



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
612 EAST LAMAR BLVD, SUITE 400  
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April 18, 2011

Mr. John T. Conway  
Senior Vice President-Energy Supply  
& Chief Nuclear Officer  
Pacific Gas and Electric Company  
P. O. Box 3  
Mail Code 104/6/601  
Avila Beach, CA 93424

SUBJECT: NRC INSPECTION REPORT 050-00133/11-001

Dear Mr. Conway:

This refers to the inspection conducted on March 21-24, 2011, at the Humboldt Bay Power Plant, Unit 3 facility, in Eureka, California. The enclosed report presents the results of this 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 consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. In summary, with the exception of a failure to notify a worker of exposure in a timely manner, the inspector determined that you were conducting decommissioning activities in accordance with license and regulatory requirements. The preliminary inspection results were presented to your staff at the conclusion of the onsite inspection, and the final inspection results were presented to your staff by telephone on April 12, 2011. The enclosed report presents the results of this inspection

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The violation involves your failure to furnish a report of a worker's exposure within 30 days from the time the request was made. The violation is being treated as a noncited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described further in this inspection report. If you contest the violation or the significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-001, with copies to the Regional Administrator, Region IV; and the Director, Office of Enforcement, Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or for the NRC's documents system (ADAMS), accessible from the NRC's Web site at [HTTP://www.nrc.gov/reading-rm/adams.html](http://www.nrc.gov/reading-rm/adams.html). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Should you have any questions concerning this inspection, please contact Dr. Gerald Schlapper, Health Physicist at 817-860-8273 or the undersigned at 817-860-8191.

Sincerely,

*/RA/*

D. Blair Spitzberg, PhD, Chief  
Repository & Spent Fuel Safety Branch

Docket: 050-00133  
License: DPR-7

Enclosure:  
NRC Inspection Report 050-00133/11-001

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U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 050-00133

License: DPR-7

Report: 050-00133/11-001  
Licensee: Pacific Gas and Electric Company

Facility: Humboldt Bay Power Plant, Unit 3

Location: 1000 King Salmon Avenue  
Eureka, California 95503

Dates: March 21-24, 2011

Inspector: Gerald Schlapper, PhD, PE, CHP, Health Physicist  
Repository & Spent Fuel Safety Branch

Approved by: D. Blair Spitzberg, PhD, Chief  
Repository & Spent Fuel Safety Branch

Attachment: Supplemental Inspection Information

ENCLOSURE

## **EXECUTIVE SUMMARY**

### Humboldt Bay Power Plant, Unit 3 NRC Inspection Report 050-00133/11-001

This inspection was a routine, announced inspection of decommissioning activities being conducted at the Humboldt Bay Power Plant (HBPP), Unit 3 facility. In summary, the licensee was conducting site activities in compliance with regulatory and license requirements with one exception as noted below.

Late on the night of March 10, 2011, the site received notice of the earthquake and subsequent tsunami in Sendai, Japan. Soon thereafter a tsunami advisory was issued for the California coastline and the licensee initiated emergency procedures. Early on the morning of March 11, 2011, the tsunami advisory was elevated to a tsunami warning. Humboldt County officials notified the site that they had initiated actions to evacuate potentially impacted communities. Waves of 1-3 feet were predicted. The licensee contacted the Headquarters Operation Officer as a courtesy notification and later notified Region IV personnel. A decision was made to close the site for the day and employees scheduled to work were notified. At approximately 5:30 a.m. the new fossil generating units were shut down and remained shut down for approximately 2 hours. Based on estimates of 2-3 foot waves and the fact that the majority of the site is at 12-foot elevation, the fossil generating station was restarted. The licensee provided updates to Region IV personnel throughout the day.

The HBPP and associated independent spent fuel storage installation (ISFSI) were not adversely impacted by the events in Japan. The design basis ground acceleration for the ISFSI exceeds that of the design basis earthquake in the Humboldt area and that produced by the earthquake in Japan. The elevation of the ISFSI of approximately 44 feet is above the level of the wave that would be produced as a result of the design basis quake for the area of the plant. Due to the possibility of releases of radioactive material from Japan impacting the area, the licensee voluntarily and in response to stakeholder questions initiated additional environmental measurements and was able to detect very low levels of the isotope iodine-131.

During the period of the inspection, a special meeting of the Citizen Advisory Board was held in order to address stakeholder concerns related to the Japan earthquake and tsunami event and how a similar event is addressed for the HBPP. The inspector attended and noted good interaction with attendees. The licensee provided updates to the situation in Japan, noted that they had initiated an enhanced monitoring program to detect the presence of iodine, and presented data on isotopes detected at the site. It was noted that the location of the ISFSI serves as an evacuation point for plant personnel. Residents of the local King Salmon community also evacuate to the elevated area near the ISFSI but outside the owner controlled area. All questions were answered to the satisfaction of the stakeholders.

On August 20, 2010, the licensee issued a Licensee Event Report (LER) (HBPP LER 2010-001-00) documenting the loss of a calibration source, a glass fiber filter paper, and a mixed radionuclide gamma source used for radiation instrument calibration. Due to this event, the NRC issued a noncited violation (050-00133/1004-020) as documented in NRC Inspection Report 050-00133/10-004 issued on September 28, 2010. On February 2, 2010, the licensee notified Region IV that HBPP personnel had located the lost calibration source. The source was found in a locker when a Control Technician obtaining measurement and testing equipment observed it. The locker where the source was found was inside Unit 3 but outside the radiologically controlled area. A revised LER (HBPP LER 2010-001-10) was submitted to NRC

on April 11, 2011. The corrective actions initiated to prevent such a loss in the future remain in effect. This item is considered closed.

#### Organization and Management

There have been no changes in senior management since the previous inspection. The number of personnel on-site is now approximately 300, a significant increase in staffing. To support increased activity on-site, an increase in the number of radiation protection personnel was authorized. At the time of the inspection, the decommissioning effort remains within cost and schedule limits. (Section 1)

#### Maintenance and Surveillance

The licensee conducted maintenance and surveillance activities in accordance with license and regulatory requirements. The inspector reviewed an August 2010 spill of radioactive liquid inside the restricted area. The licensee investigation and corrective actions were thorough. (Section 2)

#### Decommissioning Performance and Status Review

The licensee conducted decommissioning activities in accordance with license and regulatory requirements. Radioactive postings and boundaries were maintained in accordance with regulatory requirements. Contaminated equipment and material characterization and removal work was conducted in accordance with procedure requirements. (Section 3)

#### Occupational Radiation Exposure

The licensee conducted radiation protection activities in accordance with procedure and regulatory requirements. Personnel exposures remain less than estimates and reflect application of ALARA to work activities. A violation of 10 CFR 19.13 was noted in that there was a failure to furnish a report of a worker's exposure within 30 days from the time the request was made. (Section 4)

#### Radioactive Waste Management and Transportation

The licensee conducted radioactive waste management and transportation in accordance with regulatory requirements. (Section 5)

## Report Details

### Summary of Plant Status - Unit 3

During the inspection, the Humboldt Bay Power Plant (HBPP), Unit 3, was being decommissioned by the licensee in accordance with commitments made in its Post Shutdown Decommissioning Activities Report dated June 30, 2009. The licensee has completed the process of analyzing options and has decided to section the reactor vessel for removal. The licensee has issued a request for proposal for this effort which is scheduled to begin during 2012.

Decommissioning of the adjacent fossil plants, Units 1 and 2, is underway. A contractor continues this effort as a turn-key project. The decommissioning of Units 1 and 2 is projected to be completed in the fall of 2011 and is being done concurrent with the ongoing Unit 3 decommissioning activities. Following completion of this portion of the effort, the area will serve as a lay-down area for continuing work on Unit 3.

During the inspection, the inspector observed operations in the recently completed sample count rooms. Also reviewed were storage and controls associated with source accountability and usage. Newly installed and calibrated monitoring systems for incoming and outgoing truck shipments were assessed by the inspector. These monitors will be used to radiologically monitor trucks hauling building rubble from Units 1 and 2 to further ensure that the building debris meets the criteria for alternate disposal in accordance with the NRC approval letter dated November 2, 2010.

## **1 Organization and Management (36801)**

### 1.1 Inspection Scope

The inspector evaluated whether the licensee organization and management were in accordance with license and regulatory requirements.

### 1.2 Observations

Senior management has not changed since the previous inspection. The number of licensee and contractor staff has increased to approximately 300 personnel, a significant increase in staffing in order to support the timetable for decommissioning. To support this effort, an increase in the number of radiation protection personnel was also authorized. At the time of the inspection, the decommissioning effort was within cost and was meeting scheduled milestones.

### 1.3 Conclusions

Continuity of senior management personnel coupled with increases in staffing will permit the site to continue decommissioning activities in compliance with license and regulatory requirements.

## **2 Maintenance and Surveillance (62810)**

### **2.1 Inspection Scope**

The inspector evaluated whether the licensee and its contracted workforce were conducting maintenance and surveillance activities in accordance with license and regulatory requirements.

### **2.2 Observations**

On August 21, 2010, the licensee accidentally spilled radioactive liquid inside the restricted area. An engineering design change had recently been completed. The modification to the Liquid Radwaste (LRW) System was performed in accordance with Procedure HBAP C-1 #4, "Design Control and Engineering for Decommissioning." This procedure had recently been written to provide for more flexibility for design activities during decommissioning and did not include the rigor that had been used in the past for safety significant projects. This was the first time the liquid radwaste system had been operated in the new configuration. Valves in the liquid radwaste system were not in correct alignment, as the procedure being followed by the operations staff had not been revised to reflect the up-to-date valve lineup. When starting the system, the operator heard a loud pop sound and on investigation noted liquid being discharged onto the building floor. The liquid then flowed in troughs in the floor outside the building and toward the yard drain sump which does not drain off-site. Independent review of the problem and analysis of corrective actions was assigned to the Technical Review Group. The group determined that operations personnel need to be more involved in the design process and that there needs to be a stronger coupling of engineering design changes to procedural changes. Detailed procedures were developed to ensure these actions occurred. The inspector reviewed these procedures, all of which had been revised, to include HBAP C-1, "Design Changes"; HBAP C-1 #4, "Design Control and Engineering For Decommissioning"; HBAP C-41, "Post Maintenance/Modification Testing"; HBAP-45, "Work Control Process," and HBAP E-5, "Formal Communication For SAFSTOR Activities." The inspector attended portions of training conducted for site employees on use of these procedures.

### **2.3 Conclusions**

Full implementation of the new, more detailed procedures should serve to prevent similar failures like that above and provide for compliant maintenance and surveillance activities.

## **3 Decommissioning Performance and Status Review (71801)**

### **3.1 Inspection Scope**

The inspector evaluated whether the licensee and its contracted workforce were conducting decommissioning activities in accordance with license and regulatory requirements.

### 3.2 Observations and Findings

The inspector toured the radiologically restricted and unrestricted areas of the facility and observed ongoing work. Radiological postings on fences and at entrances to the restricted area were clearly visible, and postings met the requirements of 10 CFR Part 20. During site tours, the inspector conducted radiological surveys to verify the accuracy of radiation boundary postings using a Ludlum Model 2401-EC2 survey meter (NRC Number 21116G, calibration due date of 12/06/11). The inspector did not identify any location that was incorrectly posted by the license.

The inspector observed ongoing work in the reactor building. At the time the inspector was in the building, workers, following a valid RWP, were actively cleaning the floor area near the spent fuel pool in preparation for transfer of material into the pool. When a worker was asked by the inspector what activity was underway, the worker noted that they were removing unnecessary items and preparing the area to limit possibility of contamination and generation of airborne material. The inspector also toured the counting laboratory and verified that workers were following procedures to include those applicable to control of sealed and calibration sources. While walking the site the inspector was approached by a supervisor in the area where transportation containers are prepared for loading. The worker took time to walk the inspector through their process of ensuring that containers met all requirements of the Department of Transportation. Workers were observed to be in compliance with requirements of the RWP.

### 3.3 Conclusions

The licensee conducted decommissioning activities in accordance with license and regulatory requirements. Radioactive postings and boundaries were maintained in accordance with regulatory requirements. The inspector observed ongoing work and noted that it was conducted in accordance with license and regulatory requirements.

## **4 Occupational Radiation Exposure (83750)**

### 4.1 Inspection Scope

The inspector reviewed the licensee's radiation protection activities during site decommissioning with emphasis on occupational radiation exposures.

### 4.2 Observations and Findings

The HBPP maintains a series of trending documents to allow for assessment of radiation protection performance. The inspector reviewed data for calendar year 2010 for external and internal exposures related to decommissioning activities. For the period January 2010 through December 2010, actual exposures were 7.7 man-rem compared to an estimate of 16.7 man-rem for the same timeframe of work. Essentially all of the exposure was external in nature. During the same period in 2010, 2855 lapel air samplers had been issued. Based on counting of the lapel samplers, use of protection factors for respirators where appropriate and following standard techniques for calculation and assignment of internal exposure, the committed effective dose equivalent (CEDE) for the site was 4 mrem. The low value results from the institution of a requirement for two barriers in place prior to work in a contaminated or potentially

airborne area. Because of the very low exposure levels, direct measurements using bioassay techniques cannot be used to assess routine exposure, and calculation of exposure levels based on lapel air sampling results is required.

The inspector reviewed selected Radiological Occurrence Reports generated in 2011. Radiation protection personnel have been proactive in documenting poor work practices in radiological areas. These incidents were investigated by the licensee and corrective actions taken. Also reviewed was an incident where a worker detected a small puncture wound on his left index finger. Surveys of the finger indicated no detectable activity. A whole-body count was also conducted with no detectable activity found. The radiation protection department was briefed on this event and use of protective, puncture resistant gloves was emphasized. Review of documentation associated with this evaluation indicates that correct actions were taken by the licensee throughout the assessment of potential exposure due to a wound.

4.3 (Closed) Non-cited Violation 050/1101/01: Failure to provide timely report of exposure

During the period of this inspection, the NRC staff became aware that the licensee failed to provide a written report of exposure to radiation to an employee within 30 days of request as required. Regulation 10 CFR 19.13 (c)(1) states, in part, that at the request of a worker formerly engaged in licensed activities controlled by the licensee, each licensee shall furnish to the worker a report of the worker's exposure to radiation and/or radioactive material: (ii) for each year the worker was required to be monitored under the monitoring requirements in effect prior to January 1, 1994. Further, 10 CFR 19.13 (c)(2) states, in part, that this report must be furnished within 30 days from the time the request is made.

By letter dated November 6, 2003, the worker's attorney requested records from the Licensee related to the worker's radiation exposure at HBPP. The NRC has determined that a request from a worker's attorney is equivalent to the worker making the request. The licensee responded by letter dated November 24, 2003, claiming that it did not have the information at that time, but it would let the worker know if they were able to obtain the requested information. A Worker's Compensation Appeals Board subpoena was submitted to the licensee on behalf of the worker on November 10, 2004 requesting essentially the same information. In response to this subpoena, the licensee provided copies of available documents by Certificate of Records package dated November 30, 2004. This information included copies of the worker's occupational exposure reports. Contrary to the above regulation, the licensee failed to furnish to a worker a report of the worker's exposure to radiation and/or radioactive material within 30 days from the time the request was made. Specifically, the time frame between November 6, 2003, and November 30, 2004, was greater than 30 days. The failure to provide a written report Within 30 days from the time of request is a violation of 10 CFR 19.13(c) requirements (NCV 050-00133/1101-01).

This violation is being treated as a non-cited violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The licensee issued SAP Notification 1270946 on April 4, 2011 for tracking implementation of corrective actions to prevent recurrence. Also, the NRC concluded that this incident appeared to be an isolated occurrence.

#### 4.4 Conclusions

With one exception, the licensee conducted radiation protection activities in accordance with procedure and regulatory requirements. Personnel exposures to date have been maintained below regulatory limits as well as levels estimated for decommissioning activities. The NRC identified one NCV involving the licensee's failure to provide radiation exposure information to an individual within 30 days of a request during the 2003-2004 time frame.

### **5 Radioactive Waste Management and Transportation (86750)**

#### 5.1 Inspection Scope

The inspector reviewed the licensee's programs for radioactive waste management and transportation of material for disposal.

#### 5.2 Observations and Findings

The shutdown of fossil Units 1 and 2 impacts liquid radwaste effluent concentrations from Unit 3. The previous model for calculating liquid radwaste effluent was based on Units 1 and 2 circulating water flow. A substitute model for effluent based on tidal flow in and out of the outfall canal is now in use. References to use of Units 1 and 2 circulating water have been removed from the Decommissioning Safety Analysis Report (DSAR). The Offsite Dose Calculation Manual (ODCM) has been revised to model effluent based on tidal flow.

The licensee submitted on March 31, 2010, an exemption request to the NRC for alternate disposal of the building rubble and soil collected during demolition of Units 1 and 2 and a small portion of the non-impacted areas of Unit 3. NRC approval was documented by letter dated November 2, 2010, which allows the licensee to dispose of this waste material at a Resource Conservation and Recovery Act (RCRA) facility in Idaho that is authorized to accept hazardous material with low levels of radioactive contamination. During 2010 there were 89 shipments of solid radioactive waste resulting from decommissioning activities related to Unit 3. Depending on content, these shipments were dispatched either to the Energy Solutions site in Utah for shipments containing non-exempt levels of radioactivity or to the US Ecology site in Idaho for shipments meeting the criteria specified in the approved exemption request. All of the 20 shipments containing material from decommissioning of retired fossil Units 1 and 2 were sent to the US Ecology site in Idaho. The licensee has developed waste burial site-specific check-off lists for waste shipments in order to ensure compliance with waste acceptance criteria, limits set in the NRC approved exemption request, Department of Transportation regulations, vehicle safety requirements, and satisfactory condition of the package. The inspector reviewed selected data packages for shipment to the Utah and Idaho sites and found them to be accurate and complete.

#### 5.4 Conclusions

The licensee conducted radioactive waste management and transportation activities in accordance with license and regulatory requirements.

## **6 Exit Meeting**

The inspector reviewed the scope and preliminary findings of the inspection during an exit meeting that was conducted at the conclusion of the onsite inspection on March 24, 2011. The licensee did not identify as proprietary any information provided to, or reviewed, by the inspector. A telephonic re-exit to include the Part 19 Non-cited Violation was conducted on April 12, 2011.

## **SUPPLEMENTAL INSPECTION INFORMATION**

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

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B. Barley, Radiation Protection Consultant  
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J. Costantino, General RP Foreman  
A. Cordone, Decommissioning Projects Superintendent  
J. Griffin, Licensing Engineer  
V. Lanni, Radiation Protection Foreman for Units 1 and 2  
L. Pulley, Deputy Decommissioning Manager  
K. Rod, Decommissioning Manager  
P. Roller, Director and Nuclear Plant Manager  
S. Schlerf, Radiation Protection Forman  
M. Smith, Engineering Manager  
D. Sokolsky, Licensing Supervisor

### **INSPECTION PROCEDURES USED**

IP 36801 Organization and Management  
IP 62810 Maintenance and Surveillance  
IP 71810 Decommissioning Performance and Status Review  
IP 83750 Occupational Radiation Exposure  
IP 86750 Radioactive Waste Management and Transportation

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

#### Opened

NCV 050-00133/1101-01, Failure to provide written report of exposure within 30 days in accordance with 10 CFR 19.13.

#### Closed

NCV 050-00133/1004-020, Loss of calibration source

NCV 050-00133/1101-001, Failure to provide written report of exposure within 30 days.

#### Discussed

None

## LIST OF ACRONYMS

CFR	<i>Code of Federal Regulations</i>
DSAR	Decommissioning Safety Analysis Report
HBPP	Humboldt Bay Power Plant
IP	NRC Inspection Procedure
ISFSI	independent spent fuel storage installation
LER	licensee event response
NCV	noncited violation
ODCM	Offsite Dose Calculation Manual
RCRA	Resource Conservation and Recovery Act