

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-275/87-03 and 50-323/87-03

Docket Nos. 50-275 and 50-323

License Nos. DPR-80 and 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: San Luis Obispo County, California

Inspection Conducted: January 12-16, 1987

Inspector: C. A. Hooker 1/28/87  
C. A. Hooker, Radiation Specialist Date Signed

Approved by: G. P. Yuhas 1/30/87  
G. P. Yuhas, Chief Date Signed  
Facilities Radiological Protection Section

Summary:

Inspection on January 12-16, 1987 (Report Nos. 50-275/87-03 and 50-323/87-03)

Areas Inspected: Routine unannounced inspection on previous inspection findings, transportation, solid waste, licensee identified violation and facility tours. Inspection procedures addressed included 30703, 86721, 84722, 83724 and 92701.

Results: Of the areas inspected, no violations or deviations were identified.

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## DETAILS

### 1. Persons Contacted

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

- \*R. C. Thornberry, Plant Manager
- \*J. M. Gisclon, Assistant Plant Manager
- \*J. A. Sexton, Plant Superintendent
- J. V. Boots, Manager, Chemistry and Radiation Protection (C&RP)
- \*D. A. Taggart, Director, Quality Support; Quality Assurance (QA)
- \*T. L. Grebel, Supervisor, Regulatory Compliance
- \*J. E. Gardner, Senior C&RP Engineer
- \*J. A. Hays, Senior C&RP Engineer, Acting
- C. J. Hansen, C&RP Training Instructor
- C. C. Miller, C&RP Engineer
- L. A. Vulchev, C&RP Foreman

#### b. Contractors

- R. A. Forrester, Site Manager, Nuclear Packaging Services (NuPac)
- J. O. Hamm, Senior Solidification Technician, Chem Nuclear

#### c. NRC Contacts

- P. P. Narbut, Senior Resident Inspector
- M. L. Padovan, Resident Inspector
- K. E. Johnston, Resident Inspector
- A. W. Grella, Inspection and Enforcement

\* Denotes those present at the exit interview on January 16, 1987.

In addition to the individuals identified above, the inspector met and held discussions with other members of the licensee's and contractor's staffs.

### 2. Licensee Action on Previous Inspection Findings

(Closed) Followup (50-275/86-28-01): Inspection Report No. 50-275/86-28 described the inspector's review of an incident involving an abnormal release of noble gas activity in the Unit 1 fuel handling building (FHB). This incident occurred when the Unit 1 spent fuel pool was being filled for the Unit 1 refueling outage. The licensee had determined that the basic cause was the lack of procedural guidance. The licensee had revised Operating Procedure, No. OP 0-3, Notification of the Chem/Rad Protection Department, and committed to issuing a temporary procedure to provide specific instructions for filling the Unit 2 spent fuel pool to prevent a similar incident. This matter is considered closed.

(Closed) Followup (50-275/86-28-02 and 50-323/86-26-01): Inspection Report Nos. 50-275/86-28 and 50-323/86-26 documented the licensee's problem associated with liquid radioactive waste discharge volume

discrepancies. The licensee had determined that the volume discrepancies were caused by the flow integrator (FM-20) calibration (scaling factor). The licensee has applied a new scaling factor to FM-20 and made procedural changes to correct the problem. The licensee had conservatively calculated discharge values during the discrepancy period. The inspector had no further questions regarding this matter.

(Closed) Followup (50-275/83-25-13): Emergency Preparedness Inspection Report Nos. 50-275/83-25 and 50-323/83-18, and Emergency Preparedness, Appraisal Report Nos. 50-275/81-33 and 50-323/81-19 document deficiencies in the licensee's respiratory protection program regarding procedures that had not been fully developed and the need for facilities to clean and maintain respiratory equipment. These deficiencies were identified prior to issuance of an operating license for Diablo Canyon Power Plant (DCPP). Inspection Report Nos. 50-275/85-30 and 50-323/85-28, 50-275/85-33 and 50-323/85-31, 50-275/86-03 and 50-323/86-03, and 50-275/86-28 and 50-323/86-26 document the licensee's respiratory protection program. Based on these inspections it was determined that the licensee now has adequate facilities and have implemented fully developed procedures. The inspector considers this matter closed.

(Closed) Followup (50-275/86-03-02 and 50-323/86-03-02): Inspection Report Nos. 50-275/86-03, 50-323/86-03, 50-275/86-08, 50-323/86-08, 50-275/86-11, 50-323/86-12, 50-275/86-28, and 50-323/86-26 describe previous inspector efforts regarding effluent sampling concerns in regard to the licensee's hot chemistry laboratory hood exhaust system. During this inspection the licensee further acknowledged the inspector's concerns and described a system to estimate, evaluate and include in their Semiannual Radioactive Effluent Release Report, calculated radioactive releases from this effluent pathway. This method was in lieu of the licensee's plans to route the hood exhaust to the plant vent, which was determined to be too costly at this time. The inspector considers this matter closed.

### 3. Transportation of Radioactive Materials

The inspector reviewed the licensee's radioactive materials transportation program for compliance with the requirements of 10 CFR Parts 20, 71 and 49 CFR Parts 171 through 189, and the recommendations of various industry standards.

#### a. Management Controls

The licensee had recently implemented a newly revised QA program, QA procedure QAP-2.L, Radioactive Waste Management. This program includes radioactive waste processing systems; packaging systems; process control program; and handling, storage, and shipping activities. The licensee's QA program was found to be consistent with the QA requirements expressed in 10 CFR Part 71 Subpart H, Quality Assurance, and NRC Regulatory Guide 7.10, Establishing Quality Assurance Programs for Packaging Used in the Transport of Radioactive Material.

No violations or deviations were identified.

b. Audits

QA Audit Report No. 86217T was examined. The audit was conducted November 3-14, 1986, to verify that DCPD had adequately established and implemented procedures for receipt, control and accountability, disposal and transportation of radioactive material. The audit included a review of the adequacy and implementation of procedures. The audit appeared extensive and included interviews with cognizant personnel and review of some 34 separate documents. The audit identified three deficiencies resulting in three audit finding reports (AFRs) being issued to DCPD. No nonconformance reports were issued. The audit concluded that with the exception of the three AFRs, DCPD had effectively implemented the receipt, control and accountability, disposal and transportation of radioactive materials program. The inspector noted that the AFRs involved: radioactive calibration sources issued to radiochemistry which were not being inventoried quarterly; some cases of radioactive material receipt packet documentation not completely reviewed prior to entry of these records into the Records Management System (RMS); and new fuel storage vault logs not entered into the RMS within six months of generation. The inspector discussed the licensee's corrective actions with respect to the AFRs and had no further questions.

No violations or deviations were identified.

c. Procedures and Program Implementation

The following procedures and documents were reviewed:

- ° NPAP D-502 Receipt of Radioactive Materials
- ° NPAP D-506 Radioactive Material Shipment
- ° NPAP C-209 Advance Notification of Shipments of Nuclear Waste and Spent Fuel
- ° RCP RW-4 Solid-Radioactive Waste Shipment
- ° RCP RW-5 Receiving, Loading and Releasing of Transport Vehicle for Radioactive Waste Shipment
- ° RCP RW-7 Burial Site Disposal Criteria and Classification of Radwaste
- ° Certificate of Compliance No. 9176 for a Model 14/210H shipping package
- ° Radioactive Waste Shipments (RWS) Nos. RWS-86-001 through 86-006
- ° Radioactive Materials Shipments (RMS) Nos. RMS-86-025, 030-035

The above procedures and associated checklists provided instructions for assuring compliance with NRC and DOT requirements. However,

based on discussions with licensee representatives and further records review the following observations were made.

- On September 30, 1986, the licensee made their first shipment (RWS-86-001) of low specific activity (LSA) radioactive waste using a NuPac Model 14/210H shipping cask. The cask contained 5.094 curies of LSA radioactive waste (resin solidified in cement) loaded in a secondary container. The shipment was transported, via an exclusive use carrier, to U.S. Ecology (USE), Richland, Washington, for burial. DCPD was the waste generator and shipper and NuPac was acting as a broker.
- On October 2, 1986, the shipment was received at the USE burial site.
- On October 3, 1986, a State of Washington DSHS inspection revealed that three of the eight closures (ratchet binders) were not properly secured. It was determined later, at DCPD, that the three ratchet binders had been torqued in the wrong direction. The Washington DSHS identified this problem as a violation of 49 CFR 173.475(c). No leakage of radioactive material was detected by the State. 49 CFR 173.475(c) requires, in part, that before each shipment of any radioactive materials package, the shipper shall ensure by examination or appropriate tests that each closure device of the packaging is properly secured.
- The State of Washington DSHS issued a warning letter, dated October 8, 1986, to NuPac noting that three of the eight closure devices (ratchet binders) on the Model 14/210H cask were not properly secured and was a violation of 49 CFR 173.45(c). The letter further stated, in part, that the nature of the violation found in this shipment, at this time, did not justify the withholding of the authorization to use the Richland, Washington burial site. The letter also recommended that corrective action be taken to assure that future activities will be conducted in full compliance with all applicable state and federal regulations, and conditions of the USE license. The letter did not require a response in regard to the noted violation. A copy of the letter was also sent to PG&E, DCPD. This letter was addressed to a NuPac representative (broker) who is stationed at the DCPD site.

NuPac maintains a representative at the DCPD to assist with activities involving NuPac shipping packages and arrangement for transportation of waste shipments.

- NuPac, although not required by the State of Washington DSHS, responded, letter dated October 17, 1986. The letter noted that the contributing factor for the violation was the lack of experience and lack of attention to detail. The letter also noted, through the assistance with DCPD personnel, three additional steps that would be taken for subsequent shipments

to reduce the chances of a violation similar to that which occurred.

In review of QC check lists (for shipment no. RWS-86-001), and through discussions with responsible licensee representatives and the NuPac representative stationed at DCPD, the inspector did not identify any anomalies that could have resulted in the violation identified by the Washington DSHS. It was assumed by the licensee that the three ratchet binders had been tightened in the wrong direction. The appropriate torque values were obtained on all eight ratchet binders and the primary lid gap was measured to be within the required 1/8 of an inch, in accordance with the NuPac cask handling procedure. These items were verified by a QC inspector during these steps in preparation of the cask for shipment.

No violations or anomalies were identified by the Washington DSHS or USE for subsequent shipments of the NuPac Model 14/210H shipping cask, October 6 and November 24, 1986.

Based on the inspector's examination of this incident, it was found that the licensee had acted as though the warning letter from the Washington DSHS had been sent to them, and had taken prompt actions to assure that a similar violation would not occur in the future.

At the exit meeting on January 16, 1987, the inspector informed the licensee that the NRC and DOT regulations holds each person (shipper) who transports or delivers to a carrier for transport, radioactive material, responsible for compliance with packaging and shipping activities. The inspector also informed the licensee that the NRC also has the authority to take enforcement action against NRC licensees on the basis of State inspection data, and independent of any State enforcement actions. The inspector also acknowledged the licensees prompt corrective actions in regard to this matter.

d. Training and Qualifications

Administrative Procedure APB-253, Radioactive Materials Packaging and Shipping Training Program, outlines the licensee's training program for safe handling, packaging, and shipping of radioactive materials. The inspector conducted interviews with licensee representatives responsible for training and shipment of radioactive materials. The inspector also reviewed lesson plans, training records and licensee qualification criteria. The licensee was restructuring the training program to be task, rather than topic oriented. The C&RP staff, QC inspectors and waste handlers were provided training commensurate with job classifications involved in the subject area. The training material appropriately referenced DOT and NRC radioactive materials transportation regulations. However, the lesson plans did not have a specific topic covering these regulations and their relationship between the two sets of regulations. This observation was brought to the licensee's attention. The licensee's representative stated that he would consider the topic for inclusion in the training program.

No violations or deviations were identified.

e. Radioactive Material Receipt and Shipment Records

Selected licensee records for receipt and shipment of radioactive materials were reviewed for compliance with the requirements of licensee procedures NPAP D-502 and NPAP D-506, 10 CFR Parts 20, 71.5 and 49 CFR Parts 172.200-204, 173.415, 421, 425, 441 and 443. The inspector noted that the licensee had made six low level waste shipments, about 35 other types of radioactive material shipments, and received about 39 radioactive material packages. Based on this review and through discussions with licensee representatives, the inspector determined that the licensee was effectively implementing their program in this area. The inspector noted extensive QC involvement including coverage of Type A packages. No inspector concerns were identified.

No violations or deviations were identified.

4. Solid Waste

The inspector reviewed the licensee's radioactive solid waste program for compliance with the requirements of 10 CFR Parts 20, 61 and TS.

a. Audits

QA audit related to solid waste activities was discussed in paragraph 3 of this report.

No violations or deviations were identified.

b. Changes

There have been no significant changes to the process control program, other than improvements in procedures which were reported in the licensee's Semiannual Radioactive Effluent Release Report, dated August 28, 1986.

The licensee was modifying their solidification/washdown pad to incorporate a larger area and make improvements to the existing operation. The licensee did not have any plans to enclose this outside area.

No violations or deviations were identified.

c. Procedures and Program Implementation

The following procedures were reviewed:

- ° AP C-253            Process Control Program
- ° AP C-253S1        Dewatering Control Program
- ° AP C-254            Radioactive Waste Volume Minimization Program

- ° AP C-256 Radioactive Waste Classification Program
- ° AP C-257 Mobile Service Operating Procedures for Low-Level Radioactive Waste Processing
- ° RCP RW-1 Collection, Packaging, Storage, and Accountability of Radioactive Waste
- ° RCP RW-3 Radioactive Waste Isotope Fractions and Correlation Factor Determination
- ° RCP RW-4 Solid Radioactive Waste Shipment
- ° RCP RW-7 Burial Site Disposal Criteria and Classification of Radwaste
- ° RCP RW-8 Radioactive Waste Curie Content Calculations

It was noted that the licensee maintained procedures of the licensed contractor's process control program for radioactive waste solidification. The contractor's procedures had been reviewed and approved by the licensee, and were appropriately referenced in the licensee's procedures. The above procedures appeared to be comprehensive and provided instructions for evaluating, analyzing, and processing of solid radioactive wastes to comply with regulatory requirements.

The licensee contracts with an offsite vendor for identification of radionuclide concentrations within radioactive waste streams. The licensee also samples the waste streams and compares their analysis with the vendor's results. The licensee performs quarterly updates of gamma isotope fractions from sampled waste streams. Prior to each processing operation the licensee samples and checks correlations.

Based on review of completed shipping packages noted in paragraph 3 of this report, the inspector noted QC involvement in the solid waste program appeared extensive with appropriate check and hold points.

The inspector toured the licensee's radioactive waste processing and storage facilities and inspected the clean and contaminated waste separation areas, drum and box compaction areas, auxiliary building waste storage locations, waste solidification area, and the waste storage building. The inspector noted that the clean waste separation and survey area was heavily congested with bags of material to be surveyed. The hot waste separation area (tent) also appeared to be limited on space for this type of operation. The inspector observed workers surveying clean waste on two separate occasions and noted no concerns.

The inspector verified that the licensee classifies waste pursuant to 10 CFR 61.55; verifies that waste meets the characteristics of 10

CFR 61.56; and prepares a waste manifest and marks packages in accordance with 10 CFR Part 20.311.

No violations or deviations were identified.

5. Followup on Licensee Identified Violation

On January 15, 1987, at about 8:30 A.M., the licensee informed the inspector that at about 11:00 P.M. on January 14, 1987, that the Unit 1 outer containment personnel hatch was found to be unlocked. Unit 1 was operating at 50% power and the licensee considers this door to be the control point for areas inside the containment that are greater than 1000 mR/hr and not individually locked. This door is posted as Very High Radiation Area (VHRA). The outer containment hatch is maintained locked by the use of a chain and special VHRA lock attached to the door operating wheel. The access to the containment hatch is through a labyrinth that is controlled with a security key carded door.

Technical Specification 6.12.2 requires, in part, that areas accessible to personnel with radiation levels greater than 1000 mR/hr shall be provided with locked doors to prevent unauthorized entry.

Since this security key card locking system did not prevent entry to VHRAs by any personnel who had cards and the containment personnel outer hatch was found to be unlocked, the licensee identified this to be a violation of TS 6.12.2.

The inspector was informed that the hatch was found not to be secured with the chain and lock by a decon worker (DW), while performing routine duties in this area. The DW immediately notified the shift radiation protection (RP) staff. The RP staff immediately investigated the matter and locked the hatch. The RP foreman on shift checked with the U-1 shift foreman to verify that no entries had been made since the last known entry. The RP staff maintains and control the use of the keys for VHRA locked doors and special VHRA locks. The VHRA key log book noted that the last time the key was issued for the Unit 1 containment hatch lock was on January 13, 1987, at about 11:00 A.M. The key was issued and used to unlock the outer containment hatch door for a training session on how to properly open and close the hatch. No entry was made into the containment during the training session. The licensee determined from various records and the control room that the outer hatch had not been opened since the training session. The licensee concluded that the RP technician, assigned the key, had not chained and locked the door when the training was completed.

The inspector noted from the control room computerized alarm system that the Unit 1 outer personnel air lock hatch had not been opened since January 13, 1987, at 11:21 A.M. On January 15, 1986 the inspector also visited and noted that the personnel outer hatches for Unit 1 and Unit 2 were chained and locked. The inspector noted that the licensee took prompt action to investigate and determine the cause of the incident and was considering several corrective actions to prevent similar violations in the future. The inspector will examine the licensee's investigation

and final corrective actions during a subsequent inspection (50-275/87-03-01, Open).

6. Facility Tours

The inspector toured various areas of the auxiliary buildings of Unit 1 and Unit 2, and the low-level waste storage facility. The inspector made independent radiation measurements using a NRC R0-2 portable ion chamber, S/N 897, due for calibration on March 18, 1987.

During the tours the inspectors observed that all radiation areas and HRA's were posted as required by 10 CFR Part 20. Licensee access and posting controls for HRA's were noted to be consistent with TS, Section 6.12 and licensee procedures.

7. Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on January 16, 1987. The scope and findings of the inspection were summarized. The licensee was informed that no violations or deviations were identified.

With respect to the Unit 1 containment hatch being unlocked as described in paragraph 5 above, the inspector informed the licensee that since the licensee identified the problem, promptly investigated and was initiating corrective actions, in accordance with the NRC Enforcement Policy, 10 CFR 2, Appendix C, a Notice of Violation was not proposed.