

July 12, 1990

Docket Nos. 50-275
and 50-323

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Mr. J. D. Shiffer, Vice President
Nuclear Power Generation
c/o Nuclear Power Generation, Licensing
Pacific Gas and Electric Company
77 Beale Street, Room 1451
San Francisco, California 94106

Dear Mr. Shiffer:

SUBJECT: CLOSEOUT OF DETAILED CONTROL ROOM DESIGN REVIEW (DCRDR) FOR DIABLO CANYON POWER PLANT, UNITS 1 AND 2 (NUREG-0737 ITEM I.D.1.2, MPA F-071, DIABLO CANYON UNIT 2 LICENSE CONDITION 2.C.(5)a, AND TAC NOS. 56117 AND 68040)

The NRC staff has completed its review of the DCRDR for Diablo Canyon Units 1 and 2. Our evaluation is consistent with Section 18.1, Revision 0 of NUREG-0800, "Standard Review Plan for Review of Safety Analysis Reports for Nuclear Power Plants." The results of our review are given in the enclosed Safety Evaluation. We conclude that the DCRDR for Diablo Canyon Units 1 and 2 meets the requirements of Supplement 1 to NUREG-0737 and Condition 2.C.(5)a of Facility Operating License DPR-82.

We may confirm, by inspection at some future time, that corrective actions for all safety significant human engineering discrepancies (HEDs) have been properly and completely implemented. This completes the NRC staff's action on this issue and closes TAC Nos. 56117 and 68040. If you have any questions regarding this matter, please contact me.

Sincerely,

Original Signed by Harry Rood

Harry Rood, Senior Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc w/enclosure: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

July 12, 1990

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and 50-323

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Nuclear Power Generation
c/o Nuclear Power Generation, Licensing
Pacific Gas and Electric Company
77 Beale Street, Room 1451
San Francisco, California 94106

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Sincerely,

A handwritten signature in cursive script that reads "Harry Rood".

Harry Rood, Senior Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc w/enclosure: See next page



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Mr. J. D. Shiffer
Pacific Gas and Electric Company

Diablo Canyon

cc:

Richard F. Locke, Esq.
Pacific Gas & Electric Company
Post Office Box 7442
San Francisco, California 94120

NRC Resident Inspector
Diablo Canyon Nuclear Power Plant
c/o U.S. Nuclear Regulatory Commission
P. O. Box 369
Avila Beach, California 93424

Ms. Sandra A. Silver
660 Granite Creek Road
Santa Cruz, California 95065

Bruce Norton, Esq.
c/o Richard F. Locke, Esq.
Pacific Gas and Electric Company
Post Office Box 7442
San Francisco, California 94120

Mr. Peter H. Kaufman
Deputy Attorney General
State of California
110 West A Street, Suite 700
San Diego, California 92101

Dr. R. B. Ferguson
Sierra Club - Santa Lucia Chapter
Rocky Canyon Star Route
Creston, California 93432

Managing Editor
The County Telegram Tribune
1321 Johnson Avenue
P. O. Box 112
San Luis Obispo, California 93406

Chairman
San Luis Obispo County Board of
Supervisors
Room 270
County Government Center
San Luis Obispo, California 93408

Ms. Nancy Culver
192 Luneta Street
San Luis Obispo, California 93401

Regional Administrator, Region V
U.S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, California 94596

Michael M. Strumwasser, Esq.
Special Assistant Attorney General
State of California
Department of Justice
3580 Wilshire Boulevard, Room 800
Los Angeles, California 90010

Mr. John Hickman
Senior Health Physicist
Environmental Radioactive Mgmt. Unit
Environmental Management Branch
State Department of Health Services
714 P Street, Room 616
Sacramento, California 95814



ENCLOSURE 1
SAFETY EVALUATION BY OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO DETAILED CONTROL ROOM DESIGN REVIEW
PACIFIC GAS AND ELECTRIC COMPANY'S
DIABLO CANYON POWER PLANT
UNITS 1 AND 2
DOCKET NOS. 50-275 AND 50-323

1.0 POSITION

Item I.D.1, "Control Room Design Reviews", of Task I.D., "Control Room Design", of the "NRC Action Plan Developed as a Result of the TMI-2 Accident" (NUREG-0660), states that operating reactor licensees and applicants for operating licenses will be required to perform a Detailed Control Room Design Review (DCRDR) to identify and correct design discrepancies. The objective, as stated in NUREG-0660, is to improve the ability of nuclear power plant control room operators to prevent accidents or to cope with them, should they occur, by improving the information provided to them. Supplement 1 to NUREG-0737 confirmed and clarified the DCRDR requirement in NUREG-0660. In accordance with Supplement 1 to NUREG-0737, each applicant or licensee is required to conduct its DCRDR on a schedule negotiated with the NRC.

License condition 2 C(5).a. for Diablo Canyon, Unit 2 stated that PG&E shall comply with the requirements of Supplement 1 to NUREG-0737 for the conduct of a Detailed Control Room Design Review in accordance with a schedule acceptable to the NRC staff.

2.0 INTRODUCTION

Pacific Gas and Electric Company (PG&E) has conducted a Detailed Control Room Design Review for Diablo Canyon, Units 1 and 2. An on-site audit was conducted May 8 and 9, 1990, to assess the status of the DCRDR.

A partial chronology of the Diablo Canyon, Units 1 and 2 DCRDR is provided below.

- o February 11-15, 1985 The NRC conducted an in-progress DCRDR audit.
- o August 26, 1985 License DPR-82 for Diablo Canyon, Unit 2 issued.
- o November 5, 1987 Licensee submitted Supplemental DCRDR Summary Report to the NRC.



- o August 19, 1988 The NRC forwarded a letter and TER concerning the DCRDR to the licensee.
- o January 5, 1989 Licensee submitted response to the NRC request for additional DCRDR information.
- o May 8-9, 1990 NRC conducted on-site DCRDR audit.
- o June 6, 1990 Licensee submitted summaries and implementation schedules for 10 safety significant Human Engineering Discrepancies (HEDs).

This Safety Evaluation Report (SER) is based on the documentation and events mentioned above. The staff was assisted in their evaluation by Science Applications International Corporation (SAIC).

3.0 EVALUATION

The staff evaluation of Diablo Canyon, Units 1 and 2 DCRDR follows.

3.1 Establishment of a Qualified Multidisciplinary Review Team

Based on the 1985 audit and review of the 1987 Summary Report, the staff concluded that the licensee satisfied this Supplement 1 to NUREG-0737 requirement.

3.2 Function and Task Analysis to Identify Control Room Operator Tasks and Information and Control Requirements During Emergency Operations

Based on the 1985 audit and review of the 1987 Summary Report, the staff concluded that the licensee satisfied this Supplement 1 to NUREG-0737 requirement.

3.3 Comparison of Display and Control Requirements with Control Room Inventory

Based on the 1985 audit and review of the 1987 Summary Report, the staff concluded that the licensee satisfied this Supplement 1 to NUREG-0737 requirement.

3.4 Control Room Survey

Based on the 1985 audit and review of the 1987 Summary Report, the staff concluded that the licensee satisfied this Supplement 1 to NUREG-0737 requirement.



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3.5 Assessment of Human Engineering Discrepancies to Determine Which are Significant and Should be Corrected

Previous licensee submittals, including the January 5, 1989 response to NRC's August 19, 1988 Request for Additional Information, indicated that the licensee's human engineering discrepancy (HED) assessment process was incomplete. During the May 8 and 9, 1990 on-site audit, the NRC audit team verified that a complete set of 891 HEDs were assessed. The audit team reviewed a sizable sample of the HEDs and determined that the process was complete and appropriate.

As a result of the May 1990 audit findings, the staff concluded that the licensee satisfied this Supplement 1 to NUREG-0737 requirement.

3.6 Selection of Design Improvements

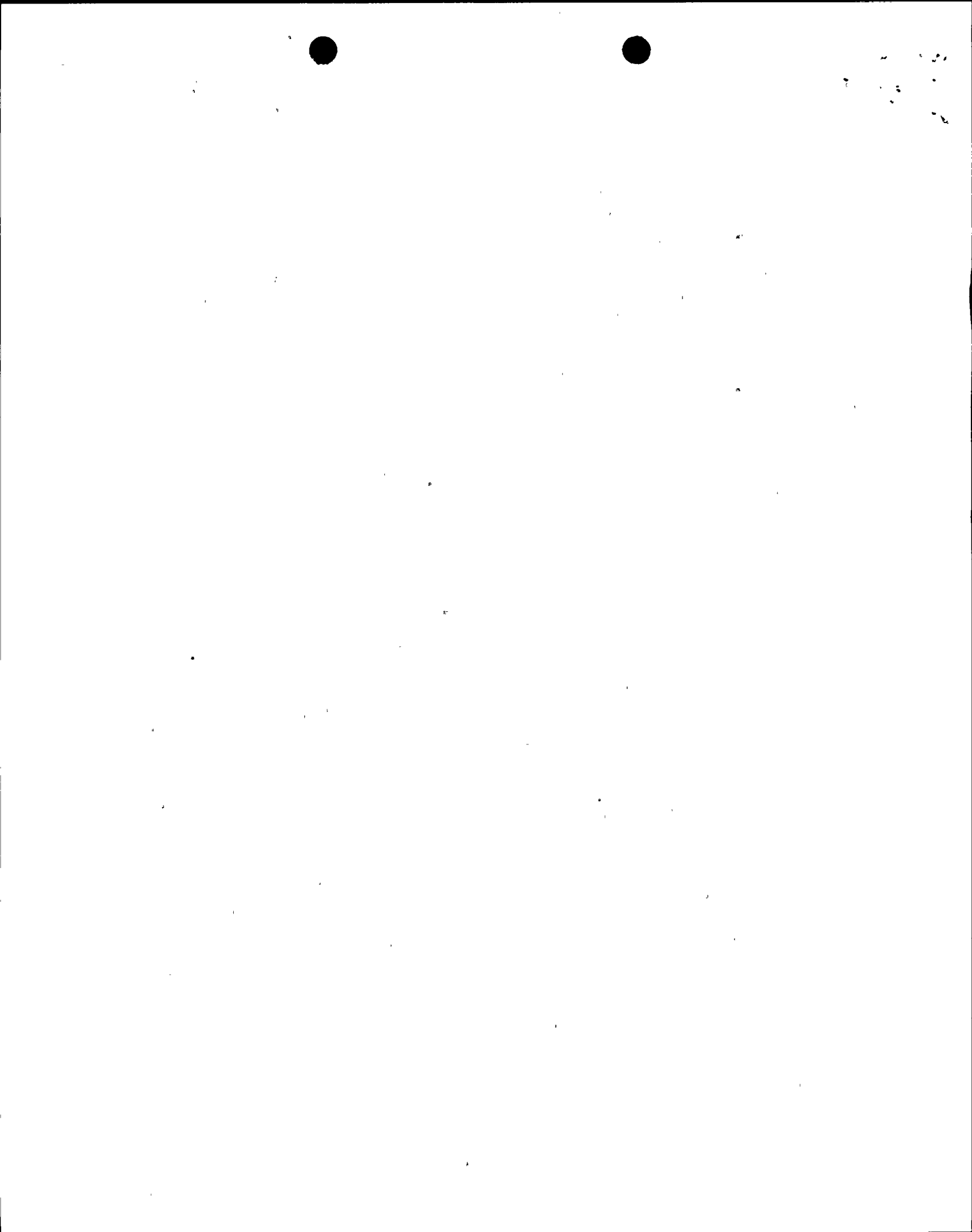
During the May 8 and 9, 1990 on-site audit, the NRC audit team verified that the licensee had satisfactorily completed modifications for all but 10 safety significant HEDs. The safety significant HEDs lacking proposed design modifications and implementation schedules are listed below:

1. HED 001M No alarm defeat function.
2. HED 001F Annunciator groupings.
3. HED 001G Annunciator reflash not provided.
4. HED 542 Annunciator windows not prioritized.
5. HED 001K Shared systems alarm only in unit 1.
6. HED 155 Shared systems alarm only in unit 1.
7. HED 199 Shared systems alarm only in unit 1.
8. HED 046 Controls coding.
9. HED 084A Controls coding.
10. HED 034 Controls coding.

The licensee provided proposed modifications and implementation schedules in a supplemental DCRDR report submitted June 6, 1990. Based on the May 1990 audit and review of the licensee's June 6, 1990 submittal, the staff concluded that the licensee met this Supplement 1 to NUREG-0737 requirement.

3.7 Verification that Selected Improvements Will Provide the Necessary Corrections Without Introducing New HEDs

During the May 1990 on-site audit, the staff evaluated the licensee's process for assuring that HED improvements correct the HEDs and do not introduce new HEDs. In addition, the audit team walked down many implemented control room modifications such as new chart recorders, functionally grouped controls and displays, new annunciator tiles, and other enhancements in the control room. No new HEDs were identified by the audit team during the control room modification walkdown.



Based on a review of the licensee's documentation and a control room walkdown, the staff concluded that the licensee satisfied this Supplement 1 to NUREG-0737 requirement.

3.8 Coordination of Control Room Improvements with Changes from Other Programs Such as Safety Parameter Display System (SPDS), Operator Training, Regulatory Guide 1.97 Instrumentation, and Upgraded Emergency Operating Procedures

Based on the 1987 Summary Report and the May 1990 onsite audit, the staff concluded that the licensee satisfied this Supplement 1 to NUREG-0737 requirement.

4.0 CONCLUSIONS

The DCRDR program implemented at Diablo Canyon Power Plant, Units 1 and 2 satisfies all the DCRDR requirements of Supplement 1 to NUREG-0737 and License Condition 2.C(5).a. The staff may confirm, by means of inspection at some future date, that corrective actions have been properly and completely implemented.



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References

1. U. S. Nuclear Regulatory Commission, "NRC Action Plan Developed as a Result of the TMI-2 Accident," NUREG-0660, Vols. 1 and 2, May 1980.
2. U. S. Nuclear Regulatory Commission, "Clarification of TMI Action Plan Requirements, Requirements for Emergency Response Capability," NUREG-0737, Supplement 1, December 1982.
3. Pacific Gas and Electric Company, "Detailed Control Room Design Review (DCRDR) - Update to Supplemental Summary Report," June 6, 1990.



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