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PG&E Letter HBL-08-006

U.S. Nuclear Regulatory Commission
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Washington, D.C. 20555

Docket No. 50-133, OL-DPR-7
Humboldt Bay Power Plant, Unit 3
Post-Shutdown Decommissioning Activities Report, Revision 2, and Request for NRC Coordination of Section 106 of the National Historic Preservation Act

Dear Commissioners and Staff:

Pursuant to 10 CFR 50.82(a)(7), Pacific Gas and Electric Company (PG&E) is submitting the enclosed Revision 2 to the Post-Shutdown Decommissioning Activities Report (PSDAR) for Humboldt Bay Power Plant, Unit 3. PSDAR, Revision 2, reflects a change in decommissioning activity status since PSDAR, Revision 1, was submitted to the NRC on August 31, 2007. This change, indicated by a revision bar, appears in the enclosed PSDAR, Revision 2, Section 3, page 3, and is a request for the NRC to coordinate with the California State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 USC 470f). PG&E requests the NRC coordinate with the California SHPO to determine the historical significance of Fossil Units 1 and 2 that are located within the Unit 3 Part 50 licensed site prior to decommissioning these facilities. The NRC has previously coordinated with the SHPO for the historical significance determination of Unit 3.

Also included in PSDAR, Revision 2, is a minor clarification to the Unit 3 decommissioning schedule discussed in Section 3, page 3, and indicated by a revision bar. PG&E eliminated the statement that Unit 3 decommissioning activities would be temporarily suspended while Units 1 and 2 are decommissioned because decommissioning activities for Units 1, 2, and 3 may occur in parallel. As indicated in Section 3, PG&E will notify the NRC of planned Unit 3 decommissioning activities as soon as they are scheduled.

In accordance with 10 CFR 50.82(a)(4)(i), the enclosed PSDAR describes planned Unit 3 decommissioning activities and associated schedule, provides an estimate of expected costs, and discusses reasons for concluding that the environmental impacts associated with site-specific decommissioning activities are bounded by appropriate, previously issued, environmental impact statements.

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FSME

Sincerely,

John T. Conway
Senior Vice President & Chief Nuclear Officer

Enclosure
cc/enc: Gary W. Butner, DHS
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Humboldt Distribution

Enclosure
PG&E Letter No. HBL-08-006

POST-SHUTDOWN DECOMMISSIONING ACTIVITIES REPORT

HUMBOLDT BAY POWER PLANT, UNIT 3

Revision 2

March 2008

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1.0 INTRODUCTION

Pacific Gas and Electric Company (PG&E) submitted the initial Humboldt Bay Power Plant (HBPP), Unit 3, Post-Shutdown Decommissioning Activities Report (PSDAR) to the Nuclear Regulatory Commission (NRC) on February 27, 1998, in accordance with 10 CFR 50.82 (a)(4)(i). The initial PSDAR described near-term decommissioning activities, such as removal and replacement of the ventilation stack, as well as describing PG&E's intention to pursue the feasibility of constructing an Independent Spent Fuel Storage Installation (ISFSI). Since that time, the status of Unit 3 decommissioning activities has changed considerably. For example, the ventilation stack has been removed and replaced, and PG&E has received a license to construct and operate an ISFSI. Revision 1 to the PSDAR was submitted to the NRC on August 31, 2007, to update the status of decommissioning activities. Since that time, decommissioning activities have been modified. As a result, PG&E is submitting this Revision 2 to the PSDAR in accordance with 10 CFR 50.82 (a)(7). PSDAR, Revision 2, replaces the PSDAR Revision 1 in its entirety.

The current status of Unit 3 is safe storage, known as SAFSTOR. PG&E obtained an ISFSI license on November 17, 2005, and is currently in the construction phase of the ISFSI. PG&E is planning to transfer spent nuclear fuel from the spent fuel pool (SFP) into the ISFSI in 2008. After the spent nuclear fuel is transferred into the ISFSI, full-scale decontamination and dismantlement of Unit 3 will begin. In accordance with 10 CFR 50.82 (a)(4)(i), this PSDAR describes the planned decommissioning activities and associated schedule for Unit 3, provides an estimate of expected costs, and discusses reasons for concluding that the environmental impacts associated with site-specific decommissioning activities are bounded by appropriate, previously issued, environmental impact statements, specifically NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities" (Reference 1), and NUREG-1166, "Final Environmental Statement for Decommissioning Humboldt Bay Power Plant, Unit No. 3" (Reference 2).

2.0 BACKGROUND

Unit 3 was operated by PG&E as a 65 MWe natural circulation boiling water reactor (BWR). In addition to Unit 3, two oil and/or natural gas fueled units, Units 1 and 2, exist on the plant site and continue to be operated by PG&E. Unit 1 is rated at 52 MWe, and Unit 2 is rated at 53 MWe. Two diesel-fueled gas turbine Mobile Emergency Power Plants, each rated at 15 MWe, are also currently located at the plant and are operated by PG&E.

Unit 3 was granted a construction permit by the Atomic Energy Commission (AEC) on October 17, 1960, and construction began in November 1960. The AEC issued Provisional Operating License No. DPR-7 for Unit 3 in August 1962. Unit 3 achieved initial criticality on February 16, 1963, and began commercial operation in August 1963.

On July 2, 1976, PG&E shutdown Unit 3 for an annual refueling to conduct seismic studies and implement seismic modifications. Unit 3 remained in a shutdown condition pending completion of ongoing seismic and geologic studies. In December 1980, it became apparent to PG&E that the cost of completing required backfits would likely make it uneconomical to restart the unit. Work was suspended at that time awaiting further guidance regarding backfitting requirements. In 1983, updated economic analyses indicated that restarting Unit 3 would not be economical. Therefore, in June 1983, PG&E announced its intention to decommission Unit 3.

During the 13 years of Unit 3 commercial operation, 11 core cycles of operation were completed. Unit 3 operated a total of 7.85 effective full power years. The fuel was removed from the reactor in January and February 1984, and placed in the SFP. The SFP currently contains 390 partially or totally spent nuclear fuel assemblies and 50 whole, plus 3 partial, fission (or ion) chambers.

The NRC issued License Amendment 19 for Unit 3 on July 16, 1985, that modified the plant status to a possess-but-not-operate status. The NRC's Decommissioning Safety Evaluation Report was issued on April 29, 1987 (Reference 3). The Unit 3 License expires in 2015.

The NRC issued the ISFSI license on November 17, 2005, and it expires in 2025. Spent nuclear fuel will remain stored in the ISFSI (starting in 2008) until a high-level waste repository has been built, and the Department of Energy assumes control of the fuel.

3.0 DESCRIPTION AND SCHEDULE OF PLANNED DECOMMISSIONING ACTIVITIES

Several major inter-related activities are either currently ongoing or planned for the near future at the HBPP site.

- An ISFSI is being constructed, and will store spent fuel transferred from the Unit 3 SFP.
- Unit 3 decommissioning will begin after fuel is removed from the SFP.
- Units 1 and 2 will be replaced by a new generation facility (NewGen).

- Units 1 and 2 will be decommissioned after the NewGen is operational.

Coordinating and scheduling these activities requires a great deal of planning, and the sequence is dependent upon receipt of permits and licenses.

Unit 3 will remain in SAFSTOR throughout the construction and loading of the ISFSI. Some minor dismantlement activities may occur while Unit 3 is in SAFSTOR, if they are deemed cost-effective, and will not interfere with the safe storage of spent fuel in the SFP. PG&E will notify the NRC of any planned decommissioning activities, and will provide a schedule when they will occur.

After all spent fuel has been removed from the Unit 3 SFP and loaded into the ISFSI (currently scheduled for 2008), full-scale decommissioning of Unit 3 will begin. Prior to full-scale decommissioning, PG&E will provide the NRC with a schedule and description of decommissioning activities. Currently, PG&E is planning to begin decommissioning Unit 3 by first decontaminating and dismantling the turbine, generator, condenser, pipe tunnel, and feed pump room in order to provide space for future radwaste processing.

PG&E plans to construct the NewGen during 2009, and commence operation in 2010. Once the NewGen is operational, PG&E plans to dismantle and decommission Units 1 and 2. PG&E requests the NRC coordinate with the California State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 USC 470f). PG&E requests the NRC coordinate with the California SHPO to determine the historical significance of Units 1 and 2 prior to the decommissioning of Units 1 and 2. (NOTE: The NRC has previously coordinated with the California SHPO for the historical significance determination of Unit 3 [References 7 and 8].) After Units 1 and 2 are decommissioned, the space previously occupied by Units 1 and 2 can be used as a lay-down area for the completion of Unit 3 decommissioning.

The above tentative schedule for construction and operation of the NewGen facility, and subsequent decommissioning of Units 1 and 2, followed by completion of Unit 3 decommissioning, is contingent upon PG&E receiving all necessary state and local permits, and licenses for the NewGen facility. If construction and operation of the NewGen is significantly delayed, PG&E may adjust the dismantlement priorities and schedule. (Units 1 and 2 must remain operational until the NewGen facility becomes operational to provide electrical services to the local area.) PG&E will keep the NRC informed of the progress of NewGen licensing.

4.0 ESTIMATE OF EXPECTED DECOMMISSIONING COSTS

For the eventual complete decommissioning of Unit 3, PG&E contracted TLG Services, Inc., to prepare a site-specific decommissioning cost estimate in 2005. The TLG Services, Inc. cost estimate: (1) includes all Unit 3 decommissioning activities, (2) includes construction and operation of an ISFSI, and (3) is based on some decommissioning activities starting in 1996 (Reference 4). Based on this estimate, PG&E expects the cost to complete decommissioning of Unit 3 to be 410 million dollars, in 2007 dollars.

The cost estimate of 410 million dollars exceeds the current market value of the HBPP Nuclear Decommissioning Trust, which was 304.4 million dollars as of December 31, 2006. PG&E is collecting additional revenues of 35.745 million dollars (nominal future dollars) over three years (2006-2008) based on the estimate in the California Public Utilities Commission Decision 07-01-003, and with the interest earned on the trust account, PG&E estimates that the HBPP Nuclear Decommissioning Trust will be fully funded. PG&E submits annual decommissioning funding assurance reports to the NRC in accordance with the requirements of 10 CFR 50.75(f). Updates to decommissioning cost estimates and decommissioning trust fund balances are documented in these reports, the latest of which was submitted on March 30, 2007 (Reference 5).

5.0 ENVIRONMENTAL IMPACTS

10 CFR 50.82 (a)(4)(i) requires the PSDAR to include, "a discussion that provides the reasons for concluding that the environmental impacts associated with the site-specific decommissioning activities will be bounded by appropriate previously issued environmental impact statements." For the eventual complete decommissioning of Unit 3, the following discussion provides reasons for drawing the above conclusion, based on:

- NUREG-1166, "Final Environmental Statement for Decommissioning Humboldt Bay Power Plant, Unit No. 3," and
- NUREG-0586, "Final Generic Environmental Impact Statement (FGEIS) on Decommissioning Nuclear Facilities."

PG&E originally assessed the environmental impact of Unit 3 decommissioning in the Unit 3 Environmental Report, dated July 30, 1984 (Reference 6). The NRC response to the Environmental Report is documented in NUREG-1166, dated April 1987.

The FGEIS assesses decommissioning a typical (referenced) 1155 MWe BWR that operated throughout its 40-year operating life. The FGEIS

concludes that: (1) decommissioning of such a facility is not an imminent health and safety problem, (2) radiation dose to the public due to decommissioning activities should be very small, and (3) radiation dose to decommissioning workers should be well within the occupational exposure limits. By comparison, Unit 3 is a 65 MWe BWR that operated for only 13 years, and accumulated only 7.85 effective full power years of reactor operation. Therefore, the environmental impacts of decommissioning Unit 3 are expected to be much smaller in comparison to the referenced plant analyzed in the FGEIS.

The total occupational dose for complete decommissioning of Unit 3, following 25 years of SAFSTOR, is expected to be approximately 360 person-rem. This total occupational dose estimate was obtained by adding the following 3 doses: (1) occupational doses received from placing Unit 3 in SAFSTOR, and maintaining Unit 3 in SAFSTOR through 2006 total 167 person-rem, (2) all occupational activities required for the actual decommissioning of Unit 3 are expected to result in an occupational dose of approximately 180 person-rem, and (3) occupational dose due to truck shipments are expected to be 13 person-rem. The total occupational dose estimate of 360 person-rem is bounded by the appropriate FGEIS exposure estimates for the referenced BWR.

Total public dose from decommissioning Unit 3, following 25 years of SAFSTOR, is estimated to be approximately 2 person-rem. This estimate is bounded by the appropriate FGEIS exposure estimates for the referenced BWR.

PG&E concludes that Unit 3 decommissioning will be accomplished with no significant adverse environmental impacts, because:

- No Unit 3 site-specific factors would alter the conclusions of the FGEIS.
- There are no unique aspects of the plant or decommissioning techniques to be used that would invalidate the conclusions reached in the FGEIS.
- Delaying the dismantlement of Unit 3 following 25 years of SAFSTOR has resulted in considerable radioactivity decay with resultant reduced dose rates and lower occupational radiation exposure.
- Public and occupational doses are bounded by FGEIS levels.

6.0 REFERENCES

1. NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," dated August 1988.

2. NUREG-1166, "Final Environmental Statement for Decommissioning Humboldt Bay Power Plant, Unit No. 3," dated April 1987.

3. NRC Safety Evaluation Report, Humboldt Bay Power Plant, Unit No. 3 Decommissioning, dated April 29, 1987.

4. TLG Services, Inc. Letter P01-1513-002, regarding Decommissioning Cost Study for Humboldt Bay Power Plant Unit 3, dated October 2005.

5. PG&E Letter HBL-07-002, submitted to the NRC regarding Decommissioning Funding Assurance, dated March 30, 2007.

6. Environmental Report, Attachment 6 to PG&E's application to decommission HBPP, dated July 30, 1984.

7. Letter from the NRC (Scott C. Flanders) dated September 29, 2005, to the California State Historic Preservation Officer (Milford "Wayne" Donaldson), Re: Response to Request for Additional Information and Request for Concurrence on Determination of Effects on Historic Properties for the Proposed Humboldt Bay Independent Spent Fuel Storage Installation.

8. Letter from the California State Historic Preservation Officer (Milford "Wayne" Donaldson) dated October 25, 2005, to the NRC (Scott C. Flanders), Re: Proposed Independent Spent Fuel Storage Installation (ISFSI), Humboldt Bay Power Plant, Humboldt County.