U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-275/82-42	• •
Docket No. 50-275 License No. DPR-76	Safeguards Group
Licensee: Pacific Gas and Electric Company	
P. O. Box 7442	
San Francisco, California <sup>®</sup> 94106	
Facility Name: Diablo Canyon Units 1 and 2	
Inspection at: Diablo Canyon Site, San Luis Obispo County, Ca	alifornia
Inspection conducted: December 2, 1982 through January 1, 1983	
Inspectors: P. Monil Jn	1-14-83
J. D. Carlson, Sr., Desident Inspector	Date Signed
M. M./Mendonca, Resident Inspector	Date Signed 1-14-83
P. J. Morrill, Reactor Inspector	Date Signed
Approved by: P 1 Month In	1 14 - 83
D. F. Kirsch, Chief, Reactor Projects Section No.	Date Signed

Summary: ..

Inspection from December 2, 1982 through January 1, 1983 (Report No. 50-275/82-42)

<u>Areas Inspected</u>: Routine inspections of plant operations, surveillance testing, physical security, follow-up of allegations regarding the RHR system, maintenance, the licensee's audit program and emergency preparedness activities. The inspection involved 128 inspector-hours by three NRC inspectors.

Results: No items of noncompliance or deviations were identified.

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## DETAILS

#### 1. Persons Contacted

Site a.

\*R. C. Thornberry, Plant Manager

\*R. Patterson, Plant Superintendent

\*J. M. Gisclon, Power Plant Engineer

D. A. Backens, Supervisor of Maintenance \*J. A. Sexton, Supervisor of Operations

\*J. V. Boots, Supervisor of Chemistry and Radiation Protection

- \*W. B. Kaefer, Technical Assistant to the Plant Manager
- \*R. G. Todaro, Security Supervisor

\*R. T. Twiddy, Supervisor of Quality Assurance

\*R. M. Luckett, Interim Regulatory Compliance Engineer

### b. Corporate

\*\*J. O. Schuyler, Vice President Nuclear Power Generation

- \*\*W. A. Raymond, Manager Quality Assurance
- \*\*T. G. de Uriarte, Senior Engineer (Audits)
  - F. J. Dan, Supervisor, Electrical Engineer
  - R. Otto, Electrical Engineer
  - T. Crawford, Senior Mechanical Engineer

J. McCracken, Senior Mechanical Engineer

G. C. Wu, Licensing Engineer

The inspectors also interviewed a number of other licensee employees including shift supervisors, reactor and auxiliary operators, maintenance personnel, plant technicians and engineers, quality assurance personnel and members of General Construction.

\*Denotes those attending the exit interview of January 7, 1983. \*\*Denotes those attending the exit interview of December 14, 1982.

### 2. **Operational Safety Verification**

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 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:

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- a. General plant and equipment conditions.
- b. Maintenance activities and repairs (See Section 3).
- c. Fire hazards and fire fighting equipment.
- d. Ignition sources and flammable material control.
- e. Conduct of selective activities for compliance with the licensee's administrative controls and approved 'procedures.
- f. Interiors of electrical and control panels.
- g. Implementation of selected portions of the licensee's physical security plan.
- h. Plant housekeeping and cleanliness.

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 items of noncompliance or deviation were identified.

### 3. Maintenance

Maintenance activities on a safety injection accumulator isolation valve motor and a rod drive power supply motor-generator set were reviewed by the inspectors during the month. Observations by the inspectors verified that proper approvals were obtained and system clearance and tests of redundant equipment were performed, as appropriate, prior to conducting maintenance on safety related systems or components. The inspectors verified that qualified personnel performed the maintenance and used appropriate maintenance procedures. Replacement parts were examined to determine the proper certification of materials, workmanship and tests. During the actual performance of maintenance activities, the inspectors verified proper fire protection controls and housekeeping. Upon completion of the maintenance activity; the component was tested prior to return to service.

No items of noncompliance or deviation were identified.

### 4. Surveillance

Surveillance testing on 4 KV relays and contacts, and atmospheric steam dump instrument loops were reviewed by the inspectors. Observations by the inspectors including verification that proper procedures were used, test instrumentation was calibrated, and that the tested system or component was properly removed from service as required by the test procedure. Upon completion of the surveillance tests, the inspectors verified that the test results met the acceptance criteria of the Technical Specifications and were reviewed by the cognizant licensee personnel. The inspectors also verified that corrective action was initiated, if required, to determine the cause for any unacceptable test results and to restore the system or component to an operable status consistent with the technical specification

No items of noncompliance or deviations were identified.

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### 5. **Emergency Preparedness**

The inspectors reviewed and observed an emergency drill by a plant fire brigade and industrial safety and fire protection training.

No items of noncompliance or deviations were identified.

#### 6. Audit Program and Implementation

The inspector reviewed the licensee's audit program and implementation thereof to determine if the program conformed to ANSI N-18-7-1976 and ANSI N 45.2.12-1977. In addition, the inspectors verified that auditor qualifications were consistent with ANSI N 45.2.23-1978.

• The following procedure manuals that describe the licensee's Audit Program were reviewed:

#### a. Quality Assurance Manual for Nuclear Power Plants

- (1) Section SVIII - Audits
- (2) Section SVI Corrective Action(3) Procedure 10.1 Nonconformance and Corrective Actions
- (4) Procedure 11.1 Audits Performed by Company Departments
- (5) Procedure 11.1, Supp. 1 Open Items Report
- b. Nuclear Power Generation Manual - Quality Assurance
  - (1) Procedure 1.1 - QA Department Program and Organization
  - (2) Procedure 2.2 - Training and Indoctrination
  - (3) Procedure 15.1 Nonconformance Reports
  - (4) Procedure 16.1 Open Item Reports
  - (5) Procedure 17.1 Auditor Qualifications

  - (6) Procedure 18.2 QA Audits
    (7) Procedure 18.6 Planning/Scheduling of Audits

### Quality Auditor Handbook с.

Based upon the review of the above noted procedures, the inspectors determined that the licensee's QA Audit Program conforms to the criteria of ANSI N 18.7-1976 and ANSI N 45.2.12-1977.

The inspectors reviewed the licensee's auditor gualification program, tests, and records to ensure audits were being conducted by properly qualified auditors. The inspectors determined the licensee's auditor gualifications were consistent with ANSI N 45.2.23-1978.

Next, the inspectors reviewed the following audit reports to determine if audit plans, checklists, findings and corrective action followups were being performed properly:

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- a. Audit #12300 "Criterion XVIII Audits"
- b. Audit #20400 "Criterion XV Nonconformances and Criterion XVI -Corrective Action"
- c. Audit #20416 "Criterion XV and XVI"
- d. Audit #20500 "Fire Protection"
- e. Audit #21011 "Status of Open OIR's"
- f. Audit #20919 "Technical Specifications"
- g. Audit #21111 "Containment Annulus Steel"

The inspectors determined that the audits were being conducted properly using the prescribed audit plans and checklists; however, tracking of "Open Items" was weak in that audited organizations were not responding to adverse audit findings in accordance with the criteria of Section 4.5 of ANSI N 45.2.12-1977. Specifically, estimated completion dates (ECD) were being exceeded with no new (ECD's) being established. Additionally, the audit findings were being tracked using the licensee's "Commitment Control System" that assigns a noncontrolling priority to all adverse audit findings. The inspectors identified to management that some of the findings would have resulted in technical specification violations if fuel loading had commenced without correction of the identified problems from audit findings. During the exit interview, the licensee committed to having revised ECD's for all outstanding Open Item Reports by February 1, 1983, and prioritizing all outstanding Open Item Reports by February 28, 1983 (82-42.01).

No items of noncompliance or deviations were identified.

## 7. Review of Stone and Webster Construction Audit

As part of the Independent Design Verification Program (IDVP). Stone and Webster Engineering Corporation (SWEC) was tasked with the evaluation of the construction quality assurance program at Diablo Canyon under the auspicies of Teledyne Engineering Service (TES). The inspectors reviewed the following documents and discussed the audit with PG&E representatives to determine how open item reports were being generated and dispositioned.

- Adjunct Program for Evaluation of Construction Quality Assurance -Rev. 1 dated 10/1/82 (TES document).
- Construction Quality Assurance Evaluation (SWEC Project Procedure 4-2-1 dated 10/22/82).
- c. Diablo Canyon Verification Program (DCVP) Procedure #1 Interface with Consultants.
- d. DCVP Procedure #2 Program Resolution Reports.

The inspectors determined the scope of the audit was to evaluate the asbuilt quality of two contractors: 1) Guy F. Atkinson Co. - Containment Building Contractor, and 2) Wismer and Becker Co. - installation of NSSS piping. The above noted procedures described the auditing process to be used and handling of audit findings. The inspectors have reviewed the program for familiarization. At the present time, the SWEC onsite audit team has

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completed the as-built audit and has generated twenty-nine Open Item Reports (OIR). So far, the licensee has dispositioned eighteen of the OIR's. The inspectors will complete the review in this area when the remainder of the OIR's are dispositioned (82-42-02).

No items of noncompliance or deviations were identified.

8. Open Items Followup

Plant Administrative procedures C451 and D756 have been prepared to assure reinstatement of Environmental Qualification conditions after maintenance or surveillance testing. This closes open items 80-16-01 and TI-15-41.

## 9. <u>Allegations Regarding the Diablo Canyon Residual Heat Removal System</u>

On December 2, 1982 the inspector met with licensee representatives to discuss allegations regarding the Diablo Canyon residual heat removal (RHR) system. These allegations had also previously been examined at the jobsite and documented in Region V inspection reports 50-275/82-26 and 50-323/82-13. The following paragraphs paraphrase the allegations, summarize the inspection, and state the findings of the inspector.

- (a) Allegedly there were no control and interlock circuit drawings for motor operated valves 8701 and 8702 (RHR hot leg suction isolation valves). The inspector examined PG&E drawings 437592 "Residual Heat Removal Flow Control Valves", and 103058 "Circuit Schedule 480 Volt for Busses F, G, H" circuits H19P00 through H19P12 and G25P00 through G25P13. The inspector observed that these drawings describe the power, control, and interlock circuits for the subject valves. The allegation was not substantiated.
- (b) Allegedly no one knew how these circuits were routed in the plant. Licensee project engineering personnel stated that in addition to the drawings described above, the raceway schedule depicts circuits in a particular conduit, the conduit drawings show conduit locations in the plant, and the circuit schedule itemizes the pull data for each wire in the plant. They also stated that the drawings and schedules were available to the plant staff through the site document control center if this material was not available in the control room. The inspector had previously verified that this type of documentation was properly controlled and readily available to the plant staff. This allegation was not substantiated.
- (c) It was alleged that the design was no good in that the control/interlock circuits are routed from the "hagen" racks via the solid state protection system to the relays which shut the valves. Licensee engineers explained that this was a standard Westinghouse design and that the "hagen" racks took low level analogue signals and (in this case) used bistables to

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generate signals in the milliamp range. The solid state protection system completes the logic function and generates a larger output signal (amps.) which in turn actuates relays in the auxiliary logic cabinet. They explained that they were not in a position to change this arrangement (since it is a Westinghouse design) and that they were unaware of any problems with this arrangement. The inspector examined the location of the components of the RHR isolation valve control and interlock circuits to verify the licensee's statements. The allegation was substantiated to the extent that the circuits were as alleged, however there was no apparent deviation from regulatory requirements or safety criteria.

- (d) It was alleged that a design change request (DCR) submitted about February 1981 to get "rid of that system" (i.e. RHR hot leg suction isolation interlocks) has never been acted upon by PG&E. The inspector verified that there were no outstanding DCRs on PG&E drawing 437592 (which depicts the system in question) and that none were originated from or arrived at the Diablo Canyon project. The site Resident Inspectors verified that no DCRs were outstanding for this drawing at the jobsite. This allegation could not be substantiated.
- (e) It was alleged that the FSAR, Chapter 5, paragraph 5.7, pages 37b and 38 as well as Chapter 7, paragraph 6.2, pages 3 and 4 describe the automatic high pressure/high temperature isolation of the RHR system from the reactor coolant system, and that this is inconsistent with the technical specifications section 3.4.9.3 which requires AC to be removed from the associated valves (8701 and 8702) thereby disabling the automatic isolation features. Therefore the FSAR should be amended. Licensee representatives showed the inspector Table 6.3-10 of the FSAR which shows that the valves are to be shut and racked out at power and open and racked out during shutdown cooling mode. This is in accordance with NRC direction. The licensee representatives also stated that the entire FSAR would be updated (with inconsistencies removed) in September 1983 in accordance with 10 CFR 50. The allegation was partially substantiated, but no safety problem or noncompliance with regulatory requirements was identified.
- (f) The alleger stated that the FSAR section 3.1.3 states that spurious closure of normally open/fail open valves is not considered as either a passive or active failure and is not analyzed for at all which is a problem. Licensee engineers explained that there were no reasonable failure modes which would cause normally open/fail open or normally closed/fail closed valves to change state. The only possibility they could imagine was a "copper octopus" which caused selective shorting. This issue had been dealt with in the Fire Protection Review and was one reason that certain valve circuit breakers were racked out after the valve was placed in the desired position. As far as control circuits are concerned, any short with 120 volts or higher would cause the logic circuits to go to a fail safe condition due to the overwhelming signal strength (normal signals are 4 to 20 milliamps). The allegation could not be substantiated.

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- (g) It was alleged that there was no low flow alarm for the RHR system and that there should be one. The inspector verified that an RHR pump trip is annunciated, that shut RHR suction valves are indicated, and that the subcooling meter was available to ensure adequate core cooling. Licensee representatives pointed out that the RHR pumps have a miniflow recirculation to maintain some flow, and that the monitor light box indicates valves or circuits in the incorrect state. The inspector concluded that the allegation was correct in that there was no "low flow" alarm, but also concluded that there appeared to be no requirement or necessity to have one.
- (h) It was alleged that an RHR pump ran without flow for 5 minutes in September 1981, and that this event was not reported as required by administrative procedure C-12 and 10 CFR 50.72. The site resident inspector verified that a Nuclear Plant Problem Report (DCI-81-0P P1057) and the associated corrective action was completed. The allegation was not substantiated.
- (i)It was alleged that the RHR hot leg suction does not meet the single failure criteria for function (suction from reactor coolant system hot leg), that newer plants had this feature, and that this portion of the system should be redundant to meet 10 CFR 50 Appendix A Design Criteria. The inspector verified that this function was not safety related in the Diablo Canyon plant design by examining the FSAR. The inspector observed that the suction from the containment sump and from the refueling water storage tank were both safety related and arranged to meet regulatory requirements for redundancy. The inspector also observed that some other plants did have two RHR suction lines but that these plants used a different nuclear steam supply system vendor. The inspector concluded that the allegation was correct in that the RHR suction line was redundant only for the purpose of reactor coolant system isolation, but that there was no apparent safety problem or deviation from regulatory requirements associated with this design.
- (j) It was alleged that nuclear plant problem reports (NPPR) were not getting management review which is a violation of administrative procedure C-12 and that NPPR DC 1-81-OP P1057 had been signed off after this shortcoming was identified to management. Other NPPRs should be examined. The Resident Inspectors observed that other NPPRs were being given appropriate management review and resolution. The allegation was not substantiated.
- (k) It was alleged that NPPRs DCO 79 TI P0006 and 79 TI P0117 are still open after three years and should be closed. The Resident Inspectors observed that response to NPPR P0006 was complete and that response to P0117 was underway. The allegation was substantiated, but no particular safety or regulatory significance could be attached to this situation.
- It was alleged that a change to the Plant Manual Volume 16, reactor coolant pump "lo oil level" alarm should have been changed to "lo-hi oil level" but had not been corrected eight months after the correction had been submitted. The Resident Inspectors identified this allegation to the licensee. The licensee initiated a NPPR (DCI-83-TN-P0001) and the problem is to be resolved. The licensee personnel that were interviewed, were not previously aware of this problem. The allegation was substantiated.

The inspector concluded that the allegations were partially correct but that these had no apparent safety significance or deviations from regulatory requirements.

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# 10. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) and discussed the scope and findings of the inspection.

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