



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005**

August 21, 2003

Mr. Gregory M. Rueger  
Senior Vice President  
and General Manager  
Pacific Gas and Electric Company  
Nuclear Power Generation  
Diablo Canyon Nuclear Power Plant  
P.O. Box 3  
Avila Beach, California 93424

SUBJECT: NRC INSPECTION REPORT 50-133/03-002

Dear Mr. Rueger:

An NRC inspection was conducted July 21-25, 2003, at your Humboldt Bay Power Plant Unit 3 facility. On July 25, 2003, at the conclusion of the inspection, an exit briefing was conducted with Mr. Thomas A. Moulia, Plant Manager, and other members of your staff. On August 1, 2003, a supplemental telephonic exit briefing regarding the decommissioning and spent fuel maintenance funds was conducted with the Director, Fossil Generation, and other members of your staff. The enclosed report presents the scope and results of that inspection.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection included reviews of your decommissioning and spent fuel maintenance funds, licensing basis change control process and related 10 CFR 50.59 screening and evaluations, fire protection program, fuel storage pool safety program, effluent and environmental monitoring program, and your radwaste management program. No violations of NRC regulations were identified during the inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact the undersigned at (817) 860-8191 or Emilio M. Garcia at (530) 756-3910.

Sincerely,

*/RA/*

D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle and Decommissioning Branch

Docket No.: 50-133  
License No.: DPR-7

Pacific Gas and Electric Company

-2-

Enclosure:  
NRC Inspection Report  
50-133/03-002

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket No.: 50-133

License No.: DPR-7

Report No.: 50-133/03-002

Licensee: Pacific Gas and Electric Company (PG&E)

Facility: Humboldt Bay Power Plant, Unit 3

Location: 1000 King Salmon Avenue  
Eureka, California 95503

Dates: July 21- August 1, 2003

Inspectors: Emilio M. Garcia, Health Physics Inspector  
William Huffman, NMSS Project Manager

Approved By: D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle and Decommissioning Branch

ADAMS Entry: IR 05000133-03-02, on 07/21-08/01/2003; Pacific Gas & Electric Co.; Humboldt Bay, Unit 3. Decommissioning Report. No violations.

## **EXECUTIVE SUMMARY**

### Humboldt Bay Power Plant, Unit 3 NRC Inspection Report 50-133/03-002

The Humboldt Bay Power Plant, Unit 3, was shutdown in 1976. The facility has been in a SAFSTOR status since shutdown with minimal decommissioning activity. The spent fuel was stored in the spent fuel pool located in the refueling building. Based on observations made during the site tour, the facility and fuel were being maintained in a safe condition.

#### Organization, Management and Cost Controls

- The licensee has expended funds from the decommissioning trust fund for independent spent fuel storage installation (ISFSI) design and licensing preparations. The use of the decommissioning trust for these expenditures has been determined to be acceptable based on the licensee's 10 CFR 50.54(bb) spent fuel funding and management program. The NRC plans to review and respond to the licensee's 10 CFR 50.54(bb) program as described in Pacific Gas & Electric's (PG&E) letter dated September 26, 2000 (Section 1).

#### Safety Reviews, Design Changes, and Modifications

- The licensee's change control process and 10 CFR 50.59 safety evaluation program were effectively implemented (Section 2).

#### Spent Fuel Pool Safety

- The licensee had developed an effective plan for controlling and directing the activities planned for the spent fuel pool in 2003. Initial activities observed by the inspectors were conducted in a safe manner and with procedural compliance (Section 3).

#### Decommissioning Performance and Status Review

- Housekeeping and facility conditions were effectively controlled during SAFSTOR. Radiological conditions of the facility were posted in accordance with 10 CFR Part 20. Portable radiation survey instruments in use were operable and within their calibration interval (Section 4).
- The fire protection program was satisfactory and effectively implemented (Section 4).

#### Radioactive Waste Treatment and Effluent and Environmental Monitoring

- Audits and assessments of the radiological effluents and radiological environmental monitoring programs were being effectively and objectively implemented (Section 5).
- The changes in the SAFSTOR offsite dose calculation manual, process control program, and radwaste system design and operation that occurred since the beginning of year 2002, had not reduced the effectiveness of the program (Section 5).

- The minimum number of airborne and liquid effluent monitors channels were operable, calibrated, and with their proper alarm set points. During 2002, no effluent instrumentation was inoperable for periods of 30 days or more. No unmonitored release pathways were identified by the inspectors (Section 5).
- The annual radioactive effluent release report for year 2002 was submitted on a timely basis. This report concluded that the releases of radioactivity in gaseous and liquid effluents did not exceed the limits of 10 CFR 20, the numerical guidelines of 10 CFR 50, Appendix I, nor the technical specification limits. The inspectors concluded that the licensee had an effective radiological environmental monitoring program (Section 5).

#### Solid Radwaste Management & Transportation of Radioactive Materials

- Audit and assessments of the solid radwaste management and transportation of radioactive materials program was being effectively and objectively implemented (Section 6).
- No changes in the licensee's organization, personnel, facilities, equipment, and programs affecting the solid radwaste management and transportation of radioactive materials program had occurred since the previous inspection. The changes in procedures that had occurred since the previous inspection, had not reduced the effectiveness of the program (Section 6).
- The training and qualifications of the personnel responsible for preparing, labeling and marking packages, and certifying the shipments of radioactive waste were current and met the training requirements in 49 CFR 172, Subpart H (Section 6).
- The licensee had up-to-date copies of DOT, and NRC regulations and up-to-date copies of the licenses for the facilities that radioactive waste was shipped to. Each package of stored waste was individually marked. The licensee maintained information to support its waste classification (Section 6).

## **Report Details**

### **Summary of Plant Status**

Humboldt Bay has been shutdown since 1976. The facility has been in a SAFSTOR status since shutdown with minimal decommissioning activity. The licensee was conducting work in the spent fuel pool among other activities to conduct an inventory of special nuclear material, collect a boron sample coupon for analysis, conduct visual inspections of the three spent fuel assemblies that were not inspected during the year 2000 spent fuel pool activities, and other examinations and inventories of contents of the spent fuel pool.

## **1 Organization, Management and Cost Controls (IP 36801)**

### **1.1 Inspection Scope**

The inspectors reviewed the licensee's information on the use of the 10 CFR 50.75 decommissioning trust fund for various decommissioning activities.

### **1.2 Observations and Findings**

Based on discussions with the licensee, the inspectors were informed that expenditures from the decommissioning fund were documented in the Humboldt Bay decommissioning funding report, PG&E letter HBL-03-002 dated March 27, 2003. Examples of recent decommissioning fund expenditures included radiological characterization and asbestos removal. The inspectors considered these expenditures to be an appropriate use of decommissioning funds.

The licensee also indicated during discussions with the inspectors that decommissioning funds were being used for the design and licensing of a dry cask independent spent fuel storage installation (ISFSI). The inspectors questioned how ISFSI design and licensing expenditures from the decommissioning fund are related to regulation 10 CFR 50.54(bb), which requires the licensee to provide a program for funding and management of spent fuel until possession of the fuel is transferred to the Department of Energy. The licensee noted that it had chosen to accumulate funding for its ISFSI design and licensing as part of the decommissioning trust fund and that its 10 CFR 50.54(bb) program was documented in a letter to the NRC dated September 26, 2000 (PG&E letter HBL-00-016).

A conference call involving the NRC inspectors, NRC headquarters staff, NRC regional staff, and licensee representatives was held on July 31, 2003, to obtain additional information on the licensee's 10 CFR 50.54(bb) spent fuel funding and management program and use of decommissioning funds for ISFSI design and licensing activities. It was noted during the call that regulatory statements of consideration do not prohibit co-mingling of ISFSI and decommissioning funds, provided assurance exists that sufficient funding for both activities remain and that accounting mechanisms are employed to ensure that funds for each type of activity are appropriately identified.

As a result of the discussion during the July 31, 2003, conference call, the NRC staff and inspectors concluded that the licensee's use of the decommissioning fund for ISFSI design and licensing was consistent with the licensee's 10 CFR 50.54(bb) program as described in PG&E's letter dated September 26, 2000. The NRC acknowledged during this call that it owes a response to the September 26, 2000, PG&E letter.

### 1.3 Conclusion

The use of the decommissioning fund for ISFSI design and licensing was appropriate based on the licensee's 10 CFR 50.54(bb) program as described in a PG&E letter to the NRC dated September 26, 2000.

## **2 Safety Reviews, Design Changes, and Modifications (IP 37801)**

### 2.1 Inspection Scope

The inspectors reviewed the licensee's process control for changes to its licensing basis documents and related safety reviews conducted under 10 CFR 50.59.

### 2.2 Observations and Findings

The process for evaluating the licensing basis impact of proposed changes to the facility, procedures, tests, or experiment is addressed in the Licensing Basis Impact Evaluation (LBIE) procedure, HBAP C-19. This procedure is used to determine when NRC approval of a licensing basis document change is needed including those changes that are made under 10 CFR 50.59. The inspectors reviewed this procedure and determined that it should adequately screen licensing basis documents that require NRC approval. In addition, the inspectors focused on the 10 CFR 50.59 screening and evaluation criteria in procedure HBAP C-19 and found them to be consistent with the regulatory requirements.

The inspectors reviewed numerous (greater than 10) LBIE screens of various randomly selected procedure changes and found all the screens were completed correctly in accordance with the instructions of HBAP C-19. The inspectors also verified that the LBIE screen preparer and independent technical reviewer for the LBIE screens reviewed were currently qualified in the 10 CFR 50.59 evaluation process as documented in the licensee's HBPP Information/Qualification System (IQ) database.

The licensee had only completed one 10 CFR 50.59 safety evaluation within the last year. The 10 CFR 50.59 evaluation (identified as 2003-01) pertained to a change to the defueled safety analysis report (DSAR) that would allow the licensee to remove the spent fuel pool cover for an extended period of time. The inspectors reviewed this evaluation and determined that it satisfactorily implemented the 10 CFR 50.59 change evaluation process. The level of detail was commensurate with the safety implications. Appropriate safety considerations and assumptions had been made.

The inspectors confirmed that the 10 CFR 50.59 evaluation of the spent fuel pool cover had also been reviewed by the Plant Staff Review Committee (PSRC) prior to implementation. The 10 CFR 50.59 evaluation of the spent fuel pool cover was also confirmed to be on the agenda for the next scheduled Nuclear Safety Oversight Committee (NSOC) meeting. The inspectors noted that the change to the DSAR addressed by the 10 CFR 50.59 evaluation could be implemented prior to NSOC review.

The inspectors also confirmed that the most current version of the DSAR contained the changes addressed in the 10 CFR 50.59 safety evaluation of the spent fuel pool cover.

The inspectors also observed a PSRC meeting and verified that the committee was appropriately staffed and the meeting was conducted in accordance with the licensee's procedural requirements as contained in administrative procedure HBAP A-2.

### 2.3 Conclusions

The licensing basis change control process was determined to effectively screen for the impact of facility and procedural changes on licensing basis documents and satisfactorily implemented the requirements of 10 CFR 50.59.

## **3 Spent Fuel Pool Safety (IP 60801)**

### 3.1 Inspection Scope

The inspectors reviewed preparations for spent fuel pool activities and observed portions of the initial activities including the fuel inventory.

### 3.2 Observations and Findings

The licensee had developed procedure TP 2003-01, 2003 Spent Fuel Work Plan, for controlling and directing the activities planned for the spent fuel pool in year 2003. This procedure identified 21 tasks to be completed. Table 1 below identifies the task and their planned schedule and specific controlling procedures. The licensee stated that this schedule was subject to change depending on conditions encountered. During the inspection, the licensee identified that the university that had been used in the past for evaluating the boron burn up was no longer conducting these studies. Accordingly, the boron coupon removal was postponed until an alternate vendor for this analysis was identified.

**Table 1  
Humboldt Bay Power Plant  
Spent Fuel Pool Project**

<b>Task No</b>	<b>Activity</b>	<b>Planned Start</b>	<b>Planned Finish</b>	<b>Procedure</b>
1	Move equipment into Refueling Building	July 22	August 1	
2	Establish Foreign Material Control Area	July 22	July 22	TP 2003-01
3	Establish Cover Laydown Area	July 22	July 22	TP 2003-01
4	Inspect The Spent Fuel Pool Bridge Crane	July 22	July 22	M-113
5	Remove Pool Cover	July 22	July 23	M-118
6	Perform Spent Fuel Inventory	July 24	July 24	TP 2003-02
7	Retrieve the Boron Coupons	July 24	July 24	TP 2003-04
8	Load Test the Spent Fuel Pool Bridge Crane	July 24	July 25	TP 2003-06
9	Perform Fuel Mover Training	August 5	August 8	TP 2003-07
10	Remove Channels from Fuel Assemblies	August 12	August 15	B-5
11	Inspect Cabled Assemblies B-14 and HD-46	August 19	August 22	B-3
12	Sample "Potato Chips"	August 19	August 22	B-5 and TP 2003-05
13	Sample Non-Chip Crud	August 19	August 22	B-5 and TP 2003-05
14	Inspect HE-29, HE-34 and HG	August 26	August 29	B-5 and TP 2003-08
15	Dose Profile Channels	August 26	August 29	B-3 and TP 2003-03
16	Inventory and Dose Profile Garbage Can	September 2	September 19	B-3 and TP 2003-03
17	Inventory and Dose Profile Trash Cans	September 23	October 10	B-3 and TP 2003-03
18	Perform Annual Spent Fuel Inventory	September 30	September 30	TP 2003-02
19	Inventory and Dose Profile Cans 1 - 4	October 14	October 31	B-3 and TP 2003-03
20	Look Under Stuff	November 4	November 7	B-3 and TP 2003-03
21	Install Pool Cover	November 11	November 14	M-118

On July 22, 2003, the licensee initiated Task 1 and completed Tasks 2, 3, 4 and 5. The licensee identified that before progressing with Task 6, a procedure needed to be developed to assure that items weighing more than a fuel assembly were not moved above the fuel. In order to address this need, Procedure STP 3.6.10, Verification of Load Weight Carried Over Spent Fuel Storage Racks, was approved on July 24, 2003, and made effective until July 25, 2003.

On July 25, 2003, the inspectors observed personnel and equipment preparations for conducting the spent fuel inventory. The inspector noted that personnel donned the required protective clothing and wore operating lapel air samplers as well as the

required dosimetry. Items entering the foreign material control area were inventoried and secured to prevent dropping in the spent fuel pool. The licensee used procedure STP 3.6.10 to verify that equipment to be moved above the spent fuel did not exceed the weight limitations. The licensee used both an under water camera and binoculars to conduct the inventory. The person reading the assembly number was not the individual checking the prior inventory sheet. The inspectors concluded that licensee personnel followed the requirements of the applicable procedure TP 2003-02, Spent Fuel Inventory, and the applicable radiation work permits.

### 3.3 Conclusions

The licensee had developed an effective plan for controlling and directing the activities planned for the spent fuel pool in year 2003. Initial activities observed by the inspectors were conducted in a safe manner and with procedural compliance.

## 4 **Decommissioning Performance and Status Review (IP 71801)**

### 4.1 Plant Tours

#### Inspection Scope

The inspectors conducted tours of the site to evaluate if facility conditions were effectively controlled during SAFSTOR.

#### Observations and Findings

On July 22 and 25, 2003, the inspectors toured the reactor building, the Unit 3 control room, and outside areas of the facility. Radiological postings were easily visible and met the requirements in 10 CFR Part 20. Housekeeping and facility conditions were effectively controlled during SAFSTOR. The inspectors selected some of the portable radiation survey instruments observed throughout the facility. These instruments were operable and the stickers on them indicated that they were within their calibration interval. Most of the areas in the facility were free of radiological contamination and were accessible without the need of protective clothing. No safety concerns were observed during the tours. The spent fuel pool cover had been removed in preparation for work in the pool. Control room indicators and alarms associated with monitoring spent fuel pool level and spent fuel pool liner level were confirmed to be functional.

#### Conclusions

Housekeeping and facility conditions were effectively controlled during SAFSTOR. Radiological conditions of the facility were posted in accordance with 10 CFR Part 20. Portable radiation survey instruments in use were operable and within their calibration interval.

## 4.2 Fire Protection

### Inspection Scope

The inspectors reviewed the licensee's fire protection program, fire hazards analyses, fire protection strategy, surveillances, and effectiveness. The inspectors also observed the field conditions of fire fighting equipment, general housekeeping and storage of combustibles, and discussed recent drills and events with appropriate plant personnel.

### Observations and Findings

The regulation 10 CFR 50.48(f) addresses decommissioning reactor fire protection. The fire protection licensing basis documents reviewed were Technical Specification Administrative Controls, Section 5.5.1; Operating and Surveillance requirements in DSAR Section 7.1; and the facility Fire Hazards Analysis, TBD-301.

The general fire protection strategy consisted of the following:

- Control of combustibles.
- Control of ignition sources.
- Portable fire extinguishers throughout the facility.
- An underground fire water system with multiple diverse and redundant pumps and water sources that supply fire hose stations and hydrants throughout the facility.
- The division of the site into multiple fire zones. Fire zone separation barriers are generally not qualified rated barriers but rely on assumption that adequate passive protection is provided by physical separation, lack of intervening combustibles, and that many of the heavy concrete walls and structures in the facility will delay fire from spreading until fire suppression is provided (although most of the walls, floors, and ceilings are not fire rated).
- A qualified and trained shift fire brigade that was comprised of at least three members of each shift crew (the inspectors noted that the fire brigade was only to be used for suppression of "incipient stage fires." Incipient stage fires was defined as fires that could be controlled with portable fire extinguishers or small hose lines and do not require the brigade to use personnel protective equipment, such as self-contained breathing apparatus, to perform their duties).
- Reliance on offsite fire fighting capability provided by the local municipal fire department (with a response time of approximately 10 minutes).

The fire protection program is administered by a member of the staff appointed by the plant manager who has the title of fire marshal.

The inspectors walked down the fire protection system and noted that the equipment appeared to be maintained in good material condition. The inspectors confirmed that the system met the description in the DSAR. The inspectors also confirmed that surveillance procedures existed for the DSAR commitments and that surveillances were being performed as required based on a random sampling of completed data sheets.

Independent audit reports by the licensee's quality assurance organization and the Nuclear Electric Insurance Limited were reviewed. Both reports were thorough and provided confirmation that the fire protection program is given adequate oversight and attention by the licensee.

The fire brigade training program details, which the licensee states comply with the "Standard on Industrial Fire Brigades," NFPA 600, were not reviewed. However, the inspectors did confirm that technical, physical, and practical training requirements are proceduralized and captured in the licensee's information and qualification (IQ) system electronic data base. The IQ system can be used by the shift foreman on a real time basis to confirm that the designated fire brigade members training requirements are up-to-date.

The inspectors reviewed recent drill evaluations including a drill on June 18, 2003, which involved a Unit 3 fire scenario. This drill tested offsite support response time access of the local fire department to the Unit 3 protected area subsequent to the recent security changes to the site and Unit 3 protected area (due to the NRC interim security measure orders). The drill evaluation indicated that the fire department response was timely and that security and operations staff support was good. In addition, the inspectors reviewed several actual fire events that occurred on the non-nuclear facilities at the site. These actual fire events were suppressed without compounding incidents or complications and demonstrated the most realistic capabilities of the Humboldt Bay fire protection program.

The inspectors reviewed the fire hazards analysis of the recently added security alarm station and concluded that it had been adequately assessed in accordance with criteria in the licensee's fire hazards analysis technical basis document.

The following observations concerning the fire protection program were made by the inspectors (although not related to specific regulations or licensee commitments):

- There were no proceduralized training or qualification requirements for the fire marshal.
- A majority of the fire zones in the facility do not have fire detection or automatic suppression systems.
- The operation of the plant emergency siren and code call system had been operating sporadically since February of 2003 and continued to be problematic during the week of this inspection. This system is an important element of the licensee's fire protection program in terms of alerting plant personnel of a fire and signaling activation of the fire brigade

### Conclusions

The inspectors concluded that the fire protection program was satisfactory and effectively implemented.

## **5 Radioactive Waste Treatment and Effluent and Environmental Monitoring (84750)**

### 5.1 Audits and Appraisals

#### Inspection Scope

The inspectors reviewed Audit Report 012220010, titled Humboldt Bay Power Plant Radiological Effluents Program and Radiological Environmental Monitoring Program (REMP), dated December 17, 2001, and Audit Report 022170004, titled Humboldt Bay Power Plant Radiation Protection, Radioactive Material Packaging and Transportation and Radioactive Waste Processing and Process Control Program, dated November 1, 2002. The inspectors also reviewed NQS Assessment of Unit 3 Spent Fuel Pool Demineralizer Resin Change EDMS ID 030770016, dated March 19, 2003.

#### Observations and Findings

The inspectors noted that the members of the audit teams were independent of the areas audited, trained and qualified and the audit and assessment included performance based elements. Problems identified were added to the licensee's corrective action program and were addressed by the audited department.

#### Conclusion

The inspectors concluded that audit and assessments of the radiological effluents and radiological environmental monitoring programs were being effectively and objectively implemented.

### 5.2 Changes in SAFSTOR Offsite Dose Calculation Manual (ODCM), Process Control Program (PCP), and Radwaste System Design and Operation.

#### Inspection Scope

The inspectors interviewed cognizant personnel and reviewed selected documents to determine if any significant changes were made by the licensee to: (1) the licensee's radwaste, water chemistry, and radiological environmental monitoring organization, (2) in the offsite dose calculation manual, (3) in the process control program, and (4) in the radwaste system design and operations

#### Observations and Findings

The licensee's radwaste, water chemistry, and radiological environmental monitoring organization had not changed since the last inspection of this area. The last inspection of this area was conducted on September 16-20, 2002.

Revision 6 to the SAFSTOR Offsite Dose Calculation Manual was effective on March 25, 2002. This revision removed the radwaste concentrator from service. The removal of the radwaste concentrator from service had no effect on the treatment of liquid waste for release, since the system was designed to concentrate resin regeneration solutions, rather than routine waste, and resin regeneration solutions were no longer produced.

Revision 7 of the SAFSTOR Offsite Dose Calculation Manual was effective on September 5, 2002. This revision was primarily intended to align the SAFSTOR Offsite Dose Calculation Manual with anticipated technical specification changes. This revision also added calculation factors for gross alpha and plutonium-241.

Revision 8 of the SAFSTOR Offsite Dose Calculation Manual was effective on January 17, 2003. This revision was made to reflect the changes in technical specification made with licensee Amendment 34.

Revision 9 of the SAFSTOR Offsite Dose Calculation Manual was effective on April 10, 2003. This revision changed the required collection frequency of the stack particulate filter monitor from weekly to monthly and removed the analysis time limit for these samples. Since the licensee only possessed radioactive materials with half-lives measured in years and the plant stack high efficiency particulate absorber (HEPA) significantly reduces the particulate load on the filters, these changes do not reduce the effectiveness of the program.

The inspectors verified that the licensee had conducted safety screens for each of these changes to the SAFSTOR offsite dose calculation manual and that the changes had been reviewed and approved by the PSRC.

In 2002 and as of July 21, 2003, there had been no changes to the process control program. Although a general description of a process control program was present in Sections 6, 7 and 8 of Part II of the Offsite Dose Calculation Manual, the licensee had not needed a process control program since it had generated any waste that required processing.

Other than the removal of the radwaste concentrator from service, the licensee had not made any significant changes to their liquid and airborne radwaste system design and operations.

### Conclusion

The changes in the offsite dose calculation manual, process control program, and radwaste system design and operation that occurred since the beginning of 2002, had not reduced the effectiveness of the program.

### 5.3 Process and Effluent Radiation Monitors

#### Inspection Scope

The inspectors checked airborne and liquid effluent monitors for operability, alarm set points and calibration as required by the SAFSTOR offsite dose calculation manual. The inspectors toured the facility looking for unmonitored release pathways.

#### Observations and Findings

Section 2.1.1.b of Part I of the SAFSTOR Offsite Dose Calculation Manual, requires that if the process water monitor is inoperable for more than 30 days, the licensee is to provide information on the reasons for inoperability and a lack of corrective action in the next radioactive effluent release report. The annual radioactive effluent release report for 2002 states, that during 2002, no effluent instrumentation was inoperable for periods of 30 days or more. This was confirmed by the senior radiation protection engineer. On July 24, 2003, during a tour of the control room, the inspectors verified that the process water monitor was operable, within its calibration interval and with appropriate automatic termination set points.

On July 24, 2003, the inspectors toured the control room and the location of the stack gas monitoring system. One of the channels of the stack gas monitoring system was out-of-service due to the value of the weekly check being below the acceptance criteria. The other channel was operable. The operable stack gas monitoring channel was within its calibration interval and alarm set points. The licensee had initiated corrective actions to bring the inoperable channel of the stack gas monitoring system back to service. No unmonitored release pathways were identified by the inspectors.

#### Conclusion

The minimum number of airborne and liquid effluent monitors channels were operable, calibrated, and with their proper alarm set points. During 2002, no effluent instrumentation was inoperable for periods of 30 days or more. No unmonitored release pathways were identified by the inspectors.

### 5.4 Radiological Environmental Monitoring Program

#### Inspection Scope

The inspectors reviewed the annual radioactive effluent release report for 2002 and toured selected environmental monitoring locations.

### Observations and Findings

Technical Specification 5.7.3 requires that the annual effluent release report covering the previous calendar year shall be submitted to the NRC before April 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste release from the unit.

On March 28, 2003, the licensee submitted their annual radioactive effluent release report for 2002. This timely report included the required summaries for the quantities of radioactive liquid and gaseous effluents and solid waste release from the unit. The report indicated that the effluents from the plant did not exceed the limits of 10 CFR Part 20, the numerical guidelines of 10 CFR Part 50, Appendix I, nor the technical specification limits.

During 2002, there were 4 shipments of solid radioactive waste containing a calculated 19.4 millicuries in 51.65 cubic meters of waste. The inspectors identified that the quarterly dose values reported in Table 6, Radiation Dose for Maximally Exposed Individuals, did not appear to add up to the annual dose value. After reviewing the source documents, the licensee's senior radiation protection engineer concluded that the units for the quarterly values were on a per year basis as opposed to a per quarter basis as reported. The senior radiation protection engineer initiated SAP Notification Number 1223051 and stated that a similar error appeared to also be present in the 2001 report. The corrective action recommended in the SAP notification was to review past reports and publish any necessary corrections in the next report. However, the reported annual values were correct for both years reviewed. The licensee calculated that the maximally exposed individuals would have received less than 0.01 millirem from the water related pathways, from particulate and noble gas releases, and from direct radiation in year 2002.

Attachment 8.2 to STP 3.6.11, Quarterly Environmental Monitoring TLD Exchange, list the offsite environmental TLD locations. This attachment lists 36 locations of which 4 are the SAFSTOR offsite dose calculation manual required direct radiation monitoring locations. On July 23, 2003, the inspectors toured the four offsite direct radiation monitoring locations required by the offsite dose calculation manual. Each of the four direct radiation monitors consisted of three TLDs located inside a locked box. The inspectors also toured the location of the offsite airborne environmental monitor, and noted that the air sampler was operational, in calibration and the sampling head appeared to properly connect with the sampling pump.

On July 22, 2003, the inspectors toured the location of the environmental surface water continuous sampler at the discharge canal. This continuous water sampler was operational but the collection bottle was overflowing. The licensee's personnel determined that the sample bottle had not been drained after the sampling pump was placed back in service, therefore, the water in the sample bottle was not representative of the water in the canal during this sampling period. The licensee decided to collect a dip sample for that week's sample. SAP Notification 12223001 was issued notifying that the canal compositor had overflowed and dip samples had been collected for this week.

### Conclusion

The annual radioactive effluent release report for 2002 was submitted on a timely basis. This report concluded that the releases of radioactivity in gaseous and liquid effluents did not exceed the limits of 10 CFR Part 20, the numerical guidelines of 10 CFR Part 50, Appendix I, nor the technical specification limits. The inspectors concluded that the licensee had an effective radiological environmental monitoring program.

## **6 Solid Radwaste Management & Transportation of Radioactive Materials (86750)**

### 6.1 Audits and Appraisals

#### Inspection Scope

The inspectors reviewed Audit Report 022170004, titled Humboldt Bay Power Plant Radiation Protection, Radioactive Material Packaging and Transportation and Radioactive Waste Processing and Process Control Program, dated November 1, 2002. The inspectors also reviewed NQS Assessment of Radioactive Material Shipment -Third Quarter 2002 Assessment Number 022540023, dated October 11, 2002.

#### Observations and Findings

The inspectors noted that members of the audit teams were independent of the areas audited, trained and qualified and the audit and assessment included performance based elements. No quality related problems were identified in these audit and assessments related to solid radwaste management and transportation of radioactive materials. Two recommendations were identified in the audit and were addressed by the audited department.

#### Conclusion

The inspectors concluded that audit and assessments of the solid radwaste management and transportation of radioactive materials program was being effectively and objectively implemented.

### 6.2 Changes

#### Inspection Scope

The inspectors interviewed cognizant personnel and reviewed selected documents to determine if any major changes had taken place since the last inspection in the organization, personnel, facilities, equipment, programs or procedures that may have effected the solid radwaste management and transportation of radioactive materials program.

### Observations and Findings

The licensee's organization, personnel, facilities, equipment, programs affecting the solid radwaste management and transportation of radioactive materials program had not changed since the last inspection of this area. The last inspection of this area was conducted on September 16-20, 2002.

The licensee used the services of a contract radioactive waste shipping specialist to assist with the two radioactive waste shipments that occurred during the fourth quarter of 2002. There had been no additional shipments of radioactive waste since that time.

The inspectors reviewed two procedures that had been revised since the last inspection of this area. Procedure RCP-6I, Collection, Labeling, Packaging, Storage and Accountability of Radioactive Material, was revised in May 2003, with an effective date of June 5, 2003, for Revision 42. This revision was due to periodic review of the procedure and only included removing the requirement for performing a formal pre-job airborne assessment. The airborne assessment was performed when the radiation work permit or special work permit were prepared.

Procedure RCP-6L, Receiving, Loading, and Releasing of Transport Vehicle for Radioactive Material/Waste Shipment, was revised in January 2003, with an effective date of January 17, 2003, for Revision 5. This revision was to incorporate recommendations from American Nuclear Insurers. The revisions dealt with specifying the location where the weight of packages are marked. The applicable DOT regulation does not specify a location where this information must be placed. The second revision was needed to re-enforce the feet of B-25 boxes when loaded for shipment. This action was to prevent the box feet collapsing as a result of a shifting of the load.

### Conclusion

No changes in the licensee's organization, personnel, facilities, equipment, programs affecting the solid radwaste management and transportation of radioactive materials program had occurred since the previous inspection. The changes in procedures that had occurred since the previous inspection, had not reduced the effectiveness of the program.

## 6.3 Training and Qualification of Personnel

### Inspection Scope

The inspectors interviewed cognizant personnel and reviewed selected documents related to the training and re-training of individuals involved with the two shipments of radioactive waste shipments that occurred in the fourth quarter 2002.

### Observations and Findings

The licensee's training program for the radwaste shipment technician and the radwaste

shipment manifest preparer had not changed from that described in Inspection Report 50-133/2002-003.

Two radwaste shipment technicians and a radwaste shipment manifest preparer had been involved in the preparation, labeling and marking, and documentation of two shipments of radioactive waste made on November 22, 2002. The inspectors reviewed these individual's qualification records of completed training in a computerized database called the HBPP Information/Qualification System (IQ). All three individuals were current with their 3-year HAZMAT training as required by 49 CFR 172, Subpart H, and had radwaste shipment authority designation letters current as of the time of the shipments.

#### Conclusion

The training and qualifications of personnel responsible for preparing, labeling and marking packages, and certifying the shipments of radioactive waste were current and met the training requirements in 49 CFR 172, Subpart H.

### 6.4 Implementation of Solid Radwaste Program

#### Inspection Scope

The inspectors interviewed cognizant licensee personnel and reviewed the licensee's procedures and practices to determine if the licensee had up-to-date copies of DOT, and NRC regulations and up-to-date copies of the licenses for the facilities that shipped radioactive waste. The inspectors also examined the radioactive waste storage location.

#### Observations and Findings

The radwaste shipment manifest preparer had internet access to the DOT and NRC regulations maintained by these agencies, as well as bound copies.

10 CFR 30.41(c) requires, in part, that before transferring byproduct material to another licensee, the licensee transferring the material shall verify that the transferee's license authorizes the receipt of the type, form and quantity of byproduct material to be transferred. The inspectors also noted that before each shipment, the licensee's procedure RCP-6I required the licensee to assure that the receiver's license is appropriate for the shipment. The inspectors confirmed that the licensee had copies of the licenses for the recipient of radioactive waste that were shipped in November 2002. In addition, Attachment 10.6 to procedure RCP-6P, Radioactive Material Shipments, is a checklist that includes verifying the receiver's license. The inspectors reviewed copies of Attachment 10.6 to procedure RCP-6P for shipments RMS-02-007 and RMS-02-008 and noted that the receiver's license had been verified and that both records had been signed by the radwaste shipment manifest preparer.

On July 22, 2003, the inspectors toured the radwaste handling building and the radwaste handling yard, the area where packaged waste was stored prior to shipment.

Each package had various labels and markings including a unique container identification. Although out in the elements, the packages were well maintained. The licensee used a commercial software data base called Integrated Shipping and Inventory Program, Verison 2.00 (Build 34) for tracking the information for each package. Information included contents, radiological survey data, waste classification, date packaged, date labeled, disposition and date of disposition. The licensee had a 10 CFR 61 classification summary for each container. This data base included such information as the weight, volume, total activity and activity by nuclide, chemical and physical forms, DOT classification, and Part 61 waste classification.

### Conclusion

The licensee had up-to-date copies of DOT, and NRC regulations and up-to-date copies of the licenses for the facilities that radioactive waste was shipped to. Each package of stored waste was individually marked and the licensee maintained information to support its waste classification.

## 6.5 Shipping of LLRW for Disposal, and Transportation of other Radioactive Material

### Inspection Scope

The inspectors reviewed shipping records to determine if shipments were in compliance with applicable NRC and DOT regulations.

### Observations and Findings

Shipment numbers RMS-02-007 and RMS-02-008 were made on November 13, 2002. Shipment RMS-02-007 consisted of 28 packages of compacted dry active waste. Shipment RMS-02-008 consisted of 66 packages of radiologically contaminated friable asbestos insulation. No additional radioactive waste shipments had occurred as of the time of this inspection, and since the last time this area was inspected in September 2002. The records reviewed indicated that the licensee met the transportation requirements contained in 49 CFR 173.427 for the respective low specific activity (LSA) or limited quantities (LQ) materials. The inspectors confirmed that the emergency response telephone number listed on the waste manifests was the control room telephone number. The licensee had a form titled, "Radioactive Materials Shipments Control Room Instructions Exclusive Use Shipments," to inform the control room of the shipment and provide important information in the event of an emergency. This form provided sufficient information to satisfactorily meet 49 CFR 172.604 for responding to an emergency. The shipping records included copies of the radiological surveys conducted, Form 540 Uniform Low-Level Radioactive Waste Manifest, excepted package certificate (49 CFR 173.422), special nuclear material exemption certification, emergency response information, instruction to carrier for maintenance of exclusive use shipment controls, and driver vehicle inspection report. Those documents requiring shipper certification were signed by a licensee authorized and trained shipment manifest preparer.

### Conclusion

Shipping papers contained the required information and documentation indicated that packages were properly surveyed, marked and labeled. The shipments were in compliance with applicable NRC and DOT regulations.

### **7 Exit Meeting**

On July 25, 2003, at the conclusion of the site visit, the inspectors presented to the plant manager and other licensee staff members, the preliminary results on other areas inspected. On August 1, 2003, a supplemental telephonic exit briefing regarding the decommissioning and spent fuel maintenance funds was conducted with the Director Fossil Generation and other members of your staff. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.

## ATTACHMENT 1

### **PARTIAL LIST OF PERSONS CONTACTED**

J. Albers, Radiation Protection Manager  
J. Chadwick, Radiation Protection Engineer  
J. Crow, Training Coordinator  
Z. Easley, Security Manager  
M. Grossman, Supervisor of Operations  
V. Jensen, Nuclear Quality Services Supervisor  
T. Moulia, Plant Manager  
R. Parker, Senior Radiation Protection Engineer  
P. Rasmussen, Senior Radiation Protection Engineer  
D. Sokolsky, Supervisor of Licensing

### **INSPECTION PROCEDURES USED**

IP 36801	Organization, Management and Cost Controls
IP 37801	Safety Reviews, Design Changes, and Modifications
IP 60801	Spent Fuel Pool Safety
IP 71801	Decommissioning Performance and Status Review
IP 84750	Radwaste Treatment, and Effluent and Environmental Monitoring
IP 86750	Solid Radwaste Management & Transportation of Radioactive Materials

### **ITEMS OPENED, CLOSED, AND DISCUSSED**

Open  
None

Discussed  
None

Closed  
None

### **LIST OF ACRONYMS**

DOT	Department of Transportation
DSAR	Defueled Safety Analysis Report
HBAP	Humboldt Bay Power Plant Administrative Procedure
HEPA	High Efficiency Particulate Absorber
IP	Inspection Procedure
IQ	Information and Qualification Data Base
ISFSI	Independent Spent Fuel Storage Installation
LBIE	Licensing Basis Impact Evaluation
LSA	Low Specific Activity
LLRW	Low-Level Radioactive Waste
LQ	Limited Quantities
NSOC	Nuclear Safety Oversight Committee
ODCM	Offsite Dose Calculation Manual
PSRC	Plant Staff Review Committee

PCP	Process Control Program
PSRC	Plant Safety Review Committee
TP	Temporary Procedure

## ATTACHMENT 2

### **PARTIAL LIST OF DOCUMENTS REVIEWED**

#### Audits and Appraisals

- Audit Report 012220010, titled Humboldt Bay Power Plant Radiological Effluents Program and Radiological Environmental Monitoring Program (REMP), dated December 17, 2001.
- Audit Report 022170004, titled Humboldt Bay Power Plant Radiation Protection, Radioactive Material Packaging and Transportation and Radioactive Waste Processing and Process Control Program, dated November 1, 2002.
- NQS Assessment of Radioactive Material Shipment -Third Quarter 2002 Assessment Number 022540023 , dated October 11, 2002.
- NQS Assessment of Unit 3 Spent Fuel Pool Demineralizer Resin Change EDMS ID 030770016, dated March 19, 2003.
- Nuclear Electric Insurance Limited Property Loss Control Report for period of August 15 through August 16, 2002.
- NQS Assessment of Fire Protection and Loss Protection Program (EDMS# 030130001) dated April 21, 2003.

#### Correspondence

- PG&E Letter HBL-03-003, dated March 28, 2003, from Tom A. Moulia to U.S. Nuclear Regulatory Commission, subject Annual Radioactive Effluent Release Report for 2002, including Enclosures. Enclosure 1: Humboldt Bay Power Plant Unit 3 "Annual Radioactive Effluent Release Report" covering the period of January 1 through December 31, 2003. Enclosure 2: Revision 7 to the "SAFSTOR Offsite Dose Calculation Manual."
- PG&E letter HBL-00-016, dated September 26, 2000, from Gregory Rueger to Nuclear Regulatory Commission concerning the Humboldt Bay Spent Fuel Management and Funding Program.
- PG&E letter HBL-03-002, dated March 27, 2003, from Lawrence Wommack to Nuclear Regulatory Commission concerning the Decommissioning Funding Report for Humboldt Bay.

#### Procedures and Data Sheets

- QRP History Record for ODCM, SAFSTOR Offsite Dose Calculation Manual, Part I Specifications and Part II Calculational Methods and Parameters, Volume 4, Revision 6, effective March 25, 2002.
- QRP History Record for ODCM, SAFSTOR Offsite Dose Calculation Manual, Part I Specifications and Part II Calculational Methods and Parameters, Volume 4, Revision 7, effective September 5, 2002.

- QRP History Record for ODCM, SAFSTOR Offsite Dose Calculation Manual, Part I Specifications and Part II Calculational Methods and Parameters, Volume 4, Revision 8, effective January 17, 2003.
- QRP History Record for ODCM, SAFSTOR Offsite Dose Calculation Manual, Part I Specifications and Part II Calculational Methods and Parameters, Volume 4, Revision 9, effective April 10, 2003.
- HBPP H-11, Stack Gas Radiation Monitoring System, Revision 28, effective October 10, 2002.
- HBPP STP 3.16.3, Stack Gas Monitoring System (PIOPS) Annual Calibration, Revision 36, effective July 24, 2003.
- HBPP STP 3.21.3, Weekly Process Monitor Checks, Revision 42A, effective January 10, 2002.
- RCP-6I, Collection, Labeling, Packaging, Storage and Accountability of Radioactive Material, Revision 42, effective of June 5, 2003.
- TP 2003-01, 2003 Spent Fuel Work Plan, Revision 0, effective July 10, 2003.
- TP 2003-02, Spent Fuel Inventory, Revision 0, effective July 10, 2003.
- STP 3.6.10, Verification of Load Weight Carried Over Spent Fuel Storage Racks, Revision 0, effective July 25, 2003.
- RCP-6I, Collection, Labeling, Packaging, Storage and Accountability of Radioactive Material, Revision 42, effective June 5, 2003.
- RCP-6L, Receiving, Loading and Releasing of Transport Vehicle for Radioactive Material/Waste Shipment, Revision 5, effective January 17, 2003.
- HBAP C-19, Licensing Basis Impact Evaluation, Revision 18, effective January 17, 2003.
- HBAP A-2, Plant Staff Review Committee, Revision 21, effective January 17, 2003.
- HBAP A-6, Nuclear Safety Oversight Committee, Revision 1, effective July 24, 2003.
- HBAP A-13, Fire Loss Prevention Program.
- TBD-301, Fire Hazards Analysis, Revision 4, effective October 10, 2002.
- Surveillance Data Sheets for Plant Fire System Checks:
  - - STP 3.20.1 STP3.20.2 STP3.20.3 STP 3.20.4 STP 3.20.6
    - STP 3.20.7 STP 3.20.9 STP 3.20.10 STP 3.20.14 STP 3.20.15
    - DLTP 3.20.17 DLTP 3.20.18 DLTP 3.20.19 DLTP 3.20.20 STP 3.20.22

- LBIE Screens for the following procedures:
  - |            |            |            |          |            |          |
|------------|------------|------------|----------|------------|----------|
| SP-314     | EDOI B-5   | STP 3.6.10 | TBD-302  | HBRCS-5    | HBAP A-2 |
| HBAP B-200 | HBAP C-14  | HBAP C-31  | HBAP E-4 | HBMP I-111 | RCP-3B   |
| TP 2000-09 | TP 2003-09 |            |          |            |          |
- 10 CFR 50.59 Safety Evaluation 2003-01 concerning removal of the spent fuel pool cover for extended periods of time.

#### Shipment Records

- Shipment records for Shipment RMS-02-007, shipped on November 13, 2002. These records included radiological surveys records, Form 540 Uniform Low-Level Radioactive Waste Manifest, excepted package certificate (49 CFR 173.422), special nuclear material exemption certification, emergency response information, instruction to carrier for maintenance of exclusive use shipment controls, and driver vehicle inspection report.
- Shipment records for Shipment RMS-02-008, shipped on November 13, 2002. These records included radiological surveys records, Form 540 Uniform Low-Level Radioactive Waste Manifest, excepted package certificate (49 CFR 173.422), special nuclear material exemption certification, emergency response information, instruction to carrier for maintenance of exclusive use shipment controls, and driver vehicle inspection report.