U. S. NUCLEAR REGULATORY COMMISSION
REGION V

Report Nos. 50-275/84-32 and 50-323/84-20

Docket Nos. 50-275 and 50-323

License No: DPR-76

Construction Permit No.: CPPR-69

Licensee: Pacific Gas and Electric Company
77 Beale Street, Room 1435
San Francisco, California 94106

Facility Name: Diablo Canyon Units 1 and 2

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

Inspectors: R J Dodds for — 10/15/84
M. M. Mendonca, Sr. Resident Inspector — Date Signed

R J Dodds for — 10/15/84
M. L. Padovan, Resident Inspector — Date Signed

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T. M. Ross, Resident Inspector — Date Signed

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T. J. Polich Resident Inspector — Date Signed

Approved by: R J Dodds — 10/15/84
R. T. Dodds, Section Chief — Date Signed

Summary:

Inspection from September 2, through September 29, 1984, (Report Nos. 50-275/84-32 and 50-323/84-20).

Areas Inspected: Routine inspection of: plant operations, conditions, and events; hot functional test program; startup test program; independent inspection; and followup of open items, LER's, and enforcement actions. This inspection effort required 166 inspector-hours for Unit 1, and 47 inspector hours for Unit 2 by four resident inspectors.

Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

*R. C. Thornberry, Plant Manager
*R. Patterson, Assistant Plant Manager/Superintendent
*J. M. Gisclon, Assistant Plant Manager for Technical Services
*W. B. Kaefer, Assistant Plant Manager for Support Services
*C. L. Eldridge, Quality Control Manager
*R. G. Todaro, Security Supervisor
*D. B. Miklush, Supervisor of Maintenance
*J. A. Sexton, Supervisor of Operations
*J. V. Boots, Supervisor of Chemistry and Radiation Protection
*W. B. McLane, Material and Project Coordination Manager
*L. F. Womack, Engineering Manager
*B. W. Giffin, Acting Instrumentation and Control Manager
*E. T. Murphy, Regulatory Compliance Supervisor
*C. M. Seward, Supervisor of Quality Assurance

The inspectors interviewed several other licensee employees including shift supervisors, reactor and auxiliary operators, maintenance personnel, plant technicians and engineers, quality assurance personnel and general construction personnel.

*Denotes those attending the exit interview on October 5, 1984.

2. Operational Safety Verification

a. During the inspection period, the inspectors observed and examined activities to verify the operational safety of the licensee's facility. The observations and examinations of those activities were conducted on a daily, weekly or monthly basis.

On a daily basis, the inspectors observed control room activities to verify compliance with selected limiting conditions for operation as prescribed in the facility Technical Specifications. Logs, instrumentation, recorder traces, and other operational records were examined to obtain information on plant conditions, trends, and compliance with regulations. Shift turnovers were observed on a sample basis to verify that all pertinent information on plant status was relayed. During each week, the inspectors toured the accessible areas of the facility to observe the following:

(1) General plant and equipment conditions.

(2) Surveillance and maintenance activities.

(3) Fire hazards and fire fighting equipment.

(4) Ignition sources and flammable material control.

(5) Conduct of selected activities for compliance with the licensee's administrative controls and approved procedures.

(6) Interiors of electrical and control panels.

(7) Implementation of selected portions of the licensee's physical security plan.

(8) Plant housekeeping and cleanliness.

(9) Operability of selected Engineered Safety Features (ESF) systems by performing comprehensive walkdowns of the system's components.

The inspectors talked with operators in the control room, and other plant personnel. The discussions centered on pertinent topics of general plant conditions, procedures, security, training, and other aspects of the involved work activities.

No violations or deviations were identified.

b. Gas Decay Tank Leakage

Two instances of inventory loss from the Gas Decay Tanks to the Auxiliary building have recently occurred due to equipment failures. In the first instance, a cracked rupture disc and leaky valve bonnet allowed uncontrolled leakage of decay tank contents. In the second instance, failure of an air operated valve to fully close caused release of decay tank gas.

The first occurrence, which resulted from component degradation, appears to have been caused by maintenance activities on the non-safety related Boron Recycle System. When the system was returned to service, the cracked rupture disc and leaky valve bonnet, which created leak paths were not detected. Post-maintenance testing is not required for the Boron Recycle System.

The second leakage incident occurred when an air operated valve was used to isolate a component for maintenance. The licensee has discovered use of this type of valve for isolation is not desirable.

The licensee has instituted a program to reduce the potential for such leaks in the future. A design review has been initiated to provide assurance that acceptable system isolation and post maintenance testing can be accomplished. This design review includes evaluation of the need for added manual isolation valves to enhance isolation and testing capabilities. This action should reduce the re-occurence potential for similar problems from this type of failure.

Prior to these events, a program was initiated to assure radioactive and chemical releases "go smoothly," from both a system's operation and personnel point-of-view. This program included the assignment

of an operating foreman to coordinate with Chemistry and Radiation Protection (C&RP), indicating the Operations department was in the process of addressing methods necessary to avoid unplanned releases of gas from the plant.

No violations or deviations were identified.

c. Security Barrier

The licensee reported, and later withdrew, an erroneous notification of a security event. The event involved removal of a pipe from a security barrier (grating), which left an opening purportedly larger than the allowable 96 square inches. The inspectors observed and measured the opening and reviewed the licensee's measurement results and calculation of the opening area. This review verified the licensee's final assessment that the opening was indeed less than the allowable opening.

No violations or deviations were identified.

3. Routine Inspection

a. Craftsmen Qualification and Training

The inspectors have interviewed various craftsmen and quality control inspectors during routine work and during the process of allegation follow-up. Qualification records of craft and inspection personnel were also reviewed. Additionally, craft personnel and quality control inspectors have been interviewed and their qualification records reviewed extensively during fiscal year 1984, as documented in Supplemental Safety Evaluation Reports 21, 22, 26 and NRC Inspection Report 83-37. Specifically, nondestructive examination inspector training, experience, and qualification appears to meet the American Society for Nondestructive Testing criteria and contractor procedures. The monitored craft and inspection activities followed applicable specifications, procedures, and standards.

No violations or deviations were identified.

b. System Walkdowns

Recent system walkdowns by the inspectors have identified the following discrepancies: sealed valves were incorrectly identified on operating valve identification diagrams; valves were not listed on sealed valve checklists; valves were incorrectly labeled or missing labels; and there were various valve packing leaks. These items were discussed with licensee management. The licensee has instituted a plan to aggressively pursue system walkdowns required by Nuclear Plant Administrative Procedure E 9S1, "OVID Prints and System Labeling Updating" Rev. 2, 5/7/84. This action should mitigate future control problems with sealed valves and OVID's. The timeliness of system walkdowns will be monitored under normal inspection activities.

No violations or deviations were identified.

c. Testing of Pipe Support and Restraint Systems

Pipe support and restraint systems are designed and installed to prevent unrestrained motion of reactor coolant pressure boundary and safety related piping during dynamic loads (i.e. seismic events, severe temperature transients, etc.). These systems should allow for normal thermal pipe movement from expansion and contraction of piping systems and components during plant heatup and cooldown. Concurrent with the Unit 2 Hot Function Test (HFT) program, the Onsite Plant Engineering Group (OPEG) and Plant General Construction (GC) are conducting piping system walkdowns during the initial reactor coolant system (RCS) heatup in accordance with corporate engineering procedure P-36.

Heatup Walkdown Packages (HWP) have been compiled for all applicable piping systems for use by assigned teams of OPEG and GC personnel. The objectives of this program are to monitor movement of those systems subject to significant thermal growth at strategic, pre-selected pipe supports (i.e. snubbers, spring cans, etc.), and to perform visual observations to assure adequate piping clearances are being maintained. Cold pipe support position data points and calculated deflections are recorded in the HWP prior to heatup. Hot pipe support positions will be measured during heatup. Actual deflections will be calculated from the hot and cold position data. Heatup position data will be collected at RCS temperature plateaus of 250 degrees F, 350 degrees F, 450 degrees F, and 547 degrees F.

The inspector has reviewed the licensee's program for testing piping systems supports and restraints. Selected segments of OPEG/GC pre-heatup walkdown activities were observed by the inspector. Furthermore, in accordance with routine inspection program guidance for preoperational testing of pipe support and restraint systems, the inspector has selected various dynamic and fixed pipe supports of safety related piping for independent examination at ambient temperature and up to normal operating temperature. Inspection activities will be continued in coordination with the licensee's HFT and system heatup walkdown programs and will be documented in a subsequent report on completion of this program.

No violations or deviations were identified.

d. ESF Walkdown

While performing a walkdown of the safety injection system, the inspector observed boric acid crystals on a drain line weld joint of accumulator 1-1. The licensee subsequently performed a dye penetrant test (PT) on the one inch drain line socket weld. The PT revealed that a lack of fusion existed. Further investigation, by etching the weld after grinding out the suspect portion of the weld, revealed a lack of fusion on the root pass and an overlapping lack of fusion on the cover pass. The defective portion of the weld was ground out, the two passes rewelded, and a PT performed. The

licensee also plans to visually inspect all socket welds on accumulator drain lines consisting of approximately 20 socket welds to assure that this is not a generic problem.

No violations or deviations were identified.

4. Independent Inspection

a. Licensee's Management Review of the Institute for Nuclear Power Operations (INPO) Program to Resolve Personnel Errors

The plant manager setup a presentation of the subject program. This program was established by INPO to deal with "Inappropriate Actions." This program to deal with inappropriate actions is currently underway at several operating nuclear plants, and is specifically designed to report and resolve personnel errors. Key elements of this program are that it is non-punitive, and it addresses the root cause of personnel errors. The plant manager is considering the initiation of a pilot program along the lines of INPO's to reduce personnel errors.

b. Emergency Offsite Facility (EOF)

The inspectors conducted a familiarization and inspection tour of the licensee's EOF and the County Emergency Operations Center, which are located at the County Sheriff's Office near San Luis Obispo. The EOF contained facilities, communications, and analysis equipment for PG&E, Federal, State, County and local authorities to manage a variety of emergency situations. Representatives of the licensee's Emergency Planning organization described the EOF's capabilities, and performed a sample offsite dose projection calculation, based on current meteorological conditions at the Diablo Canyon site. As a result of the tour, it was apparent that the licensee has dedicated a large amount of resources and effort in planning, constructing, furnishing and equipping the EOF to address emergency planning requirements.

No violations or deviations were identified.

5. Followup of Notice of Violation (NOV)

The licensee's corrective actions for NOVs related to the inoperability of an Automatic Liquid Effluent Radiation Control Valve (items 84-10-01 through 08) and the loss of Source Range Monitors resulting from Procedural and Tailboard Inadequacies (item 84-41-01) were verified by the inspector. These corrective actions included distribution of the licensee's reply to the enforcement action to appropriate onsite licensee personnel, assignment of responsibility for timely resolution, and review of corrective action by licensee staff. These items are considered closed.

No violations or deviations were identified.

6. Open Item Followup

a. Equipment Clearances (Open Item 84-02-02, closed)

Open Item 84-02-02 identified concerns regarding the licensee's failure to provide proper equipment clearances. Subsequently, this issue was also discussed in NRC Inspection Reports (IRs) 84-10, 84-21, and 84-26. As described in these IRs, the licensee has initiated corrective actions to enhance their clearance program. The implementation of these improvements to the clearance program will be followed by the inspectors under routine inspection efforts. Accordingly, open item 84-02-02 is closed.

No violations or deviations were identified.

b. Equipment Control Program Revisions (Open Item 84-21-02, closed)

The licensee's implementation of the subject revisions, as specified in NRC IR Number 84-21, has been verified. This open item is closed.

No violations or deviations were identified.

c. Mis-Positioned Incore Neutron Detectors (Unresolved Item 84-26-01, closed)

NRC IR 50-275/84-26 described an incident pertaining to improper operation of the moveable incore detector system (MIDS). Since this time, the licensee's nuclear engineering department (NED) has conducted an exhaustive investigation into the specific circumstances leading up to and surrounding the event. Extensive interviews of cognizant personnel and all associated departments were performed. Control Operator Logs, potentially applicable clearances, P-250 data, and radiation monitor strip charts were examined. From this evidence, a time period was identified, between June 14 and August 1, when mispositioning of the MIDS most probably occurred. Neither the motive, precise sequence of events or individual(s) directly involved with improper operation of the MIDS, could be determined from the investigation.

A Technical Review Group meeting was held September 11 to discuss the pertinent facts discovered during the NED's investigation in order to evaluate the incident as a potential nonconformance, prescribe corrective actions, and assess regulatory requirements for reportability. This committee concluded, even though the responsible personnel and specific circumstances were unknown, that primary causes would be attributed to insufficient levels of administrative and physical controls. Nonconformance Report DC1-84-TN-N120 was issued, documenting the causes and prescribing the following corrective action to prevent recurrence: a) establish three party (Operations, NED, and C&RP) concurrence for MIDS clearance; b) revise procedures; c) propose a design modification to prohibit MIDS operation via a switch key; and d) issue a memo to Operations, NED, and C&RP regarding the incident.

Although, not reportable under 10 CFR 20, 10 CFR 50.73, or the Technical Specifications, discussions between the inspector and plant management addesssed the benefit of disseminating this information to other sites. In consideration of past nuclear utilities' experience and the potential severe radiological consequences associated with inappropriate movement of incore detectors, the licensee has agreed to issue an informational report (LER 84-026). Furthermore, in response to the inspector's concern for full corrective action, training sessions will be conducted by the licensee among the primary departments (Operations, NED, and C&RP) involved with MIDS operation. Training instructions will also be incorporated into the annual radiation protection re-qualification program.

The licensee's prompt pursuit and aggressive resolution depicts a level of concern appropriate to the sensitivity associated with this issue. Unresolved item 84-26-01 is considered closed.

No violations or deviations were identified.

7. LER Follow-up

Circumstances and corrective actions described in LERs, as listed below, were examined by the inspectors. These LERs have been adequately reviewed by the licensee, and were reported to the NRC within the required time intervals. The inspectors also verified selected corrective actions had been taken. Accordingly, these LERs are considered closed.

LER No. 84-23:

Diesel generators were inadvertently started by an undervoltage signal during a test of the startup power supply transformer breaker. Corrective action included improved indication on the breaker cubicle to minimize such events in the future.

LER No. 84-24:

The surveillance interval for the Fire Detection System Supervisory circuitry was beyond the required six months. This extended surveillance interval was due to a wrong surveillance frequency indication on the controlling computer program. The computer program was reviewed by the licensee and the subject error was the only error found.

LER No. 84-25:

This event was discussed in IR 84-30, and the licensee's reporting of this event was acceptable.

No violations or deviations were identified.

8. Exit Interview

On October 5, 1984, an exit meeting was conducted with the licensee's representatives identified in paragraph 1. The inspectors summarized the scope and findings of this inspection as described in this report.