UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E LAMAR BLVD
ARLINGTON, TX 76011-4511

August 20, 2015

Mr. Edward D. Halpin, Senior Vice President
& 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 050-00133/15-009

Dear Mr. Halpin:

This letter refers to the inspection conducted on July 21 - 23, 2015, at your permanently shut down Humboldt Bay Power Plant, Unit 3 facility in Eureka, California. The purpose of the inspection was to determine whether decommissioning activities were being conducted safely and in conformance with the U.S. Nuclear Regulatory Commission (NRC) requirements. The results of the inspection were discussed with members of your staff at the conclusion of the onsite inspection on July 23, 2015.

During this inspection, NRC staff examined activities conducted under your license as they relate to public health and safety to confirm 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. The enclosed report presents the results of this inspection. No violations were identified and no response to this letter is required.

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 from the NRC's documents system (ADAMS), accessible from the NRC's Web site at https://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 817-200-1273 or the undersigned at 817-200-1191.

Sincerely,

/RA by Lee Brookhart Acting For/

Ray L. Kellar, P. E., Chief
Repository and Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Docket No: 050-00133
License No: DPR-7

Enclosure:
NRC Inspection Report 050-00133/15-009

cc: See next page

cc:

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Should you have any questions concerning this inspection, please contact Dr. Gerald Schlapper, Health Physicist, at 817-200-1273 or the undersigned at 817-200-1191.

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X SUNSI Review By: **GAS**		ADAMS **X** Yes ☐ No	**X** Publicly Available ☐ Non-Publicly Available		**X** Non-Sensitive ☐ Sensitive		Keyword:
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U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	050-00133
License:	DPR-7
Report:	050-00133/15-009
Licensee:	Pacific Gas and Electric Company
Facility:	Humboldt Bay Power Plant, Unit 3
Location:	1000 King Salmon Avenue Eureka, California 95503
Dates:	July 21-23, 2015
Inspector:	Gerald A. Schlapper, PhD, CHP, Health Physicist Repository and Spent Fuel Safety Branch
	Donald L. Stearns, Health Physicist, Inspector Repository and Spent Fuel Safety Branch
Approved by:	Ray L. Kellar, P. E., Chief Repository and Spent Fuel Safety Branch Division of Nuclear Material Safety
Attachment:	Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

Humboldt Bay Power Plant, Unit 3
NRC Inspection Report 050-00133/15-009

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.

Organization, Management, and Cost Controls

The licensee organization and management oversight reflects a change from self-directed work activities to that of oversight of contractor activities. License and regulatory compliance are being maintained. The licensee conducted audits, self-assessments and corrective actions in accordance with procedures and regulatory requirements. (Section 1.2)

Decommissioning Performance and Status Review

The licensee conducted decommissioning activities in accordance with license and regulatory requirements. (Section 2.2)

Solid Radioactive Waste Management and Transportation of Radioactive Materials

The licensee conducted solid waste management and transportation activities in accordance with procedures and regulatory requirements. Transportation of liquid waste shipments was also reviewed and found to be in compliance. (Section 3.2)

Report Details

Summary of Plant Status - Unit 3

At the time of the inspection, the licensee continued to conduct decommissioning activities of remaining structures and areas around the site, including equipment removal, building demolition, and excavation. Decommissioning was performed in accordance with the general guidance provided in the Post-Shutdown Decommissioning Activities Report (PSDAR) dated July 19, 2013, (ADAMS Accession No. ML13213A160).

A License Termination Plan (LTP) was submitted to the U.S. Nuclear Regulatory Commission (NRC) on May 3, 2013 and was followed with submittals in response to NRC requests for additional information. On August 13, 2014, LTP Revision 1, which included information included in the above submittals, was submitted. This plan will further define the end state of the site, refine decommissioning cost estimates, and thereby provide a detailed baseline for cost and schedule considerations.

The contractor for the civil works portion of the decommissioning, Chicago Bridge and Iron (CB&I), continues to prepare the remaining portions of the reactor building and the spent fuel building for demolition. All segments of the pressure vessel, including the lower head and the upper vessel flange, have been removed from the reactor building and shipped to a waste site for burial. The licensee continues to transport other waste to appropriate disposal sites. The licensee continues the process of analyzing the feasibility and cost associated with removal of subsurface structures as part of the decommissioning process.

1 Organization, Management, and Cost Controls (36801)

1.1 Inspection Scope

The inspector evaluated the licensee's organization and the management's program of review, assessment, and planning for decommissioning.

1.2 Observations

The inspector reviewed the current organizational structure of the licensee and the primary support contractor. As work changes from self-directed to licensee oversight of contractor activities during open-air demolition, inspection emphasis of licensee activities will change. For example, as radioactive material is removed and dose rates are reduced to background levels, the licensee plans to make significant changes in the radiation protection program. By the end of the year the licensee has determined that access control will no longer be required and personal dosimeters will no longer be issued. Area badges will be employed to estimate potential for employee exposure. The licensee has already placed area monitoring dosimeters in appropriate locations and has accumulated data for two quarters of operation. Results of recent area dosimeter measurements were reviewed by the inspector and determined that all results were essentially at background levels. These results would support the licensee's plans to eliminate the use of personal dosimeters since future exposures after the majority of the radiological material was removed would be a small fraction of the dose limits for occupational workers and monitoring would no longer be required. In addition,

there will no longer be a need for radiation work permits and training will be scaled back, to some degree since there will be less need for emphasis on protection from alpha contamination and potential for internal and external exposures. The projected reduction in training and oversight requirements in the radiation protection area is reflected in a projected decrease in radiation protection staffing by the end of 2015.

Emphasis will increase in the area of site closure and associated final status surveys. In support of knowledge management and knowledge transfer, the inspector noted that several personnel who had been associated with radiation protection activities have been moved to support activities associated with facility characterization and final status surveys. During the inspection a team from Oak Ridge Associated Universities (ORAU) was onsite to support NRC through verification of licensee survey results and assessment of licensee procedures as surveys of the discharge canal and an administrative support building were conducted. Data obtained by the licensee and ORAU was in reasonable agreement and no unusual results were noted. Procedures and techniques were found to meet regulatory requirements. A separate report with be completed by ORAU and submitted at a later date.

The Humboldt Bay Power Plant Quality Assurance Plan (QAP) addresses requirements of the Humboldt Bay Unit 3 Part 50 License and the Independent Spent Fuel Storage Installation (ISFSI) Part 72 License. By letter dated June 10, 2014, (ML14176A080) the licensee submitted revision 32 to the QAP which changed the oversight of the QA Program from the Nuclear Safety Oversight Committee (NSOC) to a requirement for an Independent Management Review function. In response to a request from NRC, the licensee submitted additional information by letter dated August 15, 2014 (ML14227A958). The NRC approved the request for change to QAP on September 4, 2014 (ML14238A627). Implementation of the change is through Procedure HBAP, Independent Management Review, effective September 4, 2014 that notes that the Chief Nuclear Officer is responsible for designating the reviewer(s) to assess the effectiveness of the QAP and other appropriate oversight activities at the site. The licensee is committed to conduct of a review at a minimum of every two years. As of the dates of the inspection, a review had not been conducted and the reviewer(s) had not been appointed. The appointment of a qualified reviewer and conduct of the review will be of continuing interest in future inspections.

1.3 Conclusions

The licensee staff is adequate trained and qualified to conduct decommissioning activities at the site. The licensee was performing work activities as required by the Humboldt Bay Power Plant Quality Assurance Plan.

2 Decommissioning Performance and Status Review (71801)

2.1 Inspection Scope

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

2.2 Observations

Primary efforts for the remaining months of calendar year 2015 are to complete asbestos abatement for the exterior of the reactor and spent fuel buildings in preparation for demolition of the buildings, placement of clean excavated material into the discharge canal, removal of the remaining components which contain residual radioactivity, continue installation of the Cutter Soil Mixture (CSM) wall, and transport of construction debris to proper burial sites. Previously the licensee had considered the installation of a slurry wall surrounding the reactor and turbine buildings in order to complete excavation of the materials in those areas. That plan has been modified with the proposed installation of CSM Wall instead of the slurry wall. At the time of the inspection, installation of the 5th panel of the CSM wall was being completed. Each panel is approximately three feet wide and nine feet long.

Removal and shipment of the final segments of the reactor vessel was complete, including the upper vessel flange and the lower vessel head. Reactor vessel removal was the last major work effort that was considered to be self-performed/self-directed by the licensee. The project then transitioned to demolition of remaining structures, site remediation, and waste disposal phases, conducted by the civil works contractor under licensee oversight.

Ground water continues to slowly seep into the spent fuel pool and is processed through an ion exchange system, transferred to onsite temporary liquid holding tanks, sampled and analyzed for acceptable levels of radioactivity, and then shipped for disposal. The spent fuel pool drain line contains elevated levels of contamination and will be removed and shipped to the appropriate burial site.

Demolition of the interior of the liquid waste building, and demolition of tunnels and piping connecting it to the reactor building, the solid waste building, the Secondary Alarm Station (SAS) structure, and associated off-gas tunnel had been completed. The inspectors reviewed the conduct of radiation surveys of the debris to allow for recycle on-site or disposal as waste at the appropriate site. The inspectors determined that surveys were conducted at the appropriate frequencies and met regulatory guidance. The excavated area between the reactor building and the liquid waste building has been refilled with clean material in order to facilitate the installation of that section of the SCM wall. The concrete floor, concrete north wall, and the sheet metal shell of the liquid waste building remain intact. The removal of the building metal shell was scheduled for the week of July 27, 2015 and was noted in reports from the licensee to have been completed on schedule.

The discharge canal has been isolated from the bay and dewatered. The removal of the riprap material along the sides of the canal has been completed with the exception of the material at the extreme southern end of the canal. Ground water slowly seeps into the southern end of the discharge canal and is processed through a treatment system prior to disposal. All excavated material including the riprap material and material from the CSM wall is being monitored for radioactivity prior to reuse or disposal.

The inspectors reviewed the setup and use of the detector system used to monitor trucks of excavated material. The system is composed of four detectors. Two detectors each are located in enclosed trailers on either side of a set of scales for the dump trucks hauling the material. The system has been calibrated to accommodate a variety of containers and trucks loaded with the excavated material. The volume and weight of material in the truck is measured to determine the density of the material. This parameter is entered into the counting system along with the type of truck and the trucks empty weight. Typically, a 1000 second count is performed to determine the concentration of activity of the material in the truck. The inspector reviewed the daily quality control checks performed on the system. These checks verify that the system parameters remain within the guidelines established during calibration. If a container other than ones for which the system has been previously calibrated is used, the system would be calibrated for the new container.

2.3 Conclusions

The licensee conducted decommissioning activities in accordance with license and regulatory requirements. Ongoing work was conducted following applicable procedures and in accordance with license and regulatory requirements.

3 Solid Radioactive Waste Management and Transportation of Radioactive Materials (86750)

3.1 Inspection Scope

The inspector reviewed documentation associated with four shipments of material to their respective burial sites. The shipments included two solid waste shipments of exempt material to a site approved for Resource Conservation and Recovery Act (RCRA) in Idaho, and two low specific activity solid waste shipment to a Utah burial site. Documentation was reviewed to evaluate compliance with applicable Department of Transportation requirements. The inspector also reviewed documentation for shipments of the reactor pressure vessel flange and lower head assemblies, shipments RMS-15-314, and RMS-15-315. The vessel segments were shipped as low specific activity material after evaluation of the radioactive contamination and radioactive activation of vessel materials. Documentation applicable to shipments of waste containing low levels of radioactivity to the RCRA site was also examined.

3.2 Observations

To ensure compliance with applicable NRC and Department of Transportation (DOT) regulations, the licensee utilized a shipping compliance checklist. The checklist requires that the licensee have documentation on file that certifies that any container used meets package qualifications and that vendor provided procedures for use of the container were followed. The package includes documentation that manifested information is consistent with the approved waste profile. Documents supplied in the package indicated that the container had been inspected by the licensee and determined to be in compliance with DOT packaging requirements. Radiation/ contamination survey data sheets were noted that verified compliance with applicable limits as outlined in 10 CFR 71.47. Emergency response information was

supplied with all shipments. Documentation also noted that exemption conditions as approved by NRC were reviewed and followed. Required direct radiation and contamination surveys were conducted and results were acceptable for this shipment. A vehicle inspection checklist was completed prior to approval for the vehicle to depart the site. A review of documents for these selected shipments indicated that license and regulatory requirements were met. Prior to departure, a signature by the licensee, in their oversight role, is required that indicates that all documents associated with the shipment have been completed in accordance with licensee procedures and that the material is packaged, characterized, classified, marked, labeled, placarded and transported in accordance with regulatory requirements of US NRC and the Department of Transportation.

For the period of May 1, 2015, through July 23, 2015, the licensee made 223 shipments with a total volume of 77,946 cubic feet to the RCRA site in Idaho. The total volume of material sent to the RCRA site since shipments were first initiated is approximately 21 percent of the total allowed volume. For the near future the licensee expects to complete approximately 20 shipments per week.

During the same time period, a total of 21 shipments with a total volume of 6,211 cubic feet were made to the Energy Solutions burial site located in Utah. The licensee anticipates that shipments to the Energy Solutions burial site will continue at a rate of approximately one per week.

3.3 Conclusions

The licensee's program for transportation of solid waste material for off-site burial was being performed in accordance with license and regulatory requirements. Transportation of liquid waste was also found to be compliant.

4 Exit Meeting

The inspectors reviewed the scope and preliminary findings of the inspection during an exit meeting that was conducted at the conclusion of the onsite inspection on July 23, 2015. The licensee did not identify as proprietary any information provided to, or reviewed, by the inspectors.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

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L. Sharp, Director and Plant Manager
M. Strehlow, Deputy Director
W. Barley, RP Consultant and FSS Supervisor
J. Chadwick, ALARA Supervisor
P. Coutts, CBI Program Manager
M. Erickson, FSS and LTP Engineer
S. Jones, QV Supervisor
R. King, RPV Project Manager
D. LeBoeuf, CBI Deputy Program Manager
W. Parish, RP Engineer
J. Salmon, Environmental Manager
S. Schlerf, RP Foreman
D. Sokolsky, Licensing Consultant

INSPECTION PROCEDURES (IP) USED

IP 36801	Organization, Management and Cost Controls at Permanently Shutdown Reactors
IP 71801	Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 86750	Solid Waste Management and Transportation of Radioactive Materials

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
CAP	Corrective Action Program
CB&I	Chicago Bridge & Ironworks
CFR	*Code of Federal Regulation*
DOT	Department of Transportation
FSS	Final Site Survey
HBPP	Humboldt Bay Power Plant
IP	NRC Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
LTP	License Termination Plan
NRC	U.S. Nuclear Regulatory Commission
ORAU	Oak Ridge Associated Universities
QAP	Quality Assurance Plan
RWP	Radiation Work Permit
RCRA	Resource Conservation and Recovery Act
RPV	Reactor Pressure Vessel
SAS	Secondary Alarm Station
SFP	Spent Fuel Pool