

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-275/83-24  
50-323/83-17

Docket No. 50-275 and 50-323

License No. DPR-76 and Construction Permit CPPR-69

Licensee: Pacific Gas and Electric Company

77 Beale Street, Room 1435

San Francisco, California 94106

Facility Name: Diablo Canyon Units 1 & 2

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

Inspection conducted: July 11-29, 1983

Inspectors:

J. F. Burdoin  
J. F. Burdoin, Reactor Inspector

8/23/83  
Date Signed

Approved by:

G. B. Zwetzig  
G. B. Zwetzig, Chief, Engineering Programs  
Section

8/26/83  
Date Signed

Summary:

Inspection during period of July 11-29, 1983 (Report No. 50-275/83-24) and 50-323/83-17)

Areas Inspected: Unannounced inspection by regional inspector of modification activities including safety related pipe support and restraint systems, steel structure and supports welding activities, and electrical raceway support systems.

The inspection involved 76 inspection hours by one inspector.

Results: Of the four areas examined, two items of noncompliance were identified in the areas of safety related pipe supports and electrical raceway supports (failure to accomplish work in accordance with approved quality assurance instructions, see paragraph 2).

## DETAILS

### 1. Individuals Contacted

#### a. Pacific Gas and Electric Company (PG&E)

- + S. M. Skidmore, Manager, Quality Assurance
- + R. D. Etzler, Project Superintendent
- +\*J. R. Manning, Construction Superintendent - DCP
- + D. A. Rockwell, Assistant Project Superintendent
- \*R. Kohler, Resident Civil Engineer
- +\*G. Glasscock, Resident Electrical Engineer
- \*J. Arnold, Resident Mechanical Engineer
- +\*F. M. Russell, Resident Civil Engineer, Unit 1
- +\*R. L. Meredith, Lead Mechanical Superintendent
- +\*R. R. Lieber, Area Superintendent, Unit 1
- K. E. Kitchen, Civil Field Inspector
- \*J. R. Bratton, Lead QC Engineer, Unit 1
- D. R. Bell, Acting Lead QC Engineer
- \*W. K. Glenn, QC Supervisor
- R. T. Twiddy, Quality Assurance Supervisor
- C. M. Seward, Quality Assurance Engineer
- R. V. Monterola, Electrical Field Engineer
- +\*B. R. Tinkle, Senior Mechanical Construction Engineer, Unit 1
- T. E. Pierce, QC Inspector
- J. R. Harris, QC Inspector

Various other engineering and QC personnel.

#### b. Bechtel Corporation

- + H. B. Friend, Program Completion Manager
- +\*J. W. Shryock, Site Completion Manager

#### c. H. P. Foley, Company

- + F. P. Lench, Regional Vice President
- + P. J. Bourque, Project Director
- + A. E. Moses, Senior Project Manager
- + L. R. Wilson, QA Manager
- + M. C. Perkins, QC Inspector Supervisor
- + S. D. Wood, QC Inspector

#### d. Pullman Power Products Corporation (Pullman)

- + P. E. Stieger, Resident Construction Manager
- + R. C. Faull, Assistant Resident Manager
- + H. W. Karner, Quality Assurance/Quality Control Manager

\*Denotes attendees at exit meeting on July 15, 1983.

+Denotes attendees at exit meeting on July 29, 1983.

NRC contract inspection personnel, A. Debeling, M. Eli, and R. Pong attended the July 15th exit meeting. The NRC Resident Inspector, Mr. J. D. Carlson, attended the July 29th exit meeting.

## 2. Area Inspection

A tour was made in the following areas of Unit 1:

- a. Diesel Generator Room 1-3.
- b. 4160 Volt Switchgear Rooms 1F, 1G, and 1H at Elevation 119'.
- c. 480 Volt Switchgear Rooms 1F, 1G, and 1H at Elevation 100'.
- d. Remote shutdown panel for Unit 1 at Elevation 100'.

A tour was made of the spray ring area near the top of Unit 2 containment. The following spray ring hangers in various stages of completion were inspected:

20-52R	20-75R
20-57R	20-88R
*20-73A	*20-96A

\*These hangers had been completed and accepted by QC.

No items of noncompliance or deviations were identified.

## 3. Modifications Resulting from the Verification Program

Modifications to the following supports, systems, and structures were examined to determine, by visual examination, whether they met the requirements specified by the licensee's drawings, procedures, and specifications.

One NRC Contract Inspector (M. Eli) accompanied the NRC Inspector on some of these inspections for indoctrination purposes.

### a. Annulus Structural Steel Strengthening

The following completed annulus structural steel modifications were inspected in the field:

DC1-E-C-3601

- (1) Drawing 6181-C1-13-706, Amendment 21
- (2) Drawing 6181-C1-13-772, Amendment 25

These modifications appeared to comply with the design detail requirements.

No items of noncompliance or deviations were identified.

b. Safety-Related Pipe and Electrical Raceway Supports

The following pipe and electrical raceway supports which had been inspected and accepted by the contractor's Quality Control organization, were examined by the inspector, and appeared to satisfy the applicable requirements.

- (1) The following spray ring supports were examined in Unit 2 containment and found acceptable:

<u>Pipe Support No.</u>	<u>Pipe Support No.</u>
20-6R	414-34R
20-8R	414-35R
20-24R	414-44R
20-26R	414-83R
20-27	414-134R
20-52R	414-137R

The modifications appeared to comply with the design detail requirements.

No items of noncompliance or deviations were identified.

- (2) Modifications to the following electrical raceway supports, were inspected in the field, and the QC records were examined.

<u>Support No.</u>	<u>Support No.</u>
A-119-4-51	A-127-3-418
A-119-4-54	A-127-6-162
A-119-4-60	A-127-6-444
A-119-4-61	A-140-3-72
A-119-7-22	A-140-3-74
A-119-7-25	A-140-3-76
A-119-7-33	
A-119-7-34	

These modifications appeared to comply with the design detail requirements and the QC records were observed to be in order.

No items of noncompliance or deviations were identified.

- (3) The following pipe supports were examined and found unacceptable:



(a) Unit 1 Pipe Support Number 46-9V

During inspection of the support it was found that there was no locking device on top of the spring can, the turnbuckle was not equipped with locknuts at top or bottom, and the threaded rod at the top of turnbuckle was not fully engaged. Pullman Power Products Engineering Specification Diablo (ESD) Number 223 in paragraph 6.4.3.3 states that, "The field QC inspector shall verify that all lock nuts are in place and tight, and that there is full thread engagement at all connections.

This pipe support was inspected and found acceptable by quality control on June 4, 1983.

(b) Unit 2 Spray Ring Support Number 20-94R.

During inspection in the field of the support it was found that a nut and bolt assembly on the T-shoe clamp was loose (only finger tight) and that a 1" thick metal wedge was forced in the horizontal gap and taped in place. Specification ESD-223 in paragraph 6.4.2.3 states that "All nuts shall be tightened to the snug tight condition. Torquing shall not be required except where specifically noted on the drawing." Paragraph 6.5.3.3 states that "Field QC Inspector shall inspect these installations, applying tolerances indicated in other sections of this specification (e.g., weld sizes, gaps, etc.)."

This pipe support was inspected and found acceptable by Quality Control on June 24, 1983.

(c) Unit 2 Spray Ring Support Number 414-43R

During inspection of the bridge beam portion of this support assembly it was found that the nut on each of two large bolts (approximately 1 1/4") was loose (only finger tight). Specifications ESD-223 in paragraph 6.4.2.3 states in part that "All nuts shall be tightened to the snug tight condition...."

This pipe support was inspected and found acceptable by Quality Control on July 26, 1983.

- (4) During inspection of electrical raceway support H-115-6-105 in Unit 1, it was found that a washer and nut were missing (not in place) from a thru-bolt which secures a S-6 brace to a Class I concrete block wall. The Howard P. Foley Quality Control procedure, QCPE-9 for "Installation of Electrical Raceways, Junction and Terminal Boxes", states as follows:

- (a) Paragraph 4.7.8 "Where applicable, concrete anchor connection to surface may be replaced with bolted connection (size of bolt to be the same as anchor) to embedded unistrut, or thru bolts (see detail S-68) to Class I Concrete Block Wall, or stud..."; and
- (b) Paragraph 4.7.7 "Hex nuts on new installations shall be a minimum of one (1) full thread past the end of the bolt. (Reference 050029 Misc. Note 27)."

This electrical raceway support was inspected and found acceptable by Quality Control on April 29, 1983.

These failures to perform work in accordance with approved procedures are considered to be items of apparent noncompliance with 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" (50-275/83-24/01 and 50-323/83-17/01).

c. HVAC Duct Supports - Unit 1

Modifications were inspected in the field for the following ventilation duct supports located in the Auxiliary Building.

<u>Support No.</u>	<u>Support No.</u>
HV-113	HV-146
HV-116	HV-394
HV-129	HV-397

These modifications appeared to comply with the design detail requirements.

No items of noncompliance or deviations were identified.

4. Changes to Licensee's Field QC Program

The licensee met with the regional management in Walnut Creek, August 2, 1983 to outline the immediate changes to improve the efficiency of their field QC program. This resulted from the NRC inspection findings identified during the exit meeting of July 29, 1983 and described in the above citation.

Changes to field QC program include:

- a. One hundred percent QC reinspection of those concrete block thru-bolt supports resulting from raceway modifications.
- b. Additional formal training of all QC personnel and crafts supervisors.
- c. A final walkdown and thorough inspection will be conducted jointly by General Construction and Nuclear Power Operations (NPO) personnel of all areas and systems prior to the returning of these areas and systems to Operations for startup testing.

5. Contractor's Technical Assistance Report for June 83

A contract has been awarded by NRC Region V to the Lawrence Livermore National Laboratory (LLNL) to provide assistance in inspecting the plant modifications being implemented at Diablo Canyon as a result of the design verification program. Enclosure A is the contractor's progress report for June 1983.

The following addresses the inspection status notes contained on Page 4 of the contractor's report.

- a. Note 1 is self explanatory.
- b. Note 2: the clerical error was a minor error and has been corrected.
- c. Note 3: the licensee in their letter of May 19, 1983 had committed to performed a 100 percent QC reinspection of all fillet welds in the hotshop area of the fuel handling building. The licensee committed to repair the weld spatter at the time they make corrections to deficiencies found during their reinspection.

The bolt torquing operation in this area had not been initiated at the time of this inspection.

- d. Note 4: zinc corrosion is caused by acid bleedout. The licensee has performed the repairs by wire brushing and zinc painting the area.
- e. Note 5: two weld callouts on the drawing were inaccurate or impossible to make. These were identified in the field during the construction process and a changes were made by the onsite design group to correct the callouts. The action to correct the drawing has been initiated. The design control aspects of these conditions have been assessed and found acceptable.

The modifications for which the above deficiencies are noted and corrected, have been found acceptable.

6. Unresolved Items

- a. Item of Concern - Unit 1

On July 5, 1983 a contract employee at the Diablo Site discussed with our resident inspector an item of concern. The issues are: 1) tensioning/torquing requirements and 2) sampling inspection of tensioned concrete type anchor bolts used for the support of Class I electrical raceways and HVAC ducts.

The employee stated he was not filing an allegation, but was only concerned about the above identified issues. This item remains open (50-275/83-24/02).



b. Structural Steel Modifications to Polar Crane - Unit 1

During an inspection of structural steel modifications to the polar crane in Unit 1 containment, it was observed that excess weld reinforcement which required repair had been identified by the QC Inspector. The required weld repair, circled with a soapstone marker, had not been completed. However, when the QC records were reviewed, it was found that the QC "Traveler" had been initiated/dated by the inspector indicating final acceptance of the weld. Quality Control Procedure QCP-5A identifies the "Weld Inspection Sheet" as the final acceptance document for structural steel modification welds. No weld inspection sheet was found in the quality control file for this weld. This item remains open (50-275/83-24/03).

The two above items remain unresolved pending further examination to determine whether they are acceptable items, items of noncompliance or deviations.

7. Reactor Coolant Piping Wall Thickness - Unit 1

The inspector witnessed micrometer and ultrasonic testing measurements to determine wall (and/or weld) thickness at five welds (1-9, 2-1, 2-2, 2-17 and 3-9) on the reactor coolant piping. This subject is discussed more thoroughly in a separate NRC Inspection Report (No. 50-275/83-26).

No items of noncompliance or deviations were identified.

8. Management Meeting

On July 15 and 29, 1983, the inspectors met with the licensee's representatives identified in paragraph 1. During these meetings, the inspections summarized the scope of the inspection activities and reviewed the inspection findings as described in this report.