of the drawings for "operation and maintenance."

6. Following acceptance by the Plant Manager, the modification will be released for operation in accordance with procedures established by the Plant Manager.
7. The Power Plant Engineer will forward the PMF to the Project Engineer.



8. The Project Engineer is responsible for revising and/or issuing final drawings.
9. When each drawing is issued, the RMS information shall be updated.
10. The PMF, sans drawings, shall be RMS indexed for permanent retention.

VI. DISTRIBUTION:

A copy of STET PMF, Sheets 1 & 2 only, shall be forwarded to the Diablo Canyon Project Manager after completion of each major section of sheet 2.

VII. REFERENCES:

Engineering Manual Procedure 3.6 ON

Nuclear Plant Administrative Procedures AP C-1 and Supplements

General Construction Drawing Control Procedure Operating Instruction OEI-1

10CFR50.59 - Changes, Test and Experiments

Quality Assurance Manual for Operating Nuclear Plants

NPG Procedure W-682

Systems Interaction Program Manual

Facility Operating License No. DPR-76 and Appendices

VIII. ATTACHMENTS

- A. Plant Modification Follower
- B. PMF Minor Revision
- C. Plant Modification Flow Chart

PLANT MODIFICATION FOLLOWER

DESCRIPTION OF CHANGE:

REASON FOR CHANGE:

CHANGE REQUESTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

REQUEST AUTHORIZED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

### DESIGN ACTIVITIES

ITEM	DEPT	BY	DATE	ITEM	DEPT	BY	DATE
DCN <input type="checkbox"/> ART <input type="checkbox"/>	_____	_____	_____	MAT'L REQ'S:	_____	_____	_____
DWG LIST:	_____	_____	_____	SAFETY EVAL:	_____	_____	_____
REQ'D DWGS:	_____	_____	_____	SUPPORTING DOC:	_____	_____	_____

APPROVED (GP LDR) \_\_\_\_\_ / \_\_\_\_\_ APPROVED (PE) \_\_\_\_\_ / \_\_\_\_\_

#### APPROVAL FOR DESIGN IF OTHER THAN ENGINEERING

FORMAL DELEGATION OF AUTHORITY  REF \_\_\_\_\_  
 VERBAL AUTHORIZATION  BY (GP LDR) \_\_\_\_\_  
 PROJECT CONTROL (GO) TRANSMITTED TO POWER PLANT ENGINEER \_\_\_\_\_

### PLANT STAFF ACTIVITIES

	BY	DATE		BY	DATE
REC BY PPE:	_____	_____	ALARA EVAL:	_____	_____
IMP TO SAFETY:	_____	_____	TECH SPEL REVIEW:	_____	_____
ENVIRONMENTAL QUALITY EVAL:	_____	_____	PSRC RECOMMENDS APPROVAL <input type="checkbox"/> YES <input type="checkbox"/> NO:	_____	_____
REASON FOR REJECTION:	_____				

PLANT MANAGER APPROVAL \_\_\_\_\_ DATE \_\_\_\_\_  
 INSTALLATION ASSIGNED TO  PLANT STAFF  GC: BY \_\_\_\_\_ DATE \_\_\_\_\_  
 PROJECT CONTROL (DC) TRANSMITTED TO INSTALLER: BY \_\_\_\_\_ DATE \_\_\_\_\_

### INSTALLING ORGANIZATION ACTIVITIES

	BY	DATE		BY	DATE
RECEIVED:	_____	_____	INSTALLATION COMPLETE:	_____	_____
PRELIM SIP WALKDOWN:	_____	_____	START UP/POST INST TESTS COMP:	_____	_____
AS-BUILTS ATTACHED:	_____	_____			

### PLANT STAFF ACCEPTANCE ACTIVITIES

	BY	DATE		BY	DATE
RECEIVED:	_____	_____	PROJ ENG NOTIFIED:	_____	_____
FINAL SIP WALKDOWN:	_____	_____	ACCEPTED PLANT SUPERINTENDANT:	_____	_____
PLANT MANAGER FINAL APPROVAL _____			DATE _____		
PROJECT CONTROL (DC) TRANSMITTAL TO PROJECT CONTROL GO: _____			DATE _____		

### ENGINEERING CLOSE-OUT ACTIVITIES

ALL DESIGN DOCUMENTS ISSUED FOR OPERATION: \_\_\_\_\_  
 \_\_\_\_\_ PROJ ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_  
 RMS PURGED BY: \_\_\_\_\_ DATE \_\_\_\_\_ RMS INDEXED BY: \_\_\_\_\_ DATE \_\_\_\_\_

DIABLO CANYON POWER PLANT  
PMF MINOR REVISION

PROCEDURE W-000  
ATTACHMENT B  
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PMF No. \_\_\_\_\_ Rev. \_\_\_\_\_ Unit No. 1 \_\_\_ 2 \_\_\_ 1&2 \_\_\_

Title \_\_\_\_\_

Type of Change: \_\_\_ PERMANENT (green) \_\_\_ TEMPORARY (yellow); Expiration Date \_\_\_\_\_

Requesting Department \_\_\_\_\_ Originator \_\_\_\_\_

PROPOSED CHANGE: (Does this alter the intent of original PMF \_\_\_ Yes \_\_\_ No)  
(Does it alter the safety or environmental quality evaluation \_\_\_ Yes \_\_\_ No)

REASON FOR CHANGE:

\_\_\_\_\_/Date via Telecon with \_\_\_\_\_ N/A

Authorizations: \_\_\_\_\_  
GC Resident/DCPP Dept. Head \_\_\_\_\_ Plant Manager/Engineer \_\_\_\_\_ Date\* \_\_\_\_\_

Immediate distribution to the Plant Modification Follower \_\_\_ Yes \_\_\_ No Initial  
Distribution By: \_\_\_\_\_

Distributed To: \_\_\_ Project \_\_\_ Plant Engineer \_\_\_\_\_

PSRC Change Review

Review Date \_\_\_\_\_ N/A

PSRC recommends approval \_\_\_ Yes \_\_\_ No \_\_\_\_\_  
Plant Manager's Approval \_\_\_\_\_ N/A

Meeting Number \_\_\_\_\_

Implementing Department

Follow-up to Rejected On-the-Spot Change \_\_\_ Additional Information \_\_\_\_\_

Action Taken/Remarks:

# OPERATING NUCLEAR PLANT MODIFICATION CONTROL

