



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION V
 1450 N. MARIA LANE SUITE 210
 WALNUT CREEK, CALIFORNIA 94596

2/26

August 20, 1982

T. Novak
 D. T. Kao
 H. Polk
 M. Hartzman (2)
 F. Miraglia
 J. Fair

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR
 FROM: R. H. Engelken, Regional Administrator, Region V
 SUBJECT: DIABLO CANYON DESIGN VERIFICATION PROGRAM - SCOPE OF PHASE II

This is in response to your memorandum of August 11, 1982, requesting our comments and recommendations regarding the acceptability of the Diablo Canyon Independent Design Verification Program (IDVP) Phase II plan proposed by Teledyne. General comments are provided below and supplement my July 30, 1982 memorandum regarding the scope of Phase I. In addition, specific recommendations regarding the Teledyne Phase II plan are provided in the enclosure.

The separation of a Phase I program and a Phase II program was initially established to parallel the separation provided by the Commission Order (No. CL-81-30) and H. R. Benson's letter of November 19, 1981. This separation provides Teledyne a convenient way of segmenting their work activities, and should not be abandoned by Teledyne, at this late date. However, as discussed in our memorandum of July 30, 1982, we recommend the restoration of the low power license and issuance of a full power license be based upon assurance of adequate safety for each phase of operation, regardless of which Phase of Teledyne's program provides that assurance. Accordingly, and summarizing my memo of July 30, 1982, it is our recommendation that the following actions be required prior to resumption of fuel load and low power testing: (1) verification that seismic spectra have been properly developed and applied; (2) verification that seismic modeling and design assumptions are consistent with the as-built conditions of the plant; and (3) the resolution of all findings (Licensee, IDVP, Brookhaven) which involve structures, systems, and components important to the safety of fuel load or low power operation. Similarly, for full power operation Teledyne's Phase II activities should be completed and all findings of the IDVP resolved.

8609250044 860916
 PDR FOIA
 HOLMES86-151 PDR

AMH

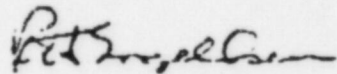
7

D. G. Eisenhut

-2-

August 20, 1982

We would be pleased to discuss our recommendations with you further (contact T. W. Bishop, FTS 465-3751).



R. H. Engelken
Regional Administrator

Enclosure:
As stated

cc: R. C. DeFoung
H. R. Denton
R. H. Vollmer
E. Case
R. Mattson
L. Chandler
R. Jones
J. Knight
J. Jews
T. Bishop

RV Comments on Teledyne Phase II Plan1. Scope

(Reference: Phase II Program Management Plan, Section 2.0)

The defined scope of the Phase II plan does not address assessment of construction quality. Consistent with my memoranda to H. R. Denton of March 29, 1982, and to D. G. Eisenhut of July 30, 1982, it is recommended that Phase II include an assessment of the QA programs of at least two principal onsite construction contractors.

2. Phase II Subphase Dates

(Reference: Phase II Program Management Plan, Section 2.1.3)

The cutoff date of Teledyne's (TES) Phase II-B (after July 27, 1970) may be appropriate for evaluating quality assurance (QA) commitments made by PG&E, but should not be used to truncate the examination of engineering adequacy. Specifically, TES should address the adequacy of PG&E internal design activities throughout the design process. Similarly, TES should determine if the PG&E QA program(s) met the intent of 10 CFR 50 (Appendix B) and, if not, what are the implications and associated actions necessary at this time.

The cutoff date of November 30, 1981, for the IDVP, may not be entirely appropriate. Where the IDVP has found deficiencies or required additional sampling, the work performed after November 30, 1981 will require evaluation, unless the IDVP verifies that the root causes of the deficiencies were corrected prior to that date. The PG&E engineering organization has undergone a substantial change in the past ten months, however, some engineering work has been undertaken (for example: pipe supports in the annulus) using the same procedures, organization, and personnel in place when the original annulus errors were made. In short, the ongoing engineering effort by PG&E should not be completely excluded.

3. Responsibilities for Review (Conflict of Interest)

(Reference: Phase II Program Management Plan, Section 2.2, and Procedure DCNPP-IDVP-PP-002, Section 2.0)

Prior to the Independent Design Verification Program, R. L. Cloud and Associates (RLCA) performed some stress analysis work for PG&E as well as the majority of the seismic interaction study. The IDVP program plan should identify this work and preclude RLCA from performing verifications of their own work (similar to TES and IE Bulletin 79-02).

4. Selection of Samples and Analysis Approach

(Reference: Phase II Program Management Plan, Section 3.3.4, and 3.3.5)

In the selection of samples and the conduct of analyses, Teledyne should place their emphasis on "passive" (untested) components and systems. Active components (such as motors, switches, valves, etc.) and active aspects of design (such as flow rate, heat exchanger performance, voltage drop, etc.) are tested during preoperational testing and throughout plant life via operations and surveillance testing. It would appear much more beneficial to examine that design work which is not directly tested or observable such as the thermal stress analyses, pipe break outside containment, environmental qualification, etc.

a. Documentation of Design Chains

(Reference: Phase II Program Management Plan, Section 3.2.1)

The program plan does not specifically state that the design chains will be formally documented, i.e., in a graphic or tabular format. It is recommended that the chains be formally documented and presented in a technical report.

b. Project Reporting

(Reference: Phase II Program Management Plan, Section 6.0)

Teledyne should distribute their routine reports to the parties in the Grand Canyon proceedings as agreed upon in the August 6, 1982 meeting. Similarly, Teledyne should announce significant meetings as specified in their program, and should include the representative of the State of California and the joint intervenors on the distribution of such announcements.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V

1450 MARIA LANE, SUITE 210
WALNUT CREEK, CALIFORNIA 94596

MAR 29 1982

MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

FROM: R. H. Engelken, Regional Administrator

SUBJECT: DIABLO CANYON DESIGN VERIFICATION PROGRAM

This is in response to recent telephone discussions between you and me and members of our staffs regarding the above subject. We have examined the recent reports by R. F. Reedy, Inc. regarding the assessment of the Quality Assurance (QA) programs of PG&E and its design seismic consultants. The findings of these reports are generally consistent with the findings of Region V's inspection which was undertaken following initial discovery and reporting of seismic design errors and reveal potentially serious and wide ranging inadequacies in QA programs for design of the Diablo Canyon plant.

The report identifies no significant adverse findings specific to the QA programs of PG&E and its contractors for on-site construction activities. However, the nature of the adverse findings regarding PG&E's own QA program and particularly the lack of PG&E management periodic assessment of the effectiveness of QA program implementation, raises (implicitly at least) questions regarding the adequacy of these programs.

In consideration of the above, we offer the following recommendations regarding the current scope of the design verification program.

1. The results of an assessment of the QA programs of selected non-seismic safety related design consultants, similar to the Reedy assessments recently completed for seismic design consultants, should be provided to the staff prior to NRC granting authorization for the resumption of fuel loading and low power testing under the operating license.
2. Interim findings of the verification program for Phase II, sufficient to make a preliminary judgement as to the overall adequacy of design effort, should be provided to the staff for those non-seismic design consultants where significant adverse QA program findings result from 1., above, prior to NRC granting authorization for the resumption of fuel loading and low power testing under the operating license.
3. Expand the scope of Phase II of the current verification program to include an assessment, similar to the Reedy assessments for design consultants, of the QA programs for at least two principal on-site construction contractors, such as the prime civil/structural construction contractor and the reactor coolant system erection and welding contractor.

We would be pleased to discuss these recommendations with you further should you wish.

R. H. Engelken
R. H. Engelken
Regional Administrator

cc: H. E. Schierling, NRR ✓

Handwritten initials and a circled 'D'

Handwritten scribbles and a circled 'D'