U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report: 50-275/93-18 and 50-323/93-18

Licenses: DPR-80 and DPR-82

Licensee: Pacific Gas and Electric Company (PG&E)
77 Beale Street
San Francisco, California 94106

Facility: Diablo Canyon Power Plant (DCPP), Units 1 and 2

Inspection location: San Luis Obispo County, California

Inspection duration: June 7 - 11, 1993

Inspected by: H. Chaney, Senior Radiation Specialist — Date Signed 6/25/93

for K. Brewer, Radiation Specialist — Date Signed 6/25/93

Approved by: James H. Reese, Chief, Facilities Radiological Protection Branch — Date Signed 6/29/93

Summary:

Areas Inspected: Routine inspection of the testing and surveillance programs for certain engineered safeguards filtering/adsorbing systems, and the shipment of radioactive waste. NRC Inspection Procedures 84750, 86750, and 92701 were used.

Results: The licensee's periodic inspection, technical specification required surveillances, and testing of filtering and adsorbing systems is performed in an excellent manner. The observed shipment of a Type B quantity of radioactive waste was accomplished in accordance with their own procedures and the requirements of the NRC and the U.S. Department of Transportation. An inspectors concern regarding the leak testing of NRC certified shipping casks is discussed in paragraph 4.0.

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DETAILS

1. Persons Contacted

Licensee

*R. Gray, Director, Radiation Protection (RP)
R. Allen, Systems Engineer
*M. Burgess, Director, Technical Services
R. Cagne, Foreman, Radwaste
R. Clark, Foreman, Radiation Protection
*E. Chaloupka, Surveillance Coordinator
L. Cossette, Surveillance Coordinator
M. DeWitt, QA Engineer
*S. Ehrhart, RP Engineer
*C. Groff, Technical Services
*G. Helmen, ALARA Engineer
*K. Hubbard, Engineer, Regulatory Compliance
*V. Jensen, Quality Control Specialist
*R. Klimczak, Senior Engineer, Operations Engineering
J. Lykes, Foreman, Radwaste
*D. Miklush, Manager, Operations Services
C. Miller, Engineer, Radwaste
*M. Mosher, Engineer, Quality Assurance
*M. Somerville, Senior Engineer, RP
D. Stermer, Systems Engineer
*D. Taggart, Director, Quality Assurance
*P. Sarafian, Engineer, Onsite Safety Review Group
*R. Washington, Sr. Engineer, Instruments and Controls

NRC

M. Miller, NRC Sr. Resident Inspector

(*) Denotes those individuals who attended the exit meeting on June 11, 1993. The inspectors met and held discussions with additional members of the licensee's staff during the inspection.

2. Radioactive Waste Treatment, and Effluent and Environmental Monitoring (84750)

ESF Filtration and Control Room Habitability Systems

The engineered safeguards features (ESF) of the licensee's Control Room and Auxiliary Building Heating Ventilation and Air Conditioning (HVAC) systems were examined to determine compliance with the requirements of Operating License Technical Specifications (TSs) 3/4.7.5.1 and 3/4.7.6.1, respectively. These systems were also examined for agreement with the commitments contained in Sections 9.4.1 (Control Room HVAC system) and 9.4.2 (Auxiliary Building HVAC system) of the Units 1 & 2 Updated Final Safety Analysis Report (UFSAR).

The inspectors held discussions with System Engineering Group personnel responsible for plant HVAC & ESF system operability and personnel from

Plant Engineering Group responsible for tracking the performance of surveillance tests. Surveillance procedures (STPs) and past surveillance tests for both systems were reviewed.

The licensee's Auxiliary Building Ventilation System was under a "Task Force" review for making system improvement recommendations. The licensee actively pursues resolution to identified system problems (NCRs - NonConformance Reports and ARs - Action Requests) and assessing preventative maintenance needs to improve system reliability.

The inspectors received and reviewed the following licensee audits/surveillances associated with this area of the inspection:

- Safety System Functional Audit Report No. 92001I, dated May 15, 1992, Emergency Safeguards Features Ventilation System and the Auxiliary Building filtration and adsorption units.

- Audit 920291, dated July 31, 1992, Technical Specifications and Applicable License Conditions. Concerning compliance with surveillances and tests for the Fuel Handling Building Ventilation System and the Auxiliary Building Safeguards Air Filtration System. Focus was on operability and maintenance activities.

- Audit 930051, dated May 21, 1993, 2R5 Maintenance Quality Assessment.

- Quality Performance & Assessment Surveillance Report No. QP&A 92-0006, dated April 1, 1992, Capability of the Operable Structures, System, and Components While defueled to Satisfy Design Bases Requirements and Applicable Accident Analysis Assumptions.

- Audit 871537, dated October 26, 1987, "Control Room Ventilation System Audit," This audit, though performed several years earlier, involved a critical look at the ESF system for pressurization of the Control Room and other design attributes of the filter and adsorption systems associated with the Control Room. Apparently all findings have been resolved.

The audits/surveillances indicated a good level of detail and depth. Most showed that the auditors had a good working knowledge of the subject areas. No significant deficiencies were identified. Those concerns raised have been entered into the licensee action tracking system.

The inspectors also reviewed the licensee's actions regarding NRC Information Notice (IN) 93-06, "Potential Bypass Leakage Paths Around Filters Installed in Ventilation Systems," and IN 87-32, "Deficiencies in the Testing of Nucleargrade Activated Charcoal." Both licensee reviews were detailed and of adequate depth.

A visual inspection of the Unit 1 & 2 Control Room and Auxiliary Building HVAC systems was conducted. Both systems were found to be operable and

in agreement with the applicable section(s) of the licensee's UFSAR, and licensee drawings.

The licensee utilized two dedicated systems engineers who are responsible for maintaining the HVAC & ESF systems and providing technical expertise regarding these systems. Engineering and design assistance is provided by a specific person at the offsite General Office. Routine interface meetings with other allied plant groups and the General Office engineers are held. System walkdowns are conducted by the engineers periodically. The inspectors determined through discussions with the systems engineers that they were knowledgeable in the operation of the Control Room and Auxiliary Building HVAC systems and the TS requirements which govern these systems. They appear to be capable of providing the necessary oversight to maintain the operability of these systems.

Discussions with Plant Engineering personnel and a review of the licensee's surveillance tracking system assured the inspectors of the licensee's ability to manage TS surveillance tests as necessary to verify system operability. All surveillance tests reviewed by the inspectors (from 1/1/90 to 6/1/93) had been performed in accordance with plant procedures and applicable industry standards. These tests and surveillances were completed within the required time as specified in the TSs.

The following STPs were reviewed:

- STP M-6A, Routine Surveillance Testing of Control Room Ventilation System, Revision 15.
- STP M-6B, Control Room Ventilation System Charcoal Preheater Test, Revision 3.
- STP M-16A, Operation of Trains A and B Slave Relays K603 (Safety Injection) and K605 (Phase A Isolation), Revision 9.
- STP M-53, Control Room Ventilation System - DOP and Halide Penetration Tests, Revision 7.
- STP M-3A, Auxiliary Building Ventilation System - DOP and Halide Penetration Tests, Revision 8.
- STP M-3B, Auxiliary Ventilation System - Dampers M2A and M2B Leak Rate Test, Revision 7.
- STP M-3C, Auxiliary Building Ventilation System Charcoal Preheater Test, Revision 7.
- STP M-4, Routine Surveillance Test of the Auxiliary Building Safeguards Air Filtration System, Revision 13.
- STP G-9, General HEPA Filter Bank Penetration Test, Revision 7.

- STP G-10, General Charcoal Filter Bank Penetration Test, Revision 6.

- STP G-11, Procedure for Obtaining Charcoal Filter Media for Laboratory Testing (Methyl Iodide), Revision 4.

The above procedures were found to be of adequate detail and depth. The licensee had incorporated the following standards into their STPs:

- Regulatory Guide (RG) 1.52, "Design, Testing, and Maintenance criteria for Post Accident ESF Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," Rev. 2, 1978.

- ANSI/ASME N510, "Testing of Nuclear Air Cleaning Systems," 1980.

- ANSI/ASME N509, "Nuclear Power Plant Air Cleaning Units and Components," 1980.

- ASTM D-3803, "Standard Test Method For Nuclear Grade Activated Carbon", 1979.

The inspectors review of recent surveillance tests indicated an adherence to STPs and completion of all required sign-offs.

No violations or deviations were identified in this area of the inspection.

3. Occupational Radiation Exposure (83750)

The licensee's radiation protection (RP) activities associated with personnel entry into Unit-2 reactor containment (while at 100 percent power) and the packaging of highly radioactive resins for shipment were reviewed for compliance with the requirements 10 CFR Part 29, and TSs 6.8. 6.11, and 6.12.

Unit-2 Containment Entry

This entry (under continuous line of sight RP Technician - RPT coverage) was to allow operators and craft personnel to inspect a pressurizer spray valve and continue the monitoring of the leaking fitting on the incore detector seal table.

Radiation Work Permit (RWP) 93-00124-01, Perform Routine Inspection & Minor Maintenance at Power was used for the entry. This RWP allowed minor system breaches at the RP Foreman's discretion and entry into the Seal Table Room for inspection.

In addition to attending the preentry briefing (tailboard meeting) for the Unit 2 containment entry the inspectors reviewed the following procedures for proper implementation.

- Radiation Control Procedure (RCP) D-220, "Entry Into Plant Areas Which Have A High Potential For Radiation Over Exposure, Revision 5.

- RCP D-230, "Containment Entry, Revision 8.

The inspectors attended pre-entry briefings for the RP Technicians (RPTs) and craft personnel. RP Foreman briefings and entry coordination were very good. Emphasis was placed on maintaining control over entries into areas with high dose rates. Airborne radioactivity and industrial hazards were assessed and discussed.

Post entry debriefings of the RP Foreman did not disclose any radiological problems with the entry.

Preparing Spent Resin Liner and Cask for Shipment

The inspectors observed prework briefings and material preparations for the removal of the fillhead from a High Integrity Container (HIC) filled with highly radioactive spent resins (dewatered). The HIC was located within a Type B shipping cask [USA/9208/B( )]. The following RWP and other documents related to the job were reviewed by the inspectors.

- RWP 93-00183, Transfer of Resin From SRST 01 to Shipping Liner 93-V-001.

- DCPP documentation for Shipment RWS-93-003.

- Quality Performance & Assessment Surveillance Report - OP&A 93-0035, dated May 20, 1993. This surveillance report dealt with the transfer of resin from SRST 02 to the subject HIC/liner. The surveillance also documented the licensee's conduct of Process Control Program test solidification for another batch of resin.

The RWP package included information on activities performed prior to this date involving sampling of the resins being put into the HIC, and the subsequent characterization and classification of the resins as required by 10 CFR Part 61. Documentation of the licensee's resin sampling activates and RP controls indicated that the licensee had implemented and/or addressed the NRC recommendations concerning the monitoring of extremities contained in NRC IN 91-35, "Unplanned Radiation Exposures to Personnel Extremities Due to Improper Handling of Potential Highly Radioactive Sources."

The inspectors observed the licensee's removal of the HIC's fill/dewatering unit. Dose rates in and around the HIC opening/work area were 5 - 30 Roentgen per hour (R/hr). RPT coverage, multiple dosimeter placement, personnel exposure and high radiation area controls, RP supervision oversight, and quality control inspections were evident. The work was accomplished without incident.

No deviations or violations were identified during this portion of the inspection.

4. Solid Radioactive Waste Management and Transportation of Radioactive Materials (86750)

The inspectors examined the licensee's preparations for and shipment of radioactive wastes (highly radioactive spent resins, see paragraph 3 above) to a licensed land burial site using an NRC certified Type B shipping container. A Type B shipment was necessary due to the high Iron 55 content of the resin, 1,320 curies. The total radioactivity content of the shipment was 1,640 curies. This shipment required advanced notification of the States through which the shipment travels per 10 CFR Part 71.97

Activities associated with this shipment occurring prior to June 8, 1993, were assessed by review of QC inspection records and RP logs, and discussions with involved personnel. On June 9th and 10th the inspectors observed the licensee closing and inspections/testing of the shipping cask. All operation were accomplished in accordance with vendor and licensee approved procedures associated with cask USA/9208/B( ). The inspectors verified licensee review and applicability of the procedures used, labeling and placarding of the cask and trailer, hazardous material identification codes, shipment manifest preparation, driver qualification reviews, briefings and delivery of exclusive use instructions, tractor/trailer inspections, and final dose rate surveys of the shipment package (cask & trailer and tractor).

The cask, following closure, was leak tested by the cask vendor's specially trained personnel. This leak test was conducted in accordance with the Certificate of Compliance using a halogen gas (freon). The cask was pressurized to approximately 3.5 psi above atmospheric pressure (sea level). Then a highly sensitive leak detection sampler was passed over the areas to be tested. In this case the areas were adjacent to both the secondary and primary lid seals. This testing was performed out in an open environment with winds gusting from 10 - 20 miles an hour (estimated by the inspectors and one licensee person). The inspectors noted to the licensee personnel overseeing the testing, that based on the configuration of the areas being tested (gapped voids) and the gusting wind coupled with the minimum sensitivity of the detector, the detection device may not be able to detect any leakage due to the purging affect of the wind in the spaces being sampled. The vendor representative assured the inspectors that the instrument was very sensitive and that probe movement was being slowed down to compensate for the windy conditions.

The inspectors determined that the calibration of the dectection device is to perform using a traceable calibrator and standards at the vendor's home office in Federal Way, Washington. The inspector's could not determine was the environmental conditions established during the calibration. However, since the inspectors observed that there was apparently no drop in the test pressure established during the testing

there was little likelihood that there was any significant leakage from the lid seals.

Subsequent to this inspection the inspectors contacted the NRC's Transportation Branch, Division of Safeguards and Transportation, Office of Nuclear Materials and Safeguards (NMSS), about the leak testing observations concerning the effect of the environmental conditions on the detector calibration. It was agreed that the matter warranted further review and that NMSS agreed to followup on the inspectors observations. This is consider an inspector followup item (50-275/93-18-01). Closure will be with NMSS/DS&T.

At the exit meeting for the inspection the licensee volunteered that they would evaluate utilization of some sort of cover or wind shields during future cask leak tests. This would be in addition to any vendor compensations employed.

The licensee's conduct of their first ever shipment of radioactivity greater than a Type A quantity was conducted in accordance with the requirements of 10 CFR Part 71. The licensee activities appeared to be in agreement with the recommendations contained in the following NRC documents:

- NRC IN 91-35, "Labeling Requirements for Transporting Multi-Hazard Radioactive Materials."
- NRC Bulletin 79-19, "Transportation and Commercial Burial of Radioactive Waste."
- NRC IN 83-10, "Clarification of Several Aspects Relating to Use of NRC Certified Transport Packages."
- NRC IN 87-07, "Quality Control of Onsite Dewatering/Solidification Operations by Outside Contractors."

The inspectors discussed with the licensee the salient aspects of this shipment and recent changes of C of C's as they apply to fissile material in a shipment. The licensee had calculated their fissile material quantity and it was below the C of C limits for this package. Hydrogen gas generation has not been a problem at this plant due to the type of resins being shipped.

The following licensee documents and procedures were reviewed during this inspection:

- NPAP C-209, "Advance Notifications of Shipments of Nuclear Waste and Spent Fuel," Revision 8.
- RCP RW-4, "Solid Radioactive Waste Shipment," Revision 10.
- RCP RW-5, "Receiving, Loading, and Releasing of Transport Vehicle

- RCP RW-5, "Receiving, Loading, and Releasing of Transport Vehicle for Radioactive Waste Shipment," Revision 6.

- DCPP Quality Control Inspection Plan 93-1312/1284, dated June 9, 1993.

- Pacific Nuclear - "Seal Integrity Leak Test Procedure," Serial No. 033-005-NS, For 10-142 cask, Revision 6.

- Shipment Documentation Package RWS-93-003.

No violation or deviations were identified during this part of the inspection.

5. Exit Interview

The inspectors met with members of licensee management at the conclusion of the inspection on June 11, 1993. The scope and findings of the inspection were summarized. The licensee acknowledged the inspector's observations.

Subsequent to the exit meeting the inspectors were informed that the Type B shipment that left DCPP on June 10th had stopped to switch tractors about 35 miles south of the plant. The licensee had dispatched an RPT to provide coverage for the switch and reissue the shipment papers - since different drivers would be used. An inspector visited the site of the tractor change (a commercial truck stop approximately 35 miles south of DCPP on U.S. Highway 101 in Santa Maria, California) and observed the remonitoring of the shipment with the new tractor in place and the "exclusive use" and incident response briefing of the new drivers. No problems were identified.