U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-275/87-09, 50-323/87-08

Docket Nos. 50-275, 50-323

License Nos. DPR-80, DPR-82

Licensee: Pacific Gas and Electric Company
77 Beale Street, Room 1451
San Francisco, California 94106

Facility Name: Diablo Canyon Units 1 and 2

Inspection at: Diablo Canyon Site, San Luis Obispo County, CA

Inspection Conducted: February 23-27, 1987

Inspector: J. F. Burdoin
J. F. Burdoin, Reactor Inspector — 3/11/87 Date Signed

Approved by:
M. M. Mendonca, Chief
Reactor Project Section I — 3/11/87 Date Signed

Summary:

Inspection During Period of February 23-27, 1987 (Report Nos. 50-275/87-09 and 50-323/87-08

Areas Inspected: An unannounced inspection by one regional inspector of design, design changes and modifications; followup of IE Bulletin(s) and an independent inspection of different vital areas and equipment in the plant. Inspection Procedures Nos. 30703, 37700, 71707, and 92703 were used as guidance for the inspection.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Individuals Contacted

Pacific Gas and Electric Company (PG&E)

R. C. Thornberry, Plant Manager
*J. A. Sexton, Plant Superintendent
*T. L. Grebel, Regulatory Compliance Supervisor
*D. A. Taggart, Director, Quality Support QA
*L. F. Womack, Operations Manager
J. E. Nolan, Nuclear Engineer, Design Control
S. R. Fridley, Senior Operations Supervisor
J. E. Skaggs, Shift Technical Advisor
R. D. Cramins, Verification Section Supervisor
J. R. Harris, Audit Administrator
R. P. Flohaug, Quality Assurance
D. R. Geske, Verification Planning Group Supervisor
E. E. Pierce, QC Engineer, General Construction
C. L. Meyers, Document Control Analyst
*M. J. Angus, Work Planning Department Manager
S. W. Hamilton, Power Production Engineer, Design Control
L. R. Collins, Work Planning Center Supervisor
J. S. Pequignot, Senior Construction Coordinator

Various other engineering and QC personnel

*Denotes attendees at exit management meeting on February 27, 1987.

In addition, NRC Resident Inspectors attended the exit management meeting.

2. Area Inspection

An independent inspection was conducted in the Turbine and Auxiliary Buildings, Units 1 and 2. The equipment and areas inspected included:

A. Five Emergency Diesel Generator Rooms.
B. Six 4160 Volt Switchgear Rooms.
C. Combined Two-Unit Control Room.
D. Four Containment Spray Pumps.
E. Three Charging Pumps, Unit 1.
F. Four Safe Injection Pump Areas.
G. Four RMR Pump Areas.
H. Six Component Cooling Water Pumps.
I. Six Auxiliary Feedwater Pumps
J. Six 480 Volt Vital Bus Rooms.
K. Two Cable Spreading Rooms.
L. Two Hot Shutdown Panel Areas.
M. Two 480 Volt Load Center Areas.
N. Turbine Building at Elevations 85' and 140' Areas.

Housekeeping and equipment status appeared to be acceptable.

No violations or deviations were identified.

3. (Closed) Followup Item 50-275/323/87-05-01, Design, Design Changes and Modification

The purpose of this inspection was to evaluate the effectiveness of the licensee's program for implementing plant modifications and for effecting changes in the design of Diablo Canyon Units 1 and 2, and to determine that such plant modifications and changes in design are in conformance with the requirement of the technical specification (TS) and 10 CFR 50.59. To this end the processes for initiating, approving, processing and documenting design change and new design; and the mechanics of installing/constructing, inspecting, accepting, testing and placing in service of modifications and new systems were examined in detail and were verified by sampling.

The following licensee's procedures describes the licensee's program for implementing design, design changes and modifications:

A. Engineering Procedure No. 3.60N, Revision TR-59, dated August 4, 1986, "Operating Nuclear Power Plant Design Changes."

B. Procedure NPAP C-1, "Nuclear Power Plant Modification Program."

C. Administrative Procedure (AP) C-1S1, "Onsite Plant Modification Administration."

D. Procedure NPAP C-4, "Bypass of Safety Functions and Control of Jumpers."

The above procedures were reviewed to verify the following:

a. That the design changes were reviewed and approved in accordance with TS and established QA/QC controls.

b. That design changes were controlled by established procedures.

c. That the licensee conducted a review and evaluation of test results.

d. That operating and surveillance procedure modifications were made and approved in accordance with TS for the design changes.

e. That operator training programs were revised in a reasonable time frame to reflect the design change or modification that was implemented. For significant design changes to safety-related systems, operator training should occur prior to system startup.

f. That as-built drawings were changed to reflect the modifications, and that control room drawings were revised prior to system startup.

g. That design changes are planned to be on or were listed on the required 10 CFR 50.59(b) annual report to the NRC.

h. That design change activities are conducted in accordance with the appropriate specifications, drawings, and other requirements.

i. That acceptance and startup testing of modifications is conducted in accordance with technically adequate and approved procedures.

j. That appropriate controls (i.e., fire watch, portable fire fighting equipment, welding and cutting permit) are implemented.

k. That there is not an excessive backlog of Design Change Requests.

The licensee's procedures for implementing the program for design, design changes and modifications address the above listed topics.

Modifications as described in Design Change Packages (DCP's) are accomplished either by Plant Maintenance personnel or by General Construction personnel. The Design Change Packages for modifications performed by Plant Maintenance personnel are processed in the Work Planning Center (WPC) while those packages for modifications performed by General Construction are processed by General Construction Document Control. The completed DCPs with all of the paperwork such as work orders, field followers, approval sheets, QC inspection sheets, post modification testing sheets, etc., are assembled in General Construction Quality Control and the Work Planning Center.

In order to verify that the plant modifications are being performed in accordance with the above procedures, the following completed Design Change Packages were reviewed at General Construction Quality Control Vault:

DCP-J-25792 - Auxiliary Feedwater System, Temperature Sensing and Alarms (Instrumentation)

DCP-J-31783 - RHR Pressure Transmitter, Replacement (Instrumentation)

DCP-M-35057 - Emergency D-G, Air Receiver Pressure Switch (Instrumentation)

DCP-J-31956 - RCP Seal Leakoff Flowmeters (Instrumentation)

DCP-C-35204 - Frame and Detail Fuel Cask Lateral Restraint (Spent Fuel Pool)

DCP-P-35790 - Spent Fuel Pump 1-2, Suction Line 10" Manual Gate Valve (Spent Fuel Pool)

DCP-E-35763 - 480 Volt System, Cabling (Plant Electrical Power System)

DCP-M-27427 - Auxiliary Feedwater Pump Turbine (Other)

The above Design Change Packages and the associated documentation appeared to conform to the requirements of the procedures NPAP C-1 and AP C-1S1.

The following completed Design Change Packages were reviewed at the Work Planning Center:

DC1-EE-31853 - Solid State Protection System (Instrumentation)

DC1-SM-35935 - Steam Generator Primary Manway Bolts (Reactor Coolant System)
DC1-SM-35936 - Steam Generator Primary/Secondary Manways and Handhole Covers (Reactor Coolant System)

DCP-M-37147 - Containment Fan Cooler 1-2 (Containment Systems)

DC1-OM-31235 - Diesel Generator Mounting Bolts (Plant Electrical Power System)

DCP-M-35746 - Feedwater Nozzle "J" - Tubes (Other)
DCP-M-37286 - MSIVs and Reverse Flow Check Valves (Other)

The above Design Change Packages and the associated documentation appeared to conform to the requirements of the procedures NPAP C-1 and AP C-1S1.

The following completed Design Change Packages were reviewed with NPG document control to verify that as-built drawings and manufacturers instructions were distributed and were on file as required by procedures NPAP C-1 and AP C-1S1.

DCP-J-25792 - Auxiliary Feedwater System, Temperature Sensing and Alarms
DCP-J-31783 - RHR Pressurizer Transmitter, Replacement
DC1-EE-31853 - Solid State Protection System
DCP-M-35057 - Emergency D-G, Air Receiver Pressurizer Switch
DC1-EM-35172 - RC Pump Shaft Vibration Monitoring System
DC1-EM-35205 - Feedwater Solenoid Valves
DC1-EM-35764 - Turbine Steam Supply System Solenoid Valves

The processing/distribution of as-built drawings and manufacturers component instructions appeared to conform to the requirements of procedures NPAP C-1 and AP C-1S1.

No violations or deviations were identified.

Temporary Modifications, Lifted Leads and Jumpers

The licensee's program for the control temporary modifications, lifted leads and the installation of jumpers is described in the following procedures:

NPAP C-4, "Bypass of Safety Functions and Control of Jumpers"

APC-4 S1, "Mechanical Bypass, Jumper and Lifted Circuit Log Accountability System"

The procedures were reviewed to verify that controls are established to satisfy the following requirements:

a. Review and approval of temporary modifications in accordance with section 6 of the T.S. and 10 CFR 50.59.

b. The use of detailed approved procedures when performing temporary modifications.

c. Assign responsibility for approving procedures.

d. That a formal record be maintained of the status of temporary modifications, lifted leads and jumpers, temporary strainers, temporary trip set points of control equipment, etc.

e. Evaluation of the need for independent verification, where appropriate, of installation and removal of temporary modifications, lifted leads and jumpers.

f. Functional testing of equipment following installation or removal of temporary modifications.

g. Periodic reviews of lifted lead and jumper records, including a check of outstanding entries.

The inspector examined the licensee's jumper log books for units 1 and 2, with special attention to the jumpers past the ninety day review cycle (past due jumpers). In conjunction with past due jumpers the inspector examined the following licensee nonconformance report (NCR) issued in December 1986:

- NCR DCO-86-TN-N145, "Jumper Log Three Month Review", which contained the following action request and quality evaluations:

  - Action Request, A/R, A-0032357
  - Quality Evaluation, Q0003420
  - A/R, A0033498
  - Quality Evaluation, Q0003556
  - A/R, A0050289
  - Quality Evaluation, Q0003815

The concerns with the number of past due jumpers are described in the above NCR. Actions developed by the licensee to correct the NCR findings include reducing the backlog of past due jumpers and taking steps to assure control of jumpers.

It is concluded that the licensee's design, design changes and modifications program is planned and documented, and has been acceptably implemented.

No violations or deviations were identified.

4. (Closed) 50-275/50-323 IE Bulletin 86-03, "Potential Failure of Multiple ECCS Pumps Due to Single Failure of Air Operated Valve in Minimum Flow Recirculation Line".

This bulletin alerted licensees of a potential single failure of minimum flow recirculation lines containing air-operated isolation valves which could result in a common-cause failure of all Emergency Core Cooling System (ECCS) pumps in a system.

The licensee's submittal DCL-8L-334 of November 14, 1986 reports the review performed as action required by item 1 of the bulletin. The licensee concluded that the potential problem as described in the bulletin does not exit at Diablo Canyon because:

1) The two motor operated isolation valves in the common minimum flow recirculation line share by the safety injection pumps are required (by T.S.) to be open with the power to the valve operators removed.

2) The two motor operated valves in the common minimum flow header for the centrifugal charging pumps (CCPs) are maintained in the open position with power available and fail as is. Also since the CCPs have a shutoff pressure of 2511 psig plant conditions resulting in dead heading conditions is highly unlikely. Emergency operating procedures provide operator guidance for closure and reopening of the valve(s) based on RCS pressure.

3) Each RHR train contains its own minimum flow/recirculation line with a motor-operated isolation valve powered from a separate vital bus.

The inspector reviewed the bulletin and examined the licensee's FSAR and evaluation (DCL-86-334) of the three systems of the ECCS and concludes that the plant configuration and procedures acceptably address the bulletins concern. This bulletin is closed for Units 1 and 2.

No violations or deviations were identified.

5. Exit Meeting

The inspector conducted an exit meeting on February 27, 1987, with the Plant Superintendent and other members of the plant staff. During this meeting, the inspector summarized the scope of the inspection activities and reviewed the inspection findings as described in this report. The licensee acknowledged the concerns identified in the report.