U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-275/90-14 and 50-323/90-14

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 Power Plant, Units 1 and 2

Inspection at: Diablo Canyon Site, seven miles north of Avila Beach, California

Inspection conducted: April 30, 1990, through May 4, 1990

Inspected by: Wm K Cillis FOR
M. Cillis, Senior Radiation Specialist — 5-25-90 Date Signed

Approved by: Wm K Wenslawski FOR
F. A. Wenslawski, Chief — 5-25-90 Date Signed
Facilities Radiological Protection Section

Summary:

Areas Inspected: Routine unannounced inspection covering shipping of low-level wastes for disposal and transportation; occupational exposures; control of radioactive materials; contamination, surveys and monitoring; radioactive waste management; followup of open items; followup on enforcement items; followup of written reports of non-routine events; in-office review of periodic and special reports, and facility tours. Inspection procedures 30703, 83750, 84840, 86740, 92701, 92702, 92700 and 90713 were addressed.

Results:

In the seven areas inspected, one violation involving the failure to perform leak tests of licensed sources was identified (see Section 3.B). The licensee's programs exhibited strengths in radwaste management (section 2) and ALARA (section 3.D), and were capable of superior performance in the accomplishment of their safety objectives.

## DETAILS

1. Personnel Contacted

Licensee

*D. B. Miklush, Assistant Plant Manager
*R. Gray, Radiation Protection Manager
*D. A. Taggart, Director, Quality Assurance (QA)
*R. P. Flohaug, Senior Engineer, QA
T. L. Grebel, Supervisor, Regulatory Compliance
*L. Ellis, Regulatory Compliance Engineer
*J. R. Hinds Senior Regulatory Compliance Engineer
J. E. Knight, Radiation Protection Foreman
*M. O. Somerville, Senior Radiation Protection Engineer
R. W. Rogers, Radiation Protection Foreman
A. J. Newell, Training Supervisor
C. J. Hansen, Radwaste Foreman
C. C. Miller, Radiation Protection Engineer
K. R. Bieze, Chemistry and Radiation Protection Training Supervisor

Contractor Personnel

J. Chadwick, ALARA Coordinator, Delphi Group, Inc.

NRC

P. Narbut, Senior Resident Inspector

*Denotes those individuals present at the exit interview conducted on May 4, 1990.

Additional discussions were held with other members of the licensee's staff and contractor personnel.

2. Radioactive Waste Management, Shipping of Low-Level Wastes for Disposal, Receipt, and Transportation Activities (MC 84850, MC 83750 & MC 86740)

A. Controlling Documents and Management Controls

The inspector examined the licensee's programs for management of radioactive wastes, shipment of low-level wastes for disposal, and receipt and transportation activities to assure compliance with the following requirements:

- 10 CFR Parts 20.205 and 20.311
- 10 CFR Parts 61 and 71
- Department of Transportation (DOT) regulations provided in 49 CFR Parts 100-177
- Technical Specification 3/4.11.3

The examination included: (1) a review of records associated with the receipt and shipping of radioactive material to off-site agencies or for burial at an approved licensed facility, (2) a review of applicable procedures, (3) direct observations by the inspector and (4) discussions held with the licensee staff.

The following procedures and records were reviewed:

Procedures

RCP D-630, "Receiving and Opening Radioactive Material Packages".

RCP RW-1, "Collection, Packaging, Storage, and Accountability of Low-Level Radioactive Waste"

RCP RW-2, "Radwaste Packaging by Absorption"

RCP RW-3, "Radioactive Waste Isotope Fractions and Correlation Factor Determination"

RCP RW-4, "Solid Radioactive Waste Shipment"

RCP RW-5, "Receiving, Loading and Releasing of Transport Vehicle for Radioactive Waste Shipment"

RCP RW-6, "Use of Box Compactor"

RCP RW-7, "Burial Site Disposal Criteria and Classification of Radwaste"

RCP RW-8, "Radioactive Waste Curie Content Calculations"

RCP RW-12, "Sorting of Bagged Radwaste"

AP C-254, "Radioactive Waste Volume Minimization Program"

AP B-253, "Radioactive Materials Packaging and Shipping Training Program"

DPP PC-10, "Radioactive Waste Classification & Shipping Type Determination Using Gross Activity Method"

DPP PC-20, "Operation of the Radsum Spreadsheet Program"

Records/Documents

o Radwaste Shipment (RWS)-89-002

o RWS-89-004

o RWS-89-008

o Radwaste Correlation Factors for 1988 and 1989

o Radioactive Material Shipment Log/Records to Off-Site agencies.

o Radioactive Material Receipt Log/Records for 1990

The licensee's staff maintained current copies of radwaste disposal site license and the Department of Transportation's regulatory requirements. From the review of the above procedures and discussions with the licensee's staff, the inspector concluded that there was a strong commitment for radioactive waste minimization. The program for radioactive waste reduction was well-defined in the above procedures.

The procedures adequately defined individual and organizational responsibilities. Training programs for licensee personnel involved in radioactive waste management and transportation activities were also well defined and were consistent with training requirements prescribed in 10 CFR 71.15(d) and 49 CFR 173.1(b).

B. Quality Control

The inspector reviewed the licensee's Quality Control (QC) program to assure compliance with waste classification and characterization requirements of 10 CFR 61.55 and 61.56 as required by 10 CFR 20.311 (f) (5). No concerns were identified in this area.

Records and procedures related to waste classification and characterization and manifests for transportation activities were reviewed and found to meet and/or exceed 10 CFR 20.311 (b), (c) and (d) (1) and (2) requirements.

C. Waste Classification and Characterization

The inspector reviewed licensee procedures and records to assure all low-level radwaste was properly classified pursuant to 10 CFR 61.55 requirements and to assure all radwaste met the waste characteristics of 10 CFR 61.56. The licensee's program met or exceeded the requirements. The licensee had established an aggressive program to sample in excess of the twelve waste streams needed to comply with requirements.

Sampled waste streams were analyzed by a vendor annually and by the licensee each quarter. Each sample was analyzed for each of the isotopes required by 10 CFR 61.55. The vendor's sample analysis results were compared to licensee results and to the results obtained from the previous sampling of the waste streams. All abnormal results which varied by more than a factor of ten were investigated and the waste stream resampled. The waste stream sampling results for the period of March 1988 through March 1990 did not disclose any abnormal results.

D. Audits and Appraisals

The inspector reviewed Audit Report, #89815T, dated October 13, 1989, entitled: "Radioactive Material Management," related to radioactive waste management and transportation activities. The audit team concluded that DCPP had been effectively implementing and maintaining the requirements for control of licensed radioactive material. No audit findings were issued.

The inspector noted that the auditors performed an in-depth appraisal of the licensee's radwaste disposal and transportation programs. The inspector concluded that the licensee's audit activities proficiently appraised performance in the areas inspected.

E. Changes

No significant changes were identified in the area of radwaste management, shipping and transportation activities.

F. Transportation Incidents

The licensee had completed over 150 radioactive waste and radioactive material shipments since the previous inspection without any reported incidents.

G. Receipt of Radioactive Materials

Licensee procedures and records of incoming shipments were reviewed and were found to be consistent with 10 CFR Part 20.205 requirements.

H. Radwaste Shipments

The licensee completed nine radioactive waste shipments during 1989. Four shipments were Class A, two were Class B shipments, and three were Class C shipments. Current Certificates of Compliance for NRC certified shipping casks were available and the inspector verified that DCPP was registered as a user. The inspector verified that the required maintenances specified in the Certificate of Compliance had been performed.

The licensee completed approximately 35 off-site shipments of radioactive wastes and/or radioactive materials. The shipments consisted mostly of laundry, various samples being sent to a vendor for analysis, various pieces of equipment being returned to a vendor for repairs and other radioactive materials being sent to a vendor for processing.

I. Miscellaneous Information

The inspector also verified that the licensee's programs included provisions for tracking radioactive material and radwaste shipments, and for labeling the shipments as to Class A, B, or C waste in

accordance with 10 CFR 20.311 (d)(2). Licensee procedures also included provisions for radiation monitoring, loading and placarding of exclusive and non-exclusive shipments pursuant to 49 CFR Parts 172.506, 173.441, 173.443 and 10 CFR 71.87.

The licensee's staff informed the inspector that DCPP had established a radwaste minimization program. The program included provisions for shipping radioactive wastes to off-site vendors for processing. For example, some consumable radwaste material was sent to vendors for incineration. Contaminated metallic objects were sent for decontamination for reuse.

The licensee maintained their previous high level of performance in this area and their programs appeared fully capable of accomplishing their safety objectives. No violations or deviations were identified.

3. Occupational Exposure, Shipping and Transportation (MC 83750):

A. Audits and Appraisals (MC 83750)

Audits and surveillances performed by the licensee's Quality Assurance staff in the inspection topic area were examined. The audits and surveillances included:

Personnel Monitoring and Dosimetry Processing Audit 89809T, dated June 16, 1989.

Radioactive Material Management Audit 89815T, dated October 13, 1989.

Underwater Work Radiation Protection Practices Surveillance Report QSC89-0183.

ALARA RFR Surveillance Report QS-90-0027, dated April 3, 1990.

With respect to the first audit, four Audit Finding Reports were issued. The results of this audit are discussed in Region V Inspection Reports 50-275/89-18 and 50-323/89-18..

With respect to the first surveillance, one finding and five observations were identified. The finding reported that a pre-job survey had not been performed. An Action Request was written describing the finding. The five observations included poor contamination control practices, work area crowding, long hours worked by certain personnel, and commendation of the decision to spend extra time vacuuming the debris from the floor of the transfer canal.

No deficiencies or audit findings were identified in the second surveillance report.

The audit and surveillances were performed by qualified individuals and were effective in identifying deficiencies and making

recommendations for appropriate corrective actions. No violations or deviations were identified.

B. Control of Radioactive Materials and Contamination, Surveys, and Monitoring

The inspector examined this area by observation, discussions with responsible personnel, and review of Technical Specification (TS) requirements, related procedures and records.

TS 3/4.7.8, "Sealed Source Contamination", requires that each sealed source containing radioactive material in excess of 100 microcuries of beta and/or gamma emitting material or 10 microcuries of alpha emitting material be tested for leakage and/or contamination at least once every six months.

During a review of the licensee's radioactive material inventory/leak test records the inspector noted that as of May 2, 1990, a 20 millicurie Sr-Y-90 source, S/N 537, and a 1.0 Curie Am-241 source, S/N 538, had not been checked for contamination and/or leakage for a period 10 months. The records showed that the sources were last checked on July 31, 1989. The inspector noted that the radioactive source inventory/leak test records were marked as N/A directly adjacent to sealed source numbers 537, 538 and 577.

The above observation was brought to the attention of the radiation protection foreman having responsibility for assuring the inventory and leak checks are performed. The foreman took immediate action to have the sources checked for leakage and prepared an Action Request.

The Action Request described the discrepancy and the most probable cause for not performing the leak check at the frequency prescribed in the TS. The licensee's records showed that source number 577 contained 20 nanocuries Am-241 rather than 50 microcuries as denoted on the accountability records. Source number 577 levels were below the limits prescribed in the TS; therefore, it did not have to be leak tested. The results for leak tests performed on source numbers 537 and 538 during the inspection were reported as <1000 dpm/smear.

The radiation protection foreman took immediate action to prevent a recurrence of this problem by correcting the error noted on the radioactive source inventory/leak test records.

This finding was brought to the licensee's attention during exit interview. The inspector informed the licensee that failure to perform the leak checks at the frequency specified in the TS was an apparent violation (50-275/90-14-01).

The licensee acknowledged the inspector's finding. The inspector was informed that a Licensee Event Report (LER) had been initiated and would be submitted pursuant to 10 CFR Part 50 requirements. The inspector commended the licensee's staff for the prompt actions that were taken to prevent a recurrence of a similar problem.

C. Facility Tours

The inspector toured the Auxiliary Building, Fuel Handling Building, Radwaste Storage Facility and Laundry Facility. Inspector observed the following:

(a) Cleanliness in the Auxiliary Building had significantly improved since the previous inspection; however, cleanliness in the Radwaste and Laundry Facilities needed additional attention.

(b) Lighting was extremely poor in many work areas in the Auxiliary Building. In particular, the inspector found it difficult to read radiological postings located on the radwaste concentrator room, 85' elevation of the Auxiliary Building, even at a distance of 9 to 12 inches.

(c) Posting and labeling practices were consistent with 10 CFR Parts 19.11 and 20.203.

(d) Work practices were in accordance with the instructions on the applicable work permits and the licensee's ALARA program.

(e) On May 2, 1990, the inspector found two continuous air monitors, S/N's RP 4.14.1 and RP 4.14.9, whose calibration due dates had expired on March 30, 1990.

(f) A high radiation area posting inside of room #352 had fallen down. The door providing entry into the room was locked.

The above observations were immediately brought to the attention of the licensee's staff. Immediate corrective action was taken to correct the posting problem and action was taken to calibrate the continuous air monitors. The assistant plant manager informed the inspector that DCPP had studied the lighting problems and were in the process of determining what actions to take.

The licensee had maintained their previous level of performance in this area.

D. Maintaining Occupational Exposures ALARA

The licensee's ALARA program was examined by observation, discussions with responsible personnel, and by the review of applicable records. The inspector noted that ALARA awareness continued to be present among the licensee's permanent and contractor staff members during this inspection as during the previous inspection.

A review of the final exposure data from the Unit 2, cycle 3 refueling outage revealed that the total exposure expended during the outage was approximately 20% less than the ALARA goal.

The inspector commended the licensee's staff attending the exit interview for their performance in maintaining personnel exposures ALARA. The licensee appeared to be improving its level of performance in ALARA.

4. Followup of Licensee Action on Open Items (MC 92701)

a. (Closed) Open Item 50-275/89-08-14: No reference and/or information under this open item number were found; therefore this item is closed.

b. (Closed) 50-275/IN-90-08 and 50-323/IN-90-08: The inspector verified that the licensee had received and evaluated the applicability of Information Notice 90-08, "Kr-85 Hazard from Decayed Fuel." This matter is closed.

c. (Closed) 50-275/89-08-YO This item concerned the review of the semiannual effluent release report. The review of the report is addressed under Section 7. This matter is closed.

5. Onsite Followup of Enforcement Items (MC 92702)

(Closed) 50-275/89-25-02: This item involved a violation for failure to instruct workers as to what actions to take in response to area radiation monitor (ARM) alarms during core off-load operations.

The inspector reviewed the licensee's timely response to the Notice of Violation. The inspector verified that the corrective actions described in the licensee's response had been implemented. Corrective actions taken included a Technical Specification revision, procedure changes and instructions to personnel. This matter is closed.

6. Onsite followup of written events (MC 92702)

(a) (Closed) 50-323/89-09-LO: The inspector reviewed the corrective actions described in the LER. The corrective actions were acceptable, timely and complete. This item is closed.

(b). (Open) 50-275/89-12-LO): The licensee was continuing to implement the corrective actions addressed in this LER. This item will be examined during a subsequent inspection.

(c). (Closed) 50-275/90-03-LO: THe inspector reviewed the corrective actions described in the LER. The corrective actions were acceptable, timely and complete. This item is closed.

7. Semiannual Effluent Release Report (MC 90713)

The inspector performed an in-office review of the licensee's timely July 1 - December 31, 1989, Semiannual Effluent Release Report, submitted in accordance with Technical Specification 6.9.1.6. The report was consistent with the format recommended in Regulatory Guide (RG) 1.21 and the methodology conformed to that recommended in RG 1.109. Radioactive

releases and resulting doses for the period were significantly below the limits of TS 3/4.11.

Four unplanned noble gas releases were noted, each less than 1.5 percent of the limits in TS 3.11.2.1.a. No major changes to the gaseous, liquid or solid radwaste systems occurred during the report period. Minor changes to the Process Control Program and Environmental Radiological Monitoring Procedure (ERMP) were reported in accordance with TS requirements. No changes to the ODCM occurred during the report period.

The licensee maintained their previous level of performance in this area. No violations or deviations were identified.

8. Exit Interview (30703)

On May 4, 1990, the inspector met with the licensee representatives denoted in Section 1 to discuss the scope and findings of the inspection. The licensee was informed of the apparent violation described in Section 3.B.