

OVERALL MANAGEMENT PLAN  
FOR DESIGN VERIFICATION PROGRAM  
OF THE DIABLO CANYON POWER PLANT  
(REVISION 1, APRIL 6, 1982)

INTRODUCTION

This plan constitutes the revised Management Plan which PGandE proposes to meet the requirements of NRC Order, CLI-81-30, dated November 19, 1981 ("Order") and the NRC November 19, 1981 letter ("Letter") to PGandE (H. R. Denton to M. H. Furbush).

PGandE's Management Plan was originally submitted as Enclosure 3 of PGandE's December 4, 1981 Phase I verification program proposal. In accordance with Mr. H. R. Denton's letter to Mr. M. H. Furbush dated March 19, 1982, the original PGandE Management Plan has been revised to specify Teledyne Engineering Services ("TES") as the program manager to perform the Phase I independent verification program. In addition, PGandE's Management Plan has been revised to also describe a modified organizational structure in accordance with the Staff recommendations, SECY-82-89 ("Recommendations"), with changes approved by the NRC Commissioners on March 4, 1982. Further, this revised Management Plan addresses certain specific matters raised at the March 25, 1982 NRC meeting.

As a result of errors identified by PGandE in the design of Diablo Canyon Power Plant ("DCPP"), PGandE implemented design verification programs by organizations both inside and outside PGandE. These two programs are identified as the internal technical program and the external independent program. In response to the Order and Letter, PGandE has formalized the ongoing independent effort into a two-phase program ("Independent Program")<sup>1/</sup>.

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<sup>1/</sup> Note that the TES Management Plan Phase I uses the acronym IDVP (for Independent Design Verification Program) to denote this effort.

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## INDEPENDENT PROGRAM

### Scope

Phase I of the Independent Program encompasses those actions required to be completed prior to fuel load at DCPD Unit No. 1 as specified in Paragraph 1 of Attachment 1 to the Order. This work consists of a design verification of all safety-related activities performed prior to June 1, 1978, associated with seismic-related service contracts for safety-related structures, systems and components.

In accordance with the Recommendations, the scope of the Independent Program has been expanded to include items defined in the Phase I program plan as well as those specified in the reporting procedures. These items include the validation of the verification work and findings to date and the incorporation, as appropriate, of these findings into an approved program. In addition, the Recommendations also direct that the independent program manager file reports simultaneously with PGandE and the NRC to assure that independence is maintained. The Phase I program also includes additional requirements concerning NSSS vendors, statistics, and structural elements.

Phase II of the Independent Program encompasses those actions required to be completed prior to issuance of a license authorizing operation above 5% power. The requirements of Phase II are described in detail in the Letter and consist of three discrete elements : 1) an independent design verification of non-seismic safety-related work performed by service contractors prior to June 1978; 2) a design verification of PGandE internal safety-related design activities; and 3) a design verification of safety-related work by service contractors performing work after January 1, 1978.

In defining the scope of the Independent Program, PGandE specifies that TES perform tasks which satisfy the requirements of the Order, Letter and Recommendations in accordance with the relevant guidelines contained in ANSI N45.2.11, Section 6.3.1.

### Implementation

The Independent Program will be administered under the supervision of Mr. G. A. Maneatis, PGandE's Senior Vice-President for Facilities Development (see Figure 1). TES will act as the program manager and will direct the independent design verification effort. Under TES' direction, R. L. Cloud Associates, Inc. ("RLCA") will perform the review of seismic, structural and mechanical aspects; R. F. Reedy, Inc. ("RFR") will review quality assurance aspects; and Stone and Webster Engineering Corporation ("SWE") will review,

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as appropriate, the safety systems and analyses. TES, RLCA, and RFR will perform their activities in both Phase I and Phase II of the Independent Program. SWEC will perform their review as part of Phase II of the Independent Program.

On April 2, 1982, TES submitted to the NRC and PGandE its Program Management Plan Phase I which includes its Phase I Engineering Program Plan implementing the requirements of the Order and Recommendations. The TES plan describes the approach and identifies the personnel which TES will utilize in its function as Program Manager for Phase I. This plan will be supplemented by TES to include the Phase II effort.

PGandE will require that activities performed by the independent consultants as part of the Independent Program be subject to the quality assurance requirements in their respective quality assurance manuals as specified in the TES Program Management Plan Phase I.

#### Reporting

PGandE requires that TES provide reports of its progress and findings and describe in detail its reporting procedures. Reports generated during the Independent Program will be furnished simultaneously to Mr. Maneatis and Messrs. H. R. Denton and R. H. Engelken of the NRC.

To assure effective implementation of the Independent Program, a continuous interchange of background information among representatives of TES, RLCA, RFR, SWEC, PGandE and its associated contractors will be maintained to facilitate an understanding of technical criteria, comments, and methodology used in the original design as well as the design verification program. Additionally, TES will establish appropriate documentation practices for these exchanges of information.

### TECHNICAL PROGRAM

#### Scope

In addition to the above described Independent Program, PGandE has been conducting ongoing internal technical reviews and analyses ("Technical Program"). The formal identification of this effort was first made in PGandE's eighth semi-monthly status report dated February 26, 1982. The term "PGandE Technical Program" was used to more clearly identify how issues are being handled internally to PGandE. TES, in its Phase I plan, references the PGandE Technical Program as described in the February status report. However, the scope of the Technical Program has now evolved to include the following:

- 1) addressing technical issues identified as a result of the original annulus problem;

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- 2) reviewing PGandE designed safety-related systems in preparation for their evaluation in that portion of the Phase II program dealing with the internal PGandE design process;
- 3) addressing any other technical concerns identified during the evaluation of any technical issue; and
- 4) addressing issues identified by the Independent Program.

The PGandE Technical Program includes activities being performed by PGandE to fulfill its responsibility as the licensee for DCPD to assure that the facility is designed and constructed to its licensing criteria. As Senior Vice President - Facilities Development, with overall supervision of the departments of Engineering, General Construction and Nuclear Power Generation, Mr. G. A. Maneatis will be responsible for the implementation of PGandE's internal technical review efforts. In addition, Bechtel Power Corporation has been retained by PGandE to act as the DCPD Project Completion Manager and, as such, is responsible for managing implementation of the Technical Program in an adequate and timely fashion. To implement the Technical Program, PGandE resources will be integrated with resources furnished by the Bechtel Power Corporation, as appropriate.

In order to address and manage these matters, PGandE will:

- 1) identify technical issues resulting from ongoing PGandE reviews;
- 2) classify, track and report issues from the Independent Program and Technical Program with a system that includes formal procedures;
- 3) develop, document, and implement, as required, any corrective action for identified issues; and
- 4) obtain technical information to address questionable items.

#### Reporting

PGandE has established procedures for documenting, tracking, and reporting of issues from either the Independent Program or Technical Program. These procedures, which apply specifically to tasks identified under these programs, have been developed and implemented to be consistent with and to supplement established PGandE engineering procedures which control design non-conformances and discrepancies.

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For example, once an issue has been identified, these procedures require formal documentation of the issue. Furthermore, these procedures identify the standards to be used for documentation, distribution, and transmittal of items and their corrective actions. Finally, these procedures specify that PGandE maintain up-to-date schedules and status of issues; provide courses of action to resolve issues; and document the status of resolution of issues. The status of pending activities and progress of verification efforts are described in semi-monthly reports prepared and issued by both the Independent and Technical Programs.

To avoid duplication of issues between the Technical and Independent Programs, PGandE reviews all items arising from either program. If an issue is identified by both programs, the issue will be addressed by the Independent Program, except for specific instances when the Independent Program determines that the issue would be more appropriately addressed by the Technical Program.

The procedures discussed above track implementing procedures of PGandE's Engineering Manual and Quality Assurance Manual. These procedures are issued, controlled, and maintained pursuant to PGandE engineering quality control and quality assurance requirements. Furthermore, these procedures, together with the Engineering and Quality Assurance Manuals, form the bases for any quality assurance audit of work performed in the Technical Program.

#### INDEPENDENT PROGRAM AND TECHNICAL PROGRAM INTERFACES

The primary interfaces between the Independent and Technical Programs are shown in Figure 2. These interfaces encompass the following activities: 1) information transfer between the Independent and Technical Programs; 2) issue identification by the Independent Program; 3) notification of the completion of corrective actions by the Technical Program; 4) corrective action evaluation by the Independent Program; and 5) awareness by participants in the Independent Program of issues identified by PGandE in the Technical Program.

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The Independent Program can, upon request, receive information from the Technical Program. Based on information provided through such requests, the Independent Program can identify issues or resolutions<sup>2/</sup> to issues to the Technical Program. The procedural mechanism for this particular interface is described in the Independent Program procedures. The Technical Program reviews these identified items and responds by developing and documenting corrective actions, if necessary. The documentation evidencing completion of corrective actions is then furnished to the Independent Program for evaluation and verification of implementation. The Technical Program may, at its option, refer documentation of corrective action plans to the Independent Program for a review prior to completion of that corrective action.

Issues generated within the Technical Program are resolved within the Technical Program. The Independent Program reviews these internally identified issues, their respective resolutions, and any resulting corrective action through the semi-monthly reports for possible interactions of these activities with the Independent Program.

#### Quality Assurance

Integrated with the activities of the Technical Program and the Independent Program are the quality assurance activities being performed by the PGandE Quality Assurance (QA) and Engineering Quality Control (EQC) Departments. These quality-related activities include the following:

- 1) furnish quality assurance information to independent consultants, as required;
- 2) review and audit the quality assurance aspects of safety-related activities of PGandE and its service-related consultants;

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<sup>2/</sup> Note that the TES Management Plan Phase I in its program procedure, DCNPP-IDVP-PP-003, Revision 0, uses the term "resolution" to denote that a specific item is no longer active in the Independent Program. This occurs when an item has been classified by the Independent Program as a Closed Item, a Deviation, or that responsibility for an Open Item has been transferred to the PGandE Technical Program. The term resolution as used here denotes the final reconciliation of an issue by the Independent and Technical Programs as a Closed Item with a Completion Report.

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- 3) review of quality assurance issues identified by the Independent Program; and
- 4) review of quality related documents for adequacy and audit of technical activities performed in the Technical and Independent Programs.

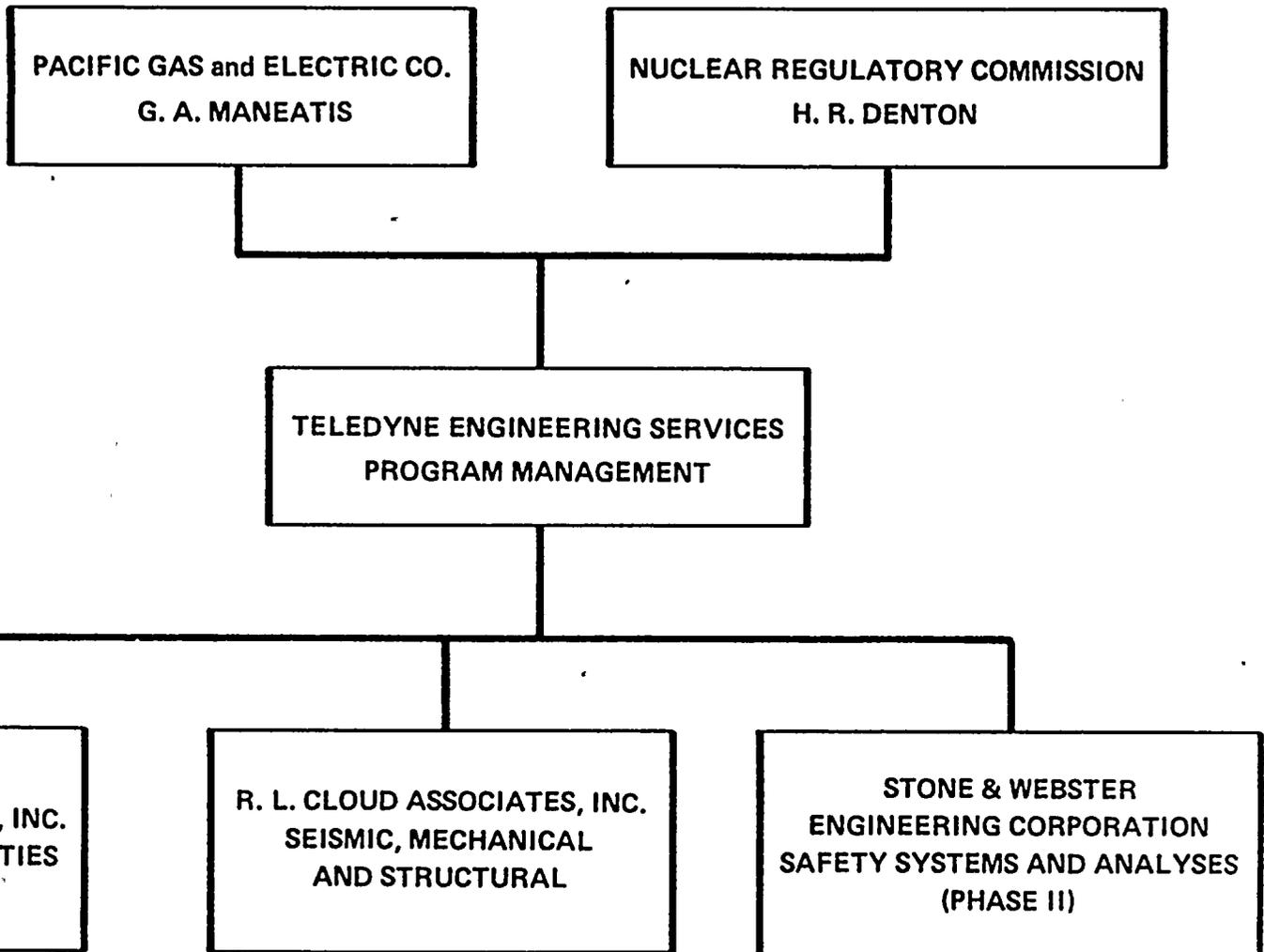
For the Independent Program, QA and EQC respond to requests for information concerning quality assurance issues. In particular, as required by the Order, information is provided regarding quality assurance procedures, controls, practices, and program implementation concerning the development, transmittal, accuracy, and use of safety-related data, both within PGandE and between PGandE and its consultants. These Departments will also review the independent consultants' Quality Assurance Review and Audit Reports for completeness and accuracy. Quality Assurance findings and observations made by the Independent Program and PGandE will be reviewed to provide assurance that the current quality assurance and quality control programs within PGandE are adequate.

The quality assurance programs of the independent consultants are reviewed and approved by QA to assure compliance to current applicable regulatory requirements. In addition, QA and EQC will audit implementation of the quality assurance programs by PGandE for the Technical Program and by the independent consultants for the Independent Program.



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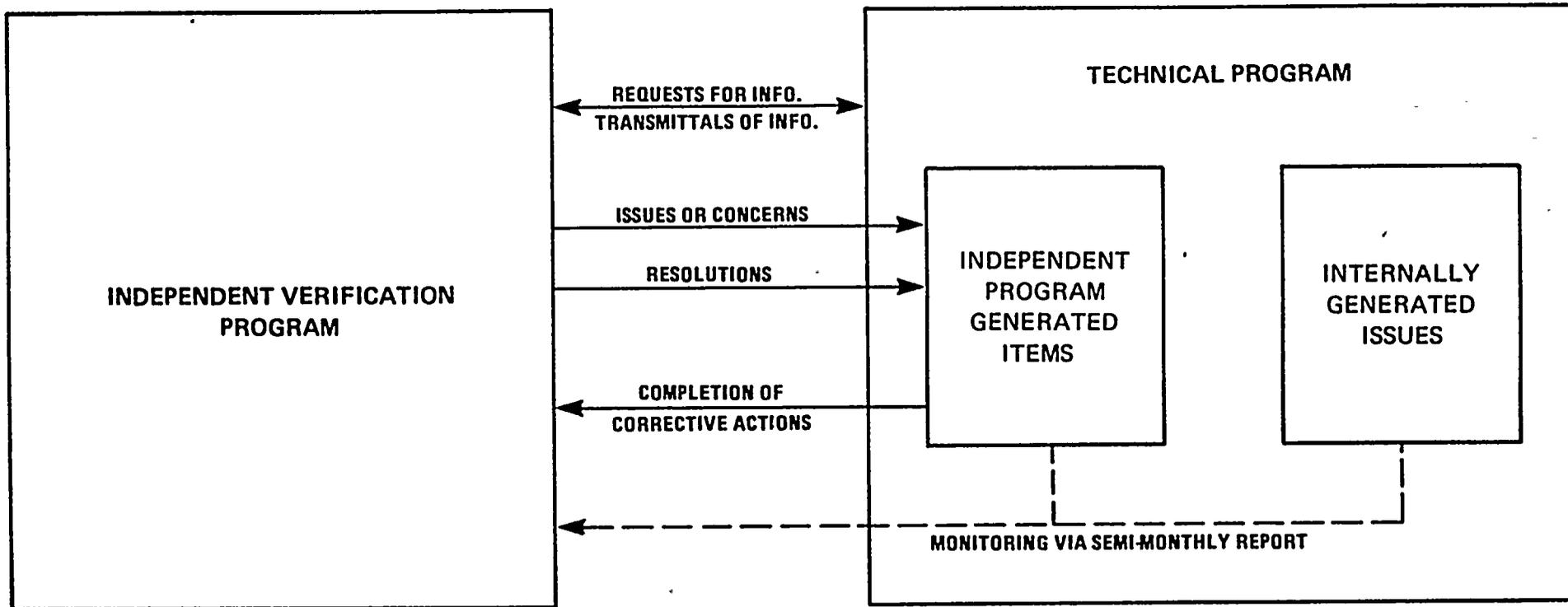
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**FIGURE 1**  
**MANAGEMENT ORGANIZATION**  
**FOR INDEPENDENT PROGRAM**



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**LEGEND**

- ← INFORMATION TRANSFER
- ← - - - INFORMATION MONITORING

**FIGURE 2**  
**PROGRAM INTERFACES**



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