U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-275/79-07
50-323/79-05

Docket No. 50-275 License No. CPPR-39
50-323 CPPR-69 Safeguards Group

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

Facility Name: Diablo Canyon Units 1 and 2

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

Inspection Conducted: March 26-29 and April 5-6, 1979

Inspectors: D. F. Kirsch, Reactor Inspector — 5-11-79 Date Signed

D. F. Kirsch
For T. W. Hutson, Reactor Inspector — 5-11-79 Date Signed

D. P. Haist, Reactor Inspector — 5/11/79 Date Signed

G. Hernandez, Reactor Inspector — 5/11/79 Date Signed

Approved By: R. C. Haynes, Chief, Project Section, Reactor Construction and Engineering Support Branch — 5-11-79 Date Signed

Summary:
Inspection during period of March 26, 1979 through April 6, 1979 (Report Nos. 50-275/79-07 and 50-323/79-05)
Areas Inspected: Routine, unannounced inspection by regional based inspectors of construction activities including: licensee action on previous inspection findings; licensee action on IE Bulletins and Circulars; pipe support and restraint installation work; Unit 1 safety related vital tank enclosure structural concrete and tendon anchorage work and records; Unit 1 preservice inspection quality records; instrumentation installation work; licensee's cleanup crew activities; fire protection system quality records; Unit 1 punch list work; licensee nonconformance reporting system; and QA audits. The inspection involved 98 inspector-hours onsite by four NRC inspectors and a supervisor.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

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

**J. B. Hoch, Project Engineer
*R. D. Etzler, Project Superintendent
*V. L. Killpack, Resident Mechanical Engineer
*J. N. Cochran, Resident Civil Engineer
***T. G. deUriarte, Senior QA Engineer
*M. E. Leppke, QA Supervisor
*J. Arnold, QC Coordinator
F. J. Dodd, Metallurgical Engineer, Level III
W. Ham, Senior Metallurgical Engineer
D. Adamson, Metallurgical Engineer
D. Arremony, Consultant
A. W. Novak, Hanger Field Inspector
**C. E. Eldridge, QA Engineer
**M. V. Williamson, Licensing Engineer
**D. L. Polley, Assistant to the Project Engineer
R. L. Kelmenson, Electrical Engineer
R. A. Young, Electrical Engineer
T. W. Crawford, Mechanical Instrumentation Engineer
S. E. Traisman, Mechanical Engineer

b. Pullman-Kellogg (Kellogg)

D. Geske, QA/QC Manager
K. Guy, Lead Field QC Inspector
R. A. Oldenkamp, Hanger Engineer
S. C. Soenke, Engineering Aide
M. Marks, QC Inspector

*Attended Exit Interview at site on 3/29/79

**Attended Exit Interview at Corporate Office on 4/6/79

***Attended both Exit Interviews

2. Licensee Action on Open Items of Enforcement

(Open) Infraction - Failure to Separate Mutually Redundant Circuits in Control Room Panels in a Manner Required by the FSAR (50-275 and 50-323/78-12-01)

The inspector examined the licensee's progress on the installation of Scotch 3300 tape on redundant circuits in the Unit 1 control room panels. The installation appeared to be nearly complete; however, the licensee's inspections were still in progress. The inspector questioned the reclassification of eight items contained in board VB-3 and discussions with engineers at the Corporate Office verified that the reclassification was proper.

This item will be examined further during a subsequent inspection.

3. Licensee Action on Inspector Identified Followup Items

a. (Closed) Unresolved Item - Base Metal Removal by Weld D on Rupture Restraint 3-11RR (50-275/79-01-01)

Contractor investigations showed that an area of base metal on rupture restraint 3-11RR was removed due to a surface defect. It was determined the amount of base metal removed did not exceed the requirements of AWS D1.1-75, Structural Welding Code, and therefore did not require weld repair. The inspector had no further questions on this item.

b. (Closed) Pipe Rupture Restraint Bolt Tension Settings (50-323/76-03, 05, 78-07, 08, 79-01)

The inspector examined the bolting records for eleven pipe rupture restraints on which the A490 bolts had been replaced. The bolts had been torqued using the turn-of-the-nut method. All turn-of-the-nut values appeared to be in accordance with Engineering Specification D-243, Pipe Rupture Restraints, and the AISC Specification for Structural Joints Using ASTM A325 or A490 Bolts.

No items of noncompliance or deviations were identified.

4. IE Bulletins and Circulars

The inspector reviewed the licensee's program for review and response to Bulletins, Circulars and Information Notices. Although no licensee procedure directly addresses Bulletins, Circulars or Information Notices, the licensee processes the above items as an NRC licensing document. Engineering Department Procedure 2.3, NRC Licensing, has proven satisfactory for implementing the action required by Bulletins, Circulars and Information Notices. The licensee stated that a routing sheet and an implementing section would be developed for incorporation into Procedure 2.3 for Bulletins, Circulars and Information Notices. The inspector had no further questions on this item.

a. Bulletin 78-04: Environmental Qualification of Stem Mounted Limit Switches

The stem mounted limit switches of the type addressed by the Bulletin are being replaced by PG&E with environmentally qualified switches and seals. The action required by the Bulletin was being accomplished and the licensee's response appeared acceptable. The installation of the limit switches will be examined after the replacement switches have been installed. (275/79-07-01 and 323/79-05-01)

b. Bulletin 79-03: Longitudinal Weld Defects in ASME SA-312 Type 304 Stainless Steel pipe Spools Manufactured by Youngstown Welding and Engineering Company

The licensee reported, by letter of March 27, 1979, that no ASME SA-12 type 304 welded stainless steel pipe like that described in the subject Bulletin was used at the Diablo Canyon site and that no SA-312 type 304 stainless steel material was purchased from any of the suppliers mentioned in the Bulletin other than Guyon Alloys, Inc. The letter further stated that none of the pipe purchased from Guyon Alloys was manufactured by Youngstown Welding and Engineering and that all SA-312 type 304 stainless steel pipe used at Diablo Canyon is seamless. This item is closed.

c. Circular 78-08: Environmental Qualification of Safety-Related Electrical Equipment

The review of items addressed by Circular 78-08 had been assigned to cognizant personnel in the Engineering Department. The items and references had been evaluated for applicability to Diablo Canyon and the results were documented in a licensee memorandum to file dated August 28, 1978. Several items addressed in the Circular had not been documented in the memo by Electrical Engineering. Work was in progress to include the additional information required from Electrical Engineering. This Circular will remain open pending review of the additional information from Electrical Engineering.

5. Pipe Supports and Restraints

a. Observation of Work and Work Activities

The inspector examined the completed installation of the following pipe supports in the Unit 2 containment and auxiliary buildings for compliance with Engineering Specification D-223 (Installation and Inspection of Class 1 Pipe Supports).

Hanger No.	Drawing No.
96-16R	051374 Sheet 18 Rev. 1
71-27SL	051395 Sheet 37 Rev. 1
70-30SL	051394 Sheet 42 Rev. 1
77-11SL	051401 Sheet 16 Rev. 1
15-12V	051379 Sheet 15 Rev. 2
48-52R	051350 Sheet 43 Rev. 2
48-34V	051350 Sheet 85 Rev. 1
6-137R	051351 Sheet 148 Rev. 1
77-18SL	051401 Sheet 23 Rev. 1
49-12V	051352 Sheet 137/138 Rev. 1
72-75SL	051369 Sheet 105 Rev. 1
947-9R	051368 Sheet 13 Rev. 1

Visual examination of support 77-18SL for No. 2 RHR (Residual Heat Removal) pump disclosed that a three-inch wide plate had been welded to the knee brace base plate and that additional concrete anchors had been added to the base plate. The latest drawing, No. 051401 sheet 23, Revision 1, did not show the three-inch plate or the additional concrete anchors, which had been added as a result of a concrete anchor rework program. However, the concrete anchor rework package contained the QC inspector's notation on the inspection form that an as-built drawing was required. The licensee took actions to prepare the required as-built and committed to review additional support packages for the inclusion of required as-built drawings. The inspector had no further questions on this item.

The inspector noted that a section of Unistrut support was welded to the bottom of hanger 49-12V. This Unistrut was supporting a section of instrument tubing contained within a horizontal run of Unistrut. The hanger drawing, No. 051352 sheet 137/138 Revision 1, did not show the Unistrut welded to the hanger. Drawing 049237 Revision 4, Piping and Mechanical Pipe Hanger and Snubber Supplementary Installation Instructions, paragraph 10, documents several criteria for using pipe supports to support conduit or instrument tubing. An as-built drawing is not required if these criteria are met. The inspector found that drawing 049238, Change 5, Instrument Tubing Supports, did not address the attachment of instrument tubing to a large bore pipe support. The Unistrut hanger attached to 49-12V was not listed in drawing 049238 as a typical instrument tubing support. The acceptability of attaching the instrument tubing support to hanger 49-12V is considered to be an unresolved item (323/79-05-02).

b. Review of Quality Records

The quality records for the pipe supports listed in paragraph 5.a above, were examined for compliance with the documentation requirements of ESD-223. These records included Support Inspection Process Sheets, PSA Snubber Checklists, General Field Support Process Sheets and as-built drawings.

6. Safety-Related Vital Tank Enclosures

a. Structural Concrete

(1) Observation of Work and Work Activities

The inspector observed work on the safety-related vital tank enclosures for Units 1 and 2 to ascertain compliance with Guy F. Atkinson Procedure QCP-17, Revision 2.0 (gunite Work) and ACI 506-2-77 (Specification for Materials, Proportioning and Application of Shotcrete).

Test panels used to qualify the mix designs for the gunite work were examined and appeared satisfactory. Discussions with licensee personnel indicated that, based on previous satisfactory results of mix, materials, equipment and personnel, the engineer had waived pre-construction testing. This was an allowed alternate to preconstruction testing and specified by ACI 506.2-77.

No items of noncompliance or deviations were identified.

(2) Review of Quality-Related Records

The following records associated with concrete work on the vital tanks were examined for compliance with applicable procedures, codes and standards: curing compound certification records, water analysis reports, cement certifications, daily strength records, qualifications of five gunite nozzlemen, curing records for the Unit 1 condensate storage tank and the firewater storage and transfer tank.

No items of noncompliance or deviations were identified.

b. VSL Tendon Rock Anchor Installation

(1) Observation of Work and Work Activities

VSL records of tendon installation and grouting of tendons applicable to the outdoor safety-related vital tanks for Unit 1 were examined for compliance with the VSL QA manual procedures.

No items of noncompliance or deviations were identified.

(2) Review of Quality-Related Records

The inspector examined the VSL report on vital tank test anchors and PG&E's approval letter dated February 16, 1979. Documentation reviewed included: test results for test anchors Nos. 1, 2, 3; calculation of grout volumes; test anchor calculations; ram calibration report; QA reports and approved procedures for test anchors.

Other quality-related records examined for compliance with applicable codes, standards and procedures included the following: cement certification, wire strand certification, grease test reports, and daily compressive strength test records.

No items of noncompliance or deviations were identified.

7. Preservice Inspection

a. Review of Quality Records

The inspector examined the licensee's working file of preservice examination (PSE) records for completeness and compliance with the requirements of the ASME Code, Section XI. The licensee stated that examinations were still in progress and evaluation of data was continuing. The inspector reviewed nondestructive examination records for the following welds/components for conformance with code and licensee requirements.

(1) RPV closure studs, nuts, and washers 1 and 2 - visual, surface and volumetric examinations

(2) control rod drive housing (11 peripheral) - visual and volumetric examinations

(3) main steam pipe to flued head weld (Weld No. WICG-10-2) - visual and volumetric examinations

(4) RPV core region longitudinal weld (2-442B) - automated ultrasonic examination axial and circumferential scans

(5) RPV core region circumferential welds (8-442 and 9-442) - automated ultrasonic examination axial and circumferential scans

(6) reactor coolant system pipe weld (WIB-RC-3-16) - volumetric examination

(7) reactor coolant system safe-end pipe weld (WIB-RC-2-1) - volumetric examination

(8) accumulator injection system branch weld to reactor coolant system (WIB-RC-4-14) - visual, surface and volumetric examinations

(9) accumulator injection system pipe to valve weld (WIB-276) - volumetric examination

(10) RHR system takeoff from reactor coolant system (WIB-RC-4-3) - visual, surface and volumetric examinations

(11) RHR system elbow to pipe weld (WIB-245) - visual and volumetric examinations

No items of noncompliance or deviations were identified.

8. Instrumentation

a. Observation of Work and Work Activities

The inspector examined instrument panels No. 46 and 47 inside the Unit 1 containment and observed that the following circuits were routed adjacent to non-safety related wiring at the panel base:

Circuit	Panel
I0245SV09	46
I0245SV08	46
532RA01C	46
539RA01C	46
542RA01C	47

Examination of the FSAR and licensee specifications indicated that separation criteria apply only to mutually redundant circuits. The above listed circuits were not mutually redundant. However, this item will remain open pending verification that the adjacent non-safety related wiring does not violate the separation criteria (i.e., its proximity to circuits mutually redundant to the above circuits). (275/79-07-02)

9. Cleanup Crew Activities

a. Review of Quality Assurance Implementing Procedures

The following QA implementing and work procedures governing the PG&E cleanup crew (CUC) activities were selectively examined for compliance with the QA program documented in the

FSAR and Specification No. 8802 (Installing Wiring, Small Electrical Equipment and Instrumentation).

(1) QA procedure PRC-13: Quality Control and Quality Assurance Requirements for Cleanup Crew Activities

(2) GCE-3: Wire and Cable Pulling

(3) GCE-4: Electrical Raceway and Junction or Terminal Base Installation

(4) GCE-5: Wire and Cable Terminations

(5) ETI-4-7: Calibration of Test Instruments

(6) GCG-1: Class I Physical Work Performed by Station Construction Department Personnel

(7) GCG-3: Welding and Brazing Procedures

(8) GCG-4: Welder and Bracer Performance Qualification

(9) GCG-5: Welder Identification

(10) GCG-6: Weld Rod Control

(11) GCG-8: Handling and Storage Material

In addition, G93 work authorization No. E-84 (Class 1 Raceway Supports) was examined for compliance with procedural requirements.

No items of noncompliance or deviations were identified.

b. Observation of Work and Work Activities

The following activities were selectively examined for compliance with procedural requirements:

(1) weld rod oven temperature logs, issue logs, oven contents and welding material segregation

(2) two Class 1 material storage areas

(3) calibration stickers and status for three termination crimping devices, three wire strippers and three dial indicators.

No items of noncompliance or deviations were identified.

c. Review of Quality Records

The inspector examined a licensee QC audit of CUC welder performance qualification documentation and the welder qualification records of the three CUC welders. These items were examined for compliance with the licensee's QA procedures.

No items of noncompliance or deviations were identified.

10. Punch List

The inspector examined the licensee's punch list of remaining work items to be completed on Unit 1. The punch list contained 194 items.

The licensee's General Construction organization publishes a weekly letter identifying incomplete work items which are reviewed by corporate project engineering personnel.

The corporate project engineering department publishes a listing of open design and construction items on a monthly frequency and plans to increase the frequency to bi-weekly.

The licensee stated that controls necessary to demonstrate and assure the completion of all necessary safety-related construction/modification work activities, nonconformance and minor variation reports, punch list items, and design engineering activities would be formulated. These controls will be examined during a subsequent inspection (275/79-07-03).

11. Nonconformance and Minor Reports

The licensee's nonconformance reporting system was examined for compliance with the QA program requirements. Licensee records indicated that 11 NCR's and 115 MVRs remained to be closed out. The inspector examined NCR's in the disciplines of civil (Nos. 78-RC-001 through 008), mechanical (Nos. 78-RM-001 through 009 and 79-RM-001 through 005), and electrical (Nos. 78-RE-001 through 010 and 79-RE-001 through 005).

NCR No. DCl-79-RM-006 documented weld cracking problems observed on heavy weldments in highly restrained beams on the Unit 1 pipeway structure outside of containment. The licensee had identified 78 cracked welds and was in the process of evaluating the situation and determining necessary corrective actions. The Unit 2 pipeway was being inspected by the licensee to determine if similar problems exist. On March 4, 1979, the licensee informed Region V that this item was considered reportable under the requirements of 10 CFR 50.55(e) and that the required written report would be submitted.

The resolution of the NCRs examined appeared to conform to the licensee's QA program requirements.

No items of noncompliance or deviations were identified.

12. Fire Protection

The inspector examined the material specification and flammability test results (per ASTM-D-635) of the control room ceiling light diffuser panels. The material constituents, the manufacturer, and the flame spread/smoke developed ratings were reviewed with the NRR Licensing Project Manager for acceptability. On April 10, 1979, the Licensing Project Manager informed the inspector that the material was satisfactory for its intended service.

No items of noncompliance or deviations were identified.

13. QA Audits

The licensee's internal audit system was inspected by examining 17 QA audits (five of which were corporate QA programmatic audits) performed since April 1978. Audits selected for examination encompassed primarily the areas of cleanup crew activities, dry run test group activities, general construction activities in the areas of design control and design change control, and activities under the purview of the General Construction Resident Electrical Engineer. In the conduct of these audits, the licensee identified 16 findings which required corrective action. The corrective actions had been initiated and/or completed in accordance with the licensee's nonconformance reporting system or open item resolution system.

No items of noncompliance or deviations were identified.

14. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance or deviations. One unresolved item was identified during this inspection and is discussed in Paragraph 5.a.

15. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspections on March 27, 1979 at the San Ramon Engineering Research facility, on March 29, 1979 at the Diablo Canyon Site, and on April 6, 1979 at the Corporate Office to summarize the scope and findings of the inspections.