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May 8, 2013

TO: Coastal Commissioners and Interested Parties

FROM: Alison J. Dettmer, Deputy Director / Tom Luster, Staff Environmental Scientist – Energy, Ocean Resources, and Federal Consistency Division

SUBJECT: **ADDENDUM** to Staff Report for Coastal Development Permit Amendment Application E-09-010-A3: Pacific Gas & Electric Company – Humboldt Bay Power Plant Demolition and Decommissioning, Humboldt County

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This addendum provides staff's recommended revisions to the above-referenced staff report. The proposed revisions do not change staff's recommendation that the Commission **conditionally approve** the coastal development permit application.

REVISIONS TO STAFF REPORT

Staff's recommended revisions are shown below in ~~strikethrough~~ and **bold underline** text.

Summary of Staff Recommendation – page 3, first full paragraph:

> "For this CDP amendment, staff is recommending an additional **Special Condition 6**, which would require PG&E to prepare, for Executive Director review and approval, a Slurry Wall ~~Breaching~~ **Work** Plan to ensure that existing groundwater flows to nearby coastal waters and wetlands are maintained at the completion of the proposed project."

Section III.A, Background and Project Description – page 8, following the list of staging and equipment laydown areas:

> "**If PG&E determines that additional off-site stockpile areas within the coastal zone may be needed, it will submit the necessary permit application information for County or Coastal Commission consideration.**"

Section III.A, Background and Project Description – page 10, end of first paragraph:

> "All groundwater pumped from within the slurry wall would be routed to an onsite Groundwater Treatment System (GWTS), which the Commission approved as part of CDP E-09-010. This system is designed to treat up to 300 gpm of groundwater and stormwater ~~that may contain contaminants from other components of PG&E's cleanup and remediation process~~. The GWTS design and treatment capacity are based on ~~cleanup and~~ discharge requirements established by ~~DTSC and~~ the Regional Water Quality Control Board **and provides a level of water quality treatment consistent with the ongoing DTSC-directed Voluntary Cleanup Program at the site**.

Section III.D, Environmentally Sensitive Habitat Areas – page 19, end of first partial paragraph:

> "Noise effects from the equipment used for the proposed activities, both individually and cumulatively, are therefore expected to be within the levels previously authorized by the Commission. **Additionally, by evaluating ambient noise monitoring data and implementing any necessary noise mitigation measures (e.g., sound baffles, operational limits, etc.), PG&E will ensure that any nighttime construction activities meet applicable County standards for nighttime noise limits.**"

Section III.F, Archaeological and Paleontological Resources – page 21, first paragraph:

> "Coastal Act Section 30244 states:
>
> > *Where development would adversely impact archaeological or paleontological resources* ***identified*** *by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*"

Section III.G, Visual Resources – page 22, last sentence of ***Background and Analysis*** second paragraph:

> "Additionally, these activities would be subject to previously-approved conditions, including **Special Condition 5**, which requires PG&E to use neutral tones on all visible structures erected as part of this project and requires that all necessary lighting be directed downward and inward to the extent allowed by NRC security requirements **and construction safety**."

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STAFF REPORT: PERMIT AMENDMENT

Application File No.:	**E-09-010-A3**
Applicant:	**Pacific Gas & Electric Company**
Project Location:	Humboldt Bay Power Plant, adjacent to Humboldt Bay near King Salmon, Humboldt County.
Project Description:	Excavate and remove below-grade structures associated with the Humboldt Bay Power Plant's Unit 3 nuclear generating unit and backfill with clean soil.
Staff Recommendation:	Approval with conditions.

SUMMARY OF STAFF RECOMMENDATION

Pacific Gas & Electric Company (PG&E) proposes to amend its Coastal Development Permit E-09-010 to fully remove retired power plant structures at the Humboldt Bay Power Plant (HBPP). The originally approved CDP allowed PG&E to conduct demolition and decommissioning activities needed to remove most of the HBPP power plant, which includes two gas-fired generating units (Units 1 & 2) and a nuclear generating unit (Unit 3). The approved activities included constructing access roads, equipment laydown areas and staging areas, and demolishing and removing above-grade power plant structures along with below-grade components of Unit 3 to a depth of about 42 feet below the ground surface (bgs). The approval also included a number of site cleanup and remediation activities. The Commission has also granted two immaterial amendments to the original permit to allow conversion of a parking area to covered storage and to allow installation and operation of a Groundwater Treatment System to treat contaminated groundwater and stormwater on the site.

At the time the Commission approved the initial CDP, PG&E had not yet assessed the feasibility of entirely removing Unit 3 structures that extend deeper than 42 feet bgs, which consist of the spent fuel pool and the reactor caisson extending to about 92 feet bgs. This amendment would permit PG&E to conduct activities necessary to fully remove these structures. Proposed activities include site preparation, installing a subsurface slurry wall around the below grade structures to allow excavation and removal, excavating approximately 75,000 cubic yards of soil and structural materials, and backfilling the site with a like amount of clean material. The proposal also includes activities being conducted pursuant to a Voluntary Cleanup Program through California's Department of Toxic Substances Control (DTSC) and the federal Nuclear Regulatory Commission's (NRC's) decommissioning and license termination processes. PG&E is also preparing a site restoration plan with proposed industrial reuse and ecological restoration of various parts of the project site, which will be the subject of future Commission review and approval.

Key Issues: Significant issues associated with the proposed project's conformity to Coastal Act policies include:

- **Geologic Hazards:** The project site is subject to several extreme geologic hazards, including the potential for very high levels of ground shaking during seismic events, fault rupture in several areas of the site, and tsunami runup that could inundate the entire site. Development expected to occur as part of the proposed project is not designed to withstand the full range of potential hazards. As a result, the proposed development does not conform to Coastal Act provisions related to geologic hazards. However, not approving the proposed activities would result in continued risk to coastal waters and biological resources, thereby resulting in a conflict with other Coastal Act policies that must be resolved through application of Coastal Act Section 30007.5, as described below. This conflict and its recommended resolution are similar to the Commission's Final Adopted Findings for the original CDP E-09-010, which is provided as Exhibit 3 of this Staff Report.

- **Conflict Resolution:** The project as proposed is inconsistent with Coastal Act Sections 30253(1)-(2). However, denying the project to resolve these inconsistencies would result in nonconformity to other Coastal Act policies, specifically Sections 30230, 30231, and 30240 related to marine resources, water quality, and environmentally sensitive habitat areas.

  The Commission must therefore apply Sections 30007.5 and 30200(b), which allow the Commission to approve projects involving these conflicts in a manner that, on balance, is most protective of significant coastal resources. Staff recommends the Commission determine the benefits to marine resources, water quality, and environmentally sensitive habitat areas outweigh the project's nonconformity to Coastal Act policies regarding hazards and shoreline protective devices.

- **Marine Resources and Water Quality:** Special Conditions of the original CDP meant to protect coastal waters and wetlands would apply to the proposed amended project. These include **Special Condition 1**, which requires PG&E to provide for Executive Director review and approval a Stormwater Management Plan describing measures that will be implemented to protect coastal waters, wetlands, and their associated biological resources, and requires

PG&E to modify that Plan to address proposed changes to the project. **Special Condition 2** requires that qualified biologists implement key elements of the approved Stormwater Management Plan. **Special Condition 3** requires PG&E to submit a site restoration plan, as noted above, for further Commission review and approval.

For this CDP amendment, staff is recommending an additional **Special Condition 6**, which would require PG&E to prepare, for Executive Director review and approval, a Slurry Wall Breaching Plan to ensure that existing groundwater flows to nearby coastal waters and wetlands are maintained at the completion of the proposed project.

The activities proposed under this amendment would also be subject to other Special Conditions of the original CDP. These include **Special Condition 4**, which specifies how PG&E will address potential archaeological finds during the project, and **Special Condition 5**, which requires PG&E to minimize potential visual impacts by using neutral tones in project-related developments and directing project-related lighting downward and inward to the extent allowed by safety requirements.

Note: Because federal law pre-empts the state from imposing requirements related to nuclear safety or radiation hazards, this report evaluates only those issues necessary to determine conformity to the policies of the Coastal Act and does not impose requirements on aspects of the proposed project pre-empted by federal law.

Staff recommends that the Commission **approve** the proposed project, as conditioned.

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I. MOTION AND RESOLUTION

Motion:

*I move that the Commission **approve** Coastal Development Permit Amendment E-09-010-A3 subject to conditions set forth in the staff recommendation specified below.*

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in approval of the permit amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of Commissioners present.

Resolution:

*The Commission hereby **approves** the Coastal Development Permit Amendment for the proposed project and adopts the findings set forth below on grounds that the development as amended and conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the amended development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the amended development on the environment.*

II. SPECIAL CONDITIONS

In addition to **Special Conditions 1** through **5** of CDP E-09-010 (provided in Exhibit 4), the following condition shall apply to development and activities described in this Amendment:

6) ***Prior to backfilling the caisson excavation site***, the permittee shall provide for Executive Director review and approval a Slurry Wall Work Plan describing the proposed "as left" condition of the slurry wall, including any planned modifications to the wall that are meant to minimize disruption of the existing pre-project groundwater flows and velocities. The Plan shall describe locations and dimensions of those portions of the slurry wall that are proposed to remain after completion of the project backfill and any proposed modifications to the as-installed wall. Proposed modifications shall be selected and designed to provide flows and velocities similar to those identified through PG&E's groundwater monitoring well program described in its August 15, 2012 *Assessment of Hydrologic Impacts Associated With Slurry Wall Installation, Humboldt Bay Power Plant, Eureka, California*. The Plan shall also incorporate results of pre-project monitoring from the permittee's onsite system of groundwater monitoring wells along with results of ongoing well monitoring conducted during project activities to assist in identifying needed modifications. The Plan shall also include proposed post-project monitoring to ensure that the modified wall results in no changes from pre-project groundwater flow, directions, and velocities to nearby coastal waters and wetlands.

III. FINDINGS AND DECLARATIONS

The Commission finds and declares as follows:

A. BACKGROUND AND PROJECT DESCRIPTION

BACKGROUND

Until recently, Pacific Gas & Electric Company (PG&E) operated the Humboldt Bay Power Plant (HBPP), located just south of Eureka along the shoreline of Humboldt Bay (see Exhibit 1 – Location Map, and Exhibit 2 – Site Plan). The HBPP included two gas-fired generating units (Units 1 & 2) and one nuclear unit (Unit 3). The nuclear unit operated from 1963 until 1976 when PG&E shut it down due to seismic concerns, and the two gas-fired units operated from the mid-1950s until 2010, when PG&E completed construction of the new Humboldt Bay Generating Station (HBGS) on an adjacent site.

Since the shutdown of the generating units, PG&E has been conducting activities needed to demolish the HBPP structures and decommission the nuclear unit pursuant to license termination requirements of the federal Nuclear Regulatory Commission (NRC). PG&E has also been conducting cleanup and remediation activities at the site subject to oversight by the California Department of Toxic Substances Control (DTSC). As part of those activities, the site includes a number of laydown and staging areas that have been approved or are being proposed as part of this amendment (see Exhibit 3 – Decommissioning Laydown and Staging Areas). PG&E is planning to use part of the site for continued industrial activities and to conduct habitat restoration on other parts of the site. These plans will be subject to future Commission review and approval.

Relevant Site Characteristics: The HBPP site is an approximately 143-acre parcel entirely within the coastal zone and within the Commission's retained jurisdiction. PG&E's power plant and associated development covers the central portion of the site, with much of the rest consisting of coastal wetlands or the Humboldt Bay shoreline.

The site is subject to relatively extreme geologic hazards, due largely to its location near the "Triple Junction", an area offshore of the Humboldt/Mendocino coastline where three crustal plates converge. Seismic and geologic hazards include strong ground shaking, liquefaction, tsunami runup, and coastal erosion.

The site is underlain by the Hookton Formation, which is comprised of a layered series of alluvial deposits of clays, sands, and gravels to a depth of about 170 feet below the ground surface (bgs), and extends for several miles around the plant site. The Formation contains three distinct water bearing zones, including some areas where groundwater flows and velocities fluctuate based on tidal influence from nearby Humboldt Bay.

Previous Commission Action: The Commission has approved many of the above-referenced demolition and cleanup activities through issuance of various CDPs.[1] Most recently, CDP E-09-010 authorized removal of the above-grade power plant structures, partial removal of the Unit 3 structures to a depth of about 42 feet bgs, and several aspects of site cleanup, much of which PG&E has completed.

The Commission's previous approvals, including its findings for CDP E-09-010, have had to address the site's geologic hazards, some of which represent levels of risk that have prevented project conformity with the Coastal Act's Sections 30253(a)-(b) related to geologic hazards. The Commission's approvals have addressed these risks through conflict resolution – that is, the Commission has recognized that approving the removal of these structures from a hazardous area and conducting cleanup and remediation are on balance more protective of coastal resources than denying these activities based on non-conformity with the Act's geologic hazard provisions.

DEVELOPMENT PROPOSED PURSUANT TO THIS CDP AMENDMENT

At the time the Commission approved CDP E-09-010, PG&E had not yet determined whether it was feasible to remove the entire Unit 3 reactor caisson and spent fuel pool, which extend to about 92 feet bgs, so PG&E proposed removing only those structures extending to about 42 feet bgs. PG&E has now completed its feasibility analysis and is proposing to completely remove the caisson and to remediate nearby soil in support of terminating its NRC license and restoring the project site.

Main Project Activities

The primary activities proposed under this amendment are to construct a slurry wall surrounding the remaining below-grade structures associated with Unit 3, remove those structures, and backfill the site with clean soil. The slurry wall would extend to a naturally-occurring clay layer beneath the site at the base of the Hookton Formation, about 170 bgs. Overall, these activities are expected to involve excavation of about 75,000 cubic yards of soil and structural materials and backfill with a like amount of clean soils. The proposed work is expected to take up to about five years. The main activities are described in more detail below.

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[1] Other CDPs related to HBPP decommissioning include:

- CDP E-05-001: In September 2005, the Commission approved PG&E's Independent Spent Fuel Storage Installation (ISFSI) at the project site. The ISFSI is a high-security, robust storage facility for the spent fuel generated at Unit 3, and the Commission's approval allowed PG&E to move spent fuel from wet storage within the Unit 3 complex to the ISFSI, which was necessary to allow Unit 3 decommissioning. PG&E completed this fuel transfer in December 2008.
- E-07-005: In October 2007, the Commission approved demolition of effluent ponds and placement of office buildings to be used during the decommissioning project.
- E-07-013: In October 2008, the Commission approved removal of a fuel oil pipeline as part of the retirement of Units 1 and 2.
- E-08-003: In May 2008, the Commission approved removal of a large fuel storage tank as part of project decommissioning.
- E-09-005: In June 2009, the Commission approved site modifications, such as expanding and constructing access roads, grading areas for laydown and storage, etc., to allow PG&E to prepare for decommissioning activities.

Site preparation and support activities: PG&E will use existing access routes on and near the site for this proposed work. It will use several previously-approved equipment laydown areas and is additionally proposing through this amendment to use several other areas for staging and laydown (as shown in Exhibit 3). These areas are summarized below:

- LA-1 through LA-11: approved through CDP E-09-010.
- LA-12: located adjacent to King Salmon Road and a portion of Fisherman's Channel and PG&E's intake canal. The California Energy Commission (CEC) approved PG&E's use of this area as part of constructing PG&E's HBGS (06-AFC-07); however, use of the area for the HBPP project requires Commission approval as part of this amendment. This site is adjacent to the Fisherman's Channel/HBPP Intake Canal PG&E formerly used to convey cooling water from Humboldt Bay to the power plant.
- LA-13: a developed area adjacent to previously-approved LA-6; requires Commission approval as part of this amendment. This area is near the Humboldt Bay shoreline and wetlands on the north side of PG&E's site.
- LA-14: an area within the PG&E site formerly occupied by fuel storage tanks; requires Commission approval as part of this amendment.
- Offsite Fields Landing laydown areas: The Commission's approval of CDP E-09-010 included use of two areas in Fields Landing to the south of the HBPP site, though PG&E has not yet used them. The two sites – one of about 28.3 acres located about one-half mile south of the plant and one of about 1.6 acres located just over a mile south of the plant – consist of vacant land formerly used for forest products storage and equipment/laydown areas for other construction projects. Although largely disturbed, they are adjacent to Humboldt Bay and include some areas of remnant native vegetation and habitat.

As part of the site preparation and support activities, PG&E will also remove several construction trailers within the power plant site, temporarily relocate a power supply system, install temporary contractor facilities, and conduct other similar development. These activities were previously approved as part of E-09-010.

Groundwater Control – Slurry Wall: As noted above, the project site is underlain by an extensive water-bearing zone known as the Hookton Formation that extends to about 170 bgs. The Formation is contained at that depth by a naturally-occurring clay layer about 15 feet thick known as the "Unit F Clay." The Hookton Formation includes three somewhat distinct water-bearing zones, with the groundwater in two of those zones influenced by the tidal movement in nearby Humboldt Bay.

To remove the below-grade structures, PG&E must first isolate them from the groundwater flowing beneath the site. To do so, PG&E proposes to construct a slurry wall consisting of a cement/bentonite mix that would extend around the structures and downward to intersect the Unit F Clay layer. Once hardened (about a day after placement), this type of slurry is relatively inert and provides very low permeability. It has been used elsewhere for a number of decades as a containment barrier for areas with contaminated soils or groundwater. The particular mix of materials in the slurry is selected based on site conditions (e.g., groundwater pH and chemistry) and the degree of stability required.

The wall (location shown in Exhibit 2) would have a circumference of about 680 feet within an area about 175 by 230 feet around the former power plant, and would be about 2.5 feet thick. The wall would essentially create a "bucket" from within which PG&E would pump out groundwater to allow excavation and removal of the structures and remediation of soils, as necessary.

To construct the wall, PG&E would first prepare the site by leveling and grading an existing developed area about 100 feet wide around the surface perimeter of the reactor caisson. This would include removing about 800 cubic yards of soil from a nearby slope and erecting a sheetpile wall to support the excavated slope area. PG&E would then excavate within this cleared area a trench about 10 feet wide and fifteen feet deep and remove any subsurface obstructions (e.g., pipes, footings, etc.) to provide the initial path for constructing the slurry wall.

PG&E would then construct an onsite slurry production plant that includes storage silos, mixing vessels, pumps, and conveyance systems to provide slurry for the excavation, and then assemble the selected excavation machinery – either a hydromill or clamshell dredge. Exhibit 4 illustrates examples of these machines, and they are briefly described below:

- Hydromill: a hydromill uses one or more rotating cutting heads attached to a support structure to cut a slurry wall trench. It includes a slurry conveyance system that allows slurry to be injected into a trench as the cutting heads are withdrawn. The hydromill generally operates continuously to create a seamless slurry wall. The support structure is similar to a crane and can extend up to a couple hundred feet above the ground.
- Clamshell dredge: this would create the trench using conventional excavation methods and slurry would be injected into the trench at necessary intervals.

Depending on the contractor and method selected, site preparation and slurry wall construction could occur up to 24 hours per day over an approximately 10-12 month period.

Excavation and removal of reactor caisson: Once the slurry wall is complete, PG&E would begin excavating, pumping groundwater, removing structures, and reinforcing the slurry wall and excavated area as necessary. For excavation down to about 42 feet bgs, PG&E would pump out groundwater, remove soil in approximately 4-foot lifts, and install shoring or reinforcement. For excavation below 42 feet bgs, PG&E would remove soil using slightly larger lifts and would install sheet piles or ring beam shoring systems to support the wall and excavated area.

The proposed activities include stockpiling soil and structural components to allow testing, preparing materials for transport, or storing for re-use. During the excavation and removal process, PG&E would conduct soil sampling and testing pursuant to requirements of the Interim Measures Removal Action Work Plan (IMRAW) approved by DTSC in 2009 (see description below under **Site Cleanup**). PG&E will also test structural components that will be removed from the excavated area, such as concrete, rebar, timber piles and other materials, and will recycle those materials when suitable or transport them for offsite disposal. To remove the below-grade structures, PG&E would use any of several conventional demolition techniques, such as excavators, hydraulic rams, vibratory hammers, etc.

To handle groundwater from within the slurry wall, PG&E would install four dewatering wells and pumps capable of removing up to about 100 gallons per minute (gpm) of groundwater, although PG&E estimates that groundwater produced from within the slurry wall would be generated at no more than about 60 gpm. All groundwater pumped from within the slurry wall would be routed to an onsite Groundwater Treatment System (GWTS), which the Commission approved as part of CDP E-09-010. This system is designed to treat up to 300 gpm of groundwater and stormwater that may contain contaminants from other components of PG&E's cleanup and remediation process. The GWTS design and treatment capacity are based on cleanup and discharge requirements established by DTSC and the Regional Water Quality Control Board.

PG&E anticipates excavation and removal activities to take about 30 months and require a workforce of from about 20 to 60 people. This is within the overall peak staffing level of several hundred personnel the Commission has previously evaluated in previous CDPs for the site cleanup activities with regards to concerns about traffic, parking, and access, and found to be consistent with Coastal Act requirements.

Backfilling and slurry wall modification: Once excavation and removal is completed, PG&E will backfill the area by placing and compacting a combination of imported clean fill and onsite material that meets the DTSC re-use requirements. PG&E will remove some of the pilings and supports placed during excavation, although many will need to remain within the excavated area to provide support during backfilling.

The nature of the slurry wall prevents it from being completely removed during excavation, so most of the wall will remain in place at the completion of the project. However, to allow the return of groundwater flow beneath the site, PG&E may modify the wall at a number of locations. PG&E will determine the size and location of these breached areas during the project.

Ongoing site cleanup and remediation: This proposed project is part of a significant effort to remediate contaminants related to the site's history of power plant operations (see Appendix A – Substantive File Documents for a partial list of cleanup-related reports). Most of the site's cleanup and remediation is occurring through two main processes – a Voluntary Cleanup Program in conjunction with DTSC and the NRC's decommissioning and license termination process:

- **DTSC Voluntary Cleanup Program:** Much of the proposed work is subject to the PG&E's Interim Measures Removal Action Work Plan (IM/RAW) that DTSC approved in 2009. The IM/RAW identifies site-specific measures needed to meet cleanup objectives, and describes how PG&E will manage soils containing "constituents of potential concern" (COPCs), which include contaminants such as asbestos, metals, and petroleum-related hydrocarbons, and may include radiological constituents. PG&E is managing, treating, and transporting soils for disposal based on several hazardous waste and regulatory thresholds, including the California Human Health Screening Levels (CHHSLs), the Regional Water Quality Control Board's Environmental Screening Levels (ESLs) and the U.S. EPA Regional Screening Levels (RSLs). These levels determine whether soils will require special handling and transport to approved disposal facilities or may remain onsite for use in fill or grading.

PG&E will sample soils based on the total volumes within each work area and based on proximity to contaminant sources.[2] For soils needing offsite disposal, PG&E has identified several facilities as possible disposal sites.[3] All materials transported offsite will be in covered trucks and subject to applicable requirements of the California Health and Safety Code and Department of Transportation and California Highway Patrol regulations regarding emergency response procedures. Trucks will use an entrance and exit along King Salmon Avenue and may require short-term traffic controls – e.g., flaggers, warning cones, etc. Soils remaining onsite will be temporarily stockpiled in any of the several laydown areas described above and will be used for backfilling or grading as part of PG&E's ongoing site remediation and restoration.

Because PG&E has not yet completed the full site characterization, it has not yet proposed final remediation plans, including those that may be necessary within onsite areas containing wetlands, sensitive habitat, or native vegetation. That plan will be based in part on additional characterization results and DTSC- and NRC-required cleanup levels and will be subject to additional Commission review and approval.

- **Cleanup associated with NRC License Termination:** Elements of the Unit 3 decommissioning and site cleanup are subject to federal NRC requirements. As noted above, one of PG&E's objectives is to terminate its NRC licenses for operating the facility and possessing nuclear materials (other than those stored within PG&E's on-site Independent Spent Fuel Storage Installation (ISFSI) that the Commission approved in 2005 pursuant to CDP #E-05-001).

  The NRC's decommissioning process includes three main phases – initial activities, major decommissioning and storage activities, and license termination activities. As noted previously, PG&E has already conducted the required initial activities and is now in the major decommissioning phase, which involves permanent removal of facility components, such as the reactor vessel, steam generators, large piping systems, and pumps. PG&E described these planned decommissioning activities in its May 2009 *Revision* of the facility's *Post-Shutdown Decommissioning Activities Report*.

[2] For soil volumes up to 1000 cubic yards, PG&E would take a sample for each 250 cubic yards; for soil volumes from 1000 to 5000 cubic yards, 4 samples would be taken from the first 1000 cubic yards, plus one sample for each additional 500 cubic yards; and for volumes greater than 5000 cubic yards, 12 samples would be taken for the first 5000 cubic yards with one sample for each additional 1000 cubic yards. Soil would be analyzed for metals, Total Petroleum Hydrocarbons (TPHs), Polycyclic Aromatic Hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), asbestos, Cesium-137, and other materials based in part on their location and potential contaminant pathways.

[3] The IM/RAW identifies the following landfills (and types of wastes accepted) as possible disposal sites:

- Kettleman City, CA – Class I (RCRA Hazardous and Non-RCRA Hazardous), Class II, and Class III Nonhazardous.
- Clive, UT – Class A Low-level radioactive waste.
- Livermore, CA – Class II and Class III Nonhazardous.
- Anderson, CA – Class III Nonhazardous.

During this phase, PG&E must file its License Termination Plan at least two years before expected termination of the license, which PG&E expects to occur in 2018. That Plan is to provide updated environmental information, describe site characterization, identify activities needed to dismantle remaining structures and remediate the site, and describe proposed final radiological surveys that will be conducted to determine whether the site can be released for other uses. Activities PG&E proposes to conduct pursuant to this Plan will be subject to additional Commission review and approval.

Note: The NRC generally has exclusive jurisdiction over radiological aspects of projects associated with licensed nuclear power plants, and the Commission is usually prohibited from imposing conditions related to radiological concerns. However, because this project is meant to terminate NRC involvement with the facility and establish post-license site conditions, PG&E will be subject to state cleanup and remediation standards through the DTSC. While the NRC has primary jurisdiction for the handling and disposition of radiological materials associated with Unit 3, DTSC may establish the post-license standards for the remaining onsite contaminants.

In addition to the two regulatory programs above, some of PG&E's cleanup activities are subject to approvals by the Regional Water Quality Control Board (RWQCB) for proposed changes to discharges from the site. These include a construction stormwater permit and modified National Pollutant Discharge Elimination System (NPDES) permit to address discharges during demolition and decommissioning.

B. GEOLOGIC HAZARDS

Coastal Act Section 30253 states, in relevant part:

New development shall:
(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.
(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs…

The HBPP site is subject to several relatively severe geologic hazards, including seismic activity, coastal erosion, tsunamis, and tsunami runup, each of which is briefly summarized below. The proposed project is temporary in nature, as it is meant to support PG&E's demolition and decommissioning activities during the next few years. However, although temporary, project activities would be subject to potential risk from several of the site's hazards.

As noted above, the Commission previously determined in its findings for CDP E-09-010 that several of these hazards create a level of risk at the site that prevents conformity to the above Coastal Act policy. However, the Commission also found, by using the Act's conflict resolution policies, that on balance, approving PG&E's proposed demolition and decommissioning activities is more protective of coastal resources than denying the proposed activities due to their

nonconformity with Section 30253. The Final Adopted Findings for CDP E-09-010 are provided in Exhibit 5. Activities proposed pursuant to this amendment are subject to the same findings, which are incorporated by reference and as summarized and augmented below.

RISK OF GEOLOGIC HAZARDS TO THE PROPOSED PROJECT

The project site is near the southern end of the Cascadia Subduction Zone and near a location known as the "Mendocino Triple Junction" where three crustal plates converge – the Pacific Plate to the south; the Gorda Plate and its extension, the Juan de Fuca Plate to the north; and, the North American Plate to the east. There are also several active faults directly beneath or near the HBPP site. Due to its location and the nearby faults, the site is subject to substantial levels of geologic hazards. The Humboldt Bay area has been subject to very large earthquakes of about magnitude 9.0 that occur roughly every 300 to 400 years, with the last such earthquake occurring in 1700. The area has also experienced more than 120 earthquakes greater than magnitude 5 recorded within 100 miles of the site and 10 over magnitude 7.

Ground shaking and surface fault rupture: Due to these seismic events and the proximity of several faults, the site is subject to ground shaking, with previously measured events resulting in ground motions of up to about 0.55g.[4] Additionally, and based on the Commission geologist's review of previous PG&E geotechnical investigations, the Commission found it likely that surface fault rupture could occur at any of several potential "fault zones" within the site. Similar to the Commission's Findings for the original CDP E-09-010, the temporary structures and development proposed in this amendment would be able to withstand only relatively low levels of ground motion and are not be expected to withstand potential levels of surface fault rupture at the site. The proposed project is therefore not consistent with the requirement of Coastal Act Section 30253(a) to minimize risk with respect to ground motion or surface fault rupture.

Liquefaction: Liquefaction can occur during ground shaking when loosely consolidated soils are saturated with water. Most of the lower elevation areas of the HBPP site, including locations of the proposed development, are subject to liquefaction, as they are underlain with relatively loose and poorly consolidated sands, silts, and organic materials, and a groundwater table that extends to within about three feet of the surface.

Liquefaction potential is lower within those parts of the project site where soils have been compacted over the past several decades beneath paved surfaces. Most of the proposed activities will occur within these already developed areas. Additionally, as the project progresses, the liquefaction risk will diminish within the immediate excavation area, as backfilling the site will include replacing and compacting the soil which will reduce liquefaction potential. Nonetheless, some level of liquefaction is likely in the remaining areas where proposed activities would occur.

[4] Ground shaking is a measure of the movement caused by the earthquake compared to the rate of acceleration caused by gravity. "Peak ground acceleration" (PGA) can be measured as a vertical or horizontal movement. For example, a PGA of 0.1 g means that the ground accelerated at one-tenth the rate of acceleration resulting from gravity (9.81 meters per second squared). PGA depends not only on the intensity or magnitude of an earthquake, but on the distance from the quake and on characteristics of the site – for example, ground acceleration will vary based on the depth and firmness of soil or bedrock at the site.

Tsunami: The project site is subject to tsunami hazards. It is on the shoreline of Humboldt Bay and directly opposite the mouth of the Bay, so it could readily be subject to direct or indirect tsunami wave energy. As noted previously, the site has experienced a series of very large earthquakes, many of which resulted in tsunamis.

The Commission previously found that the site's expected maximum tsunami runup would exceed the site's maximum elevation (approximately 45 feet). Most of the activities proposed pursuant to this amendment would occur well below that elevation and could be subject to inundation from tsunamis that produce far less than the maximum expected runup. Additionally, because most of the site is underlain with poorly consolidated soils, during a tsunami it would be subject to wave energy from both incoming and retreating waves, which could result in substantial erosion and damage. Because the entire site is subject to tsunami runup levels that could result from reasonably expected seismic activity at or near the site, and based on the analyses provided as part of CDP E-09-010, the Commission finds that this project is not consistent with the requirement of Section 30253(a) to minimize risks associated with tsunamis and tsunami runup.

Coastal Erosion: Section 30253(b) of the Coastal Act requires, in part, that new development not require construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. The HBPP site is in an area where past coastal erosion rates have been among the highest in the state, due in part to the site's location across from jetties built over a century ago to maintain the mouth of Humboldt Bay that direct wave energy towards the site. However, a riprap revetment built in 1952 to protect the power plant has essentially halted retreat of the shoreline, and there is no expected need for additional shoreline protection during the approximately five years of expected project activities. Nevertheless, the proposed project would likely need shoreline protection during its anticipated operating life if the existing revetment were damaged or destroyed due to seismic or other events. The proposed activities are therefore inconsistent with this provision of Coastal Act Section 30253(b).

CONCLUSION

Due to the location of most project activities on developed areas within the site, the risk due to liquefaction is somewhat lower than on other areas of the site. However, the site overall and the specifically proposed activities are subject to severe ground shaking, surface fault rupture, and tsunamis, even during the relatively short-term duration of the demolition and decommissioning project. The project components are not designed to withstand the range of these potential geologic hazards at the site, and the Commission therefore finds that the project does not fully conform to the Section 30253(a) requirement that new development minimize risks to life and property, and that it not require shoreline protective devices during its anticipated operating life, pursuant to Section 30253(b).

Nonetheless, although conducting the project in the proposed manner at this location results in inconsistencies with Sections 30253(a) and (b), to deny the proposed project or to modify it to remove these inconsistencies would result in effects on coastal resources that conflict with other Chapter 3 policies. The Commission must resolve these inconsistencies by applying Coastal Act Section 30007.5, as is described below in Section III.H of this report.

C. MARINE RESOURCES AND WATER QUALITY

Coastal Act Section 30230 states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act Section 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

BACKGROUND AND ANALYSIS

The Coastal Act generally requires that coastal waters and wetlands and their associated biological productivity be maintained and protected. Without necessary mitigation measures, many of the proposed project activities could adversely affect these coastal resources.

Project activities could affect water quality and biological productivity in and near Humboldt Bay and in nearby wetlands. Habitat at or near HBPP is considered suitable for several special-status fish species, including Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss*), coastal cutthroat trout (*Oncorhynchus clarki clarki*), and tidewater goby (*Eucyclogobius newberryi*). Project activities include grading and excavation, soil removal and stockpiling, handling and treatment of contaminated soils, placement of new structures, and various construction-related measures associated with each of these, all of which could alter runoff and sedimentation characteristics at the site. The project will include treating groundwater known to be contaminated. PG&E also proposes to use for equipment laydown and storage several sites that are adjacent to the Bay or near wetlands. The permanent installation of the slurry wall could disrupt subsurface water flows that support nearby coastal waters and wetlands. These effects, and the mitigation measures necessary to avoid and minimize them, are discussed below.

Protecting water quality: The project involves excavating, testing, storing, and transporting several thousand cubic yards of both clean and contaminated soil, generating significant amounts of construction waste, and using numerous motor vehicles and various types of heavy equipment, all of which could cause contaminated runoff and sedimentation into coastal waters or nearby

wetlands. It also includes construction and operation of a slurry plant and continued operation of an existing groundwater treatment system to handle known or potentially contaminated groundwater.

To minimize potential adverse effects, PG&E will be required to control and treat some of the project-related runoff and sedimentation pursuant to conditions of its existing NPDES permit issued by the North Coast Regional Water Quality Control Board, which limits the allowable volumes and types of discharges from several facilities at the site. Many of the project activities will take place within areas already covered by the NPDES permit and where PG&E has already installed water quality control measures as part of its ongoing operations. PG&E will also be subject to a general construction stormwater permit from the Regional Board meant to avoid and minimize adverse effects to nearby waterbodies.

As part of its ongoing demolition and decommissioning activities, PG&E has included a number of stormwater Best Management Practices (BMPs) to minimize the potential effects of construction-related runoff into nearby wetlands or other coastal waters. These BMPs include measures such as installing and maintaining temporary fencing to prevent vehicles and equipment from entering biologically sensitive areas, installing and maintaining barriers and filters to prevent untreated runoff from entering wetlands or coastal waters, seeding and revegetating disturbed areas, and other similar measures. The Commission's approval of CDP E-09-010 included **Special Condition 1**, which required that PG&E submit for Executive Director review and approval a Stormwater Management Plan describing the full set of BMPs it will implement to ensure conformity to Coastal Act provisions. **Special Condition 1** also includes provisions to ensure PG&E minimizes runoff and sedimentation from excavated soils, identifies the BMPs incorporated into each new facility used during the project, and other similar requirements. It also requires that PG&E submit proposed modifications to the Plan for Executive Director review and approval to address new or modified project components, including those proposed in this amendment.

The initial CDP also included **Special Condition 2**, which requires PG&E to hire a designated project biologist to implement many of the protective measures needed to ensure project activities do not cause adverse effects in the nearby wetlands or coastal waters. These measures include conducting biological monitoring during project-related activities that have the potential to affect wetlands or water quality, and providing worker awareness training on how to avoid wetland and water quality impacts. Those requirements will also apply to the activities proposed in this amendment.

Indirect wetland impacts: As noted above, the HBPP site includes extensive areas of wetlands and Bay shoreline. PG&E has sited activities to avoid direct wetland impacts, though some of those activities could cause indirect adverse effects on wetlands and water quality through runoff, sedimentation, or inadvertent use of equipment in or near those areas. For example, some of the proposed project laydown areas are adjacent to the coastal waters of Humboldt Bay or wetlands on the HBPP site. Parts of the laydown areas in nearby Fields Landing are adjacent to Humboldt Bay and support wetland species such alder (*Alnus rubra*), brass buttons (*Cotula coronopifolia*) pennyroyal (*Mentha pulegium*), and rabbit's foot (*Polypogon monspeliensis*), and include potential habitat for the Northern red-legged frog (*Rana aurora*). As noted above,

PG&E is implementing a number of BMPs meant to protect water quality, which will also result in avoidance and reduction of potential indirect wetland impacts, and the requirements of **Special Conditions 1** and **2**, as applied to the amended project, will help ensure continued avoidance of indirect wetland impacts.

Potential effects of slurry wall on coastal waters: The permanent installation of a slurry wall would disrupt existing groundwater flows beneath part of the project site that is within about 200 feet of coastal waters and wetlands. As noted above, the area disrupted is within the Hookton Formation, which includes water-bearing zones where groundwater velocity and direction are affected by the tides in nearby Humboldt Bay. The area within the slurry wall boundary represents a very small part of these water-bearing zones, which extend for several miles around the power plant site. This subsurface area has been the site of similar solid structures – i.e., the spent fuel pool and reactor caisson – that have been modifying the natural groundwater flows to some degree for the past several decades. Nonetheless, the installation and permanent presence of the deeper and larger diameter slurry wall could affect nearby wetlands or coastal waters by further modifying groundwater flow to these areas.

To reduce this potential disruption of groundwater flows and to allow flow within the slurry wall after project completion, PG&E has proposed modifying the wall after it has completed the excavation work and as it is backfilling the site. Any modifications – e.g., breaching selected parts of the wall, removing some or all of the uppermost section of the wall, etc. – would be designed and selected with an objective of minimizing potential changes to the pre-project groundwater flows and directions that could adversely affect nearby coastal waters and wetlands. PG&E has not yet determined what modifications will be needed, as they will depend in part on subsurface conditions exposed during excavation, the stability of the slurry wall, the location of shoring and support structures that will be left within the excavated area, and results of ongoing groundwater monitoring at the site. To ensure potential effects on groundwater flows and nearby surface coastal waters are minimized, **Special Condition 6** would require PG&E to submit to the Executive Director, prior to backfilling the site, a Slurry Wall Work Plan that describes proposed modifications to the installed wall and describes a post-project monitoring plan to allow comparison of pre- and post-wall groundwater flows and velocities. The Plan's objective will be to ensure the project does not change groundwater flows to nearby coastal waters or wetlands. **Special Condition 6** would also require that PG&E continue to conduct groundwater monitoring in its existing system of monitoring wells during excavation and backfilling and to use monitoring results obtained during these project activities to help determine the necessary modifications to the slurry wall.

CONCLUSION

The Commission's approval of CDP E-09-010 included the above-referenced **Special Conditions**, which were meant to ensure that project BMPs are adequate to protect coastal water quality and wetlands and conform to applicable Coastal Act policies. The currently proposed activities will be subject to these same **Special Conditions**. In addition, **Special Condition 6** ensures the activities proposed in this amendment do not result in adverse indirect impacts to coastal waters due to changes in the site's groundwater flow regime. The Commission therefore finds that the project, as conditioned, conforms to Coastal Act Sections 30230 and 30231.

D. ENVIRONMENTALLY SENSITIVE HABITAT AREAS

Coastal Act Section 30240 states:

> *a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

BACKGROUND AND ANALYSIS

Project activities will take place largely on already developed areas of the HBPP site. However, nearby onsite areas include extensive coastal marshes and associated upland areas that provide known or potential habitat for a variety of native or sensitive species.

Previous literature reviews and biological surveys have identified several sensitive species at or near the HBPP site, and several areas of suitable habitat for such species. Habitat within the HBPP site is considered suitable for several special-status freshwater aquatic species, including northern red-legged frog (*Rana aurora*), foothill yellow-legged frog (*Rana boylii*), tailed frog (*Ascaphus truei*), southern torrent salamander (*Rhyacotriton variegatus*), and the northwestern pond turtle (*Actinemys marmorata marmorata*), though none have been recently observed on site. Surveys in 2006 identified several sensitive animal species at or near the site including the Western snowy plover (*Charadrius alexandrinus nivosus*), California brown pelican (*Pelecanus occidentalis californicus*), bald eagle (*Haliaeetus leucocephalus*), and Northern red-legged frog, and plant species including the Humboldt Bay owl clover (*Castilleja ambigua ssp. humboldtiensis*) and Point Reyes bird's beak(*Cordylanthus maritimus ssp. palustris*).

Project effects on ESHA: Project activities would occur on previously developed or previously disturbed areas of the site and are not expected to result in direct effects on ESHA. The project may cause indirect impacts to the nearby environmentally sensitive habitat areas due to runoff, sedimentation, and noise; however, these are not expected to be significant, in part due to mitigation measures PG&E has included in the project.

Several components of the proposed activities would result in additional noise that could affect nearby ESHA. The slurry wall construction would involve construction and operation of an onsite slurry plant and use of a hydromill or clamshell dredge, and excavation would involve use of a pile driver, crane, and other similar equipment. PG&E provided data showing that the expected decibel levels from these project components would be within the range of the equipment that has been used at the site during the past several years of demolition and decommissioning. For example, at a distance of 200 feet, which is closer than the nearest areas that would exhibit ESHA characteristics, the clamshell dredge would cause noise levels of about 76 decibels, the slurry plant about 61 decibels, and the hydromill about 48 decibels. The vibratory pile driver would cause levels of about 84 decibels at that distance, though much of its

activity would occur below grade where the generated sound would be partially contained within the walls of the excavated area. This equipment use also would occur in an area with similar ambient noise levels from the nearby HBGS and the other ongoing demolition and cleanup activities. Noise effects from the equipment used for the proposed activities, both individually and cumulatively, are therefore expected to be within the levels previously authorized by the Commission.

These activities would also involve the use of construction lighting that could disrupt nearby species; however, similar to the noise levels described above, the lighting would be consistent with that currently being used at the site, and PG&E would direct it downward and inward to the extent allowed for worker safety, as is currently required by **Special Condition 5** of this permit, which continues to apply to this development, as amended herein. Additionally, the measures required through **Special Conditions 1, 2**, and **6** described above in Section III.C of these Findings would also result in protection of nearby ESHA similar to the protections they provide to nearby wetlands and coastal waters.

CONCLUSION

Based on the above, the Commission finds that the project conforms to the policies of Coastal Act Section 30240.

E. PUBLIC ACCESS AND RECREATION

Coastal Act Section 30211 states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coastal Act Section 30212(a) states:

> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) Adequate access exists nearby, or, (3) Agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

Coastal Act Section 30214 states, in relevant part:

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:
(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.
(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.
(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

Coastal Act Section 30221 states:

Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

BACKGROUND AND ANALYSIS

The Coastal Act's public access policies require generally that development located adjacent to the shoreline in an area with ongoing public use not interfere with that use and that it provide access to the shoreline. Public access to the Humboldt Bay shoreline is currently available adjacent to the HBPP site. As part of its approval of PG&E's ISFSI project (CDP E-05-001), the Commission required PG&E to improve and protect through a deed restriction an existing pathway along the shoreline. This pathway primarily provides horizontal access along the shoreline, but allows vertical access across the riprap lining the shore. The pathway is used primarily for low-intensity recreational uses, such as fishing, bird and wildlife watching, and scenic enjoyment of the Bay.

Activities proposed under this amendment would not directly affect this accessway through closures or other access limitations; however, they could result in a minor reduction in public use due to noise and the proximity of some of the activities to the accessway. However, because users of the accessway have already been subject to similar activities for several years, any reduction would likely represent only a minor change in existing conditions.

CONCLUSION

Based on the discussion above, the Commission finds that the project will conform to the public access and recreation policies of the Coastal Act.

F. ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES

Coastal Act Section 30244 states:

> *Where development would adversely impact archaeological or paleontological resources by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

BACKGROUND AND ANALYSIS

The project site, located on the resource-rich shoreline of Humboldt Bay, has the potential to contain archaeological remains. In 2006, PG&E conducted an archaeological survey at the site, but did not identify any such resources; however, the potential exists for previously unrecorded archeological resources to be located beneath HBPP structures or beneath the fill that was placed on the site during HBPP construction.

In recognition of the potential presence of these resources, PG&E instituted a construction worker training program to help identify cultural resources, and is conducting monitoring to identify potential resources that may be identified during clearing, trenching, and excavation activities. It has also retained a cultural resources specialist on call to investigate any potential cultural resources found during project activities. PG&E has also implemented procedures for halting construction and evaluating any such resources that may be discovered. Activities proposed under this amendment will be subject to the original CDP's **Special Condition 4**, which required PG&E to submit for Executive Director review and approval documentation that describes how PG&E is implementing these measures. Conformity with this special condition ensures that the currently proposed activities conform to the requirements of Section 30244.

CONCLUSION

Based on the discussion above, the Commission finds that the project, with ongoing implementation of **Special Condition 4** from E-09-010, will conform to the archaeological resource protection policies of Coastal Act Section 30244.

G. VISUAL RESOURCES

Coastal Act Section 30251 states, in relevant part:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas…*

BACKGROUND AND ANALYSIS

The Coastal Act generally requires that permitted development protect views to and along the coast. Project activities would occur on and near an area of the Humboldt Bay shoreline visible from publicly-accessible shoreline areas, recreational areas, and a wildlife refuge. These areas are valued in part for their views of the Bay, wildlife and bird watching, recreational activities, and for visual enjoyment of Humboldt Bay. Portions of the project would also be visible from a nearby stretch of Highway 101, which is described by CalTrans as "an eligible state scenic highway, not officially designated."

PG&E will construct the slurry wall using a hydromill, clamshell dredge, or other similar equipment. Although the previously-approved demolition and decommissioning activities have involved use of similar large mechanized equipment, the proposed slurry wall construction may require equipment higher than existing structures or equipment used at the site. The higher equipment would result in a somewhat increased visual impact. To light the construction area, PG&E would use towable single-pole light stands commonly used for similar construction projects. Because the equipment and lighting is similar to others used during the project and would be located within the interior of the site, the increased impact is not expected to be significant. Additionally, these activities would be subject to previously-approved conditions, including **Special Condition 5**, which requires PG&E to use neutral tones on all visible structures erected as part of this project and requires that all necessary lighting be directed downward and inward to the extent allowed by NRC security requirements.

CONCLUSION

Based on the above, the Commission finds that the project, with the ongoing implementation of **Special Condition 5**, will conform to the visual resource protection policies of Coastal Act Section 30251.

H. RESOLVING POLICY CONFLICTS

Coastal Act Section 30007.5 states:

> *The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.*

Coastal Act Section 30200(b) states:

> *Where the commission or any local government in implementing the provisions of this division identifies a conflict between the policies of this chapter, Section 30007.5 shall be utilized to resolve the conflict and the resolution of such conflicts shall be supported by appropriate findings setting forth the basis for the resolution of identified policy conflicts.*

As described in Section III.B of these findings, the proposed project is inconsistent with Coastal Act Section 30253 because the project is not designed to withstand the site's potential geologic hazards. However, as explained below, denying the proposed project to eliminate this inconsistency would lead to nonconformity with other Coastal Act policies, namely Sections 30230, 30231 (marine biology and water quality), and 30240 (environmentally sensitive habitat areas).

Although the project will reduce the potential for hazardous materials associated with HBPP to adversely affect coastal resources, it is not possible to design and construct project components to withstand the potential range of geologic hazards, given the extreme range of those hazards. This results in an inconsistency with the requirements of Section 30253(a) to minimize the risks associated with these hazards. Similarly, the seismic risks associated with the site prevent assurance that the activities will not require additional shoreline protection, thereby preventing consistency with Section 30253(b). However, denying the project on the basis of these inconsistencies would result in the continued presence of hazardous materials at the site that could affect coastal biological resources.

The HBPP site is at a relatively low elevation close to coastal waters, environmentally sensitive habitat areas, and coastal wetlands. It is subject to geologic hazards such as ground shaking, tsunamis, and liquefaction, whereas removing it and most of its hazardous materials from the site would substantially reduce the potential for significant adverse effects to coastal resources associated with marine biology, water quality, and environmentally sensitive habitat areas. In such a situation, when a proposed project is inconsistent with a Chapter 3 policy, and denial or modification of the project would be inconsistent with another policy, Section 30007.5 of the Coastal Act provides for resolution of such a policy conflict.

APPLYING SECTION 30007.5 TO THE PROPOSED PROJECT

As indicated previously, the standard of review for the Commission's decision on a coastal development permit in the Commission's retained jurisdiction is whether the proposed project is consistent with the Coastal Act's Chapter 3 policies. A proposal must generally be consistent with all relevant policies in order to be approved. If inconsistent with one or more policies, the proposal must normally be denied or conditioned to make it consistent with all relevant policies.

However, the Legislature recognized through Sections 30007.5 and 30200(b) that conflicts can occur among those policies. It therefore declared that when the Commission identifies a conflict among the policies of Chapter 3, the conflict is to be resolved "in a manner which on balance is the most protective of significant coastal resources", pursuant to Coastal Act Section 30007.5.

Resolving conflicts through application of Section 30007.5 involves the following seven steps:

1) The project, as proposed, is inconsistent with at least one Chapter 3 policy;
2) The project, if denied or modified to eliminate the inconsistency, would affect coastal resources in a manner inconsistent with at least one other Chapter 3 policy that affirmatively requires protection or enhancement of those resources;
3) The project, if approved, would be fully consistent with the policy that affirmatively mandates resource protection or enhancement;
4) The project, if approved, would result in tangible resource enhancement over existing conditions;
5) The benefits of the project are not independently required by some other body of law;
6) The benefits of the project must result from the main purpose of the project, rather than from an ancillary component appended to the project to "create a conflict"; and,
7) There are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies.

Each step is explained below in greater detail and applied to the proposed project.

1) The project, as proposed, is inconsistent with at least one Chapter 3 policy.

For the Commission to apply Section 30007.5, a proposed project must be inconsistent with an applicable Chapter 3 policy. In the case of this proposed project, the inconsistency is with Sections 30253(a)-(b).

2) The project, if denied or modified to eliminate the inconsistency, would affect coastal resources in a manner inconsistent with at least one other Chapter 3 policy that affirmatively requires protection or enhancement of those resources.

A true conflict between Chapter 3 policies results from a proposed project which is inconsistent with one or more policies, and for which denial or modification of the project would be inconsistent with at least one other Chapter 3 policy. Further, the policy inconsistency that would be caused by denial or modification must be with a policy that affirmatively mandates protection or enhancement of certain coastal resources. Denial of the

project would be inconsistent with three policies of this type –Section 30230, which requires, in part, that "Marine resources shall be protected for such uses"; Section 30231, which requires, in part, that biological productivity "shall be maintained"; and Section 30240, which requires, in part, that environmentally sensitive habitat areas "shall be protected against any significant disruption of habitat values" *[emphasis added in each*]. In most cases, denying a proposed project will not cause adverse effects on coastal resources for which the Coastal Act mandates protection or enhancement, but will simply maintain the status quo. Where denial of a project would result in such effects, as with this project, a conflict between or among two or more Coastal Act policies is presented.

3) The project, if approved, would be fully consistent with the policy that affirmatively mandates resource protection or enhancement.

For denial of a project to be inconsistent with a Chapter 3 policy, the proposed project would have to protect or enhance the resource values for which the applicable Coastal Act policy includes an affirmative mandate. That is, if denial of a project would conflict with an affirmatively mandated Coastal Act policy, approval of the project would have to conform to that policy. If the Commission were to interpret this conflict resolution provision otherwise, then any proposal, no matter how inconsistent with Chapter 3, that offered a slight incremental improvement over existing conditions could result in a conflict that would allow the use of Section 30007.5. The Commission concludes that the conflict resolution provisions were not intended to apply to such minor incremental improvements.

Because the full removal of HBPP structures and the associated cleanup is designed to prevent releases that would adversely affect the biological resources mentioned above, the project, as proposed and conditioned, is therefore fully consistent with Coastal Act Sections 30230, 30231, and 30240.

4) The project, if approved, would result in tangible resource enhancement over existing conditions.

This aspect of the conflict between policies may be looked at from two perspectives: first, that approval of the project would result in improved conditions for a coastal resource subject to an affirmative mandate; and second, that denial or modification of the project would result in continued degradation of that resource. Regarding the first, project approval would result in hazardous materials being removed entirely from the project area and would prevent releases that would violate the Coastal Act's marine resource, water quality, and ESHA policies. Regarding the second, denial of the project would result in the perpetual presence of those hazardous materials and the continued risks that geologic events would release those materials into coastal waters or habitat areas, which would be inconsistent with Coastal Act policies established to protect marine life, water quality, and sensitive habitat areas. Therefore, denial of the project would conflict with the policies of Sections 30230, 30231, and 30240.

5) The benefits of the project are not independently required by some other body of law.

The benefits that would cause denial of the project to be inconsistent with a Chapter 3 policy cannot be those that the project proponent is already being required to provide pursuant to another agency's directive under another body of law. In other words, if the benefits would be provided regardless of the Commission's action on the proposed project, the project proponent cannot seek approval of an otherwise unapprovable project on the basis that the project would produce those benefits – that is, the project proponent does not get credit for resource enhancements that it is already being compelled to provide. In the case of these proposed activities, the NRC's closure requirements would not necessarily result in full removal of the HBPP structures as PG&E is proposing in this amendment. For example, prior to PG&E completing the aforementioned study to determine the feasibility of removing the entire spent fuel pool and reactor caisson, these closure requirements may have allowed the structures to remain in place.

6) The benefits of the project must result from the main purpose of the project, rather than from an ancillary component appended to the project to "create a conflict".

A project's benefits to coastal resources must be integral to the project purpose. If a project is inconsistent with a Chapter 3 policy, and the main elements of the project do not result in the cessation of ongoing degradation of a resource the Commission is charged with enhancing, the project proponent cannot "create a conflict" by adding to the project an independent component to remedy the resource degradation. The benefits of a project must be inherent in the purpose of the project. If this provision were otherwise, project proponents could regularly "create conflicts" and then request that the Commission use Section 30007.5 to approve otherwise unapprovable projects. The conflict resolutions of the Coastal Act could not have been intended to foster such an artificial and easily manipulated process, and were not designed to barter amenities in exchange for project approval. In this case, the project purpose is to completely remove structures and materials that present a risk to coastal resources; the benefits are therefore integral to the project.

7) There are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies.

Finally, a project does not present a conflict among Chapter 3 policies if at least one feasible alternative would meet the project's objectives without violating any Chapter 3 policy. Thus, an alternatives analysis is a condition precedent to invocation of the balancing approach. If there are alternatives available that are consistent with all of the relevant Chapter 3 policies, then the proposed project does not create a true conflict among those policies.

As noted above, the "no action" alternative would result in the continued presence of hazardous materials on site and the potential for release of those materials to coastal resources. The relatively extreme range of potential geologic hazards at this site makes it impractical to design and implement the proposed project activities in a way that would withstand those hazards.

Existence of a Conflict Between Chapter 3 Policies: Based on the above, the Commission finds that the proposed project presents a conflict between Sections 30253(a)-(b), on the one hand, and Sections 30230, 30231, and 30240 on the other, that must be resolved through application of Section 30007.5, as described below.

CONFLICT RESOLUTION

After establishing a conflict among Coastal Act policies, Section 30007.5 requires the Commission to resolve the conflict in a manner that is on balance most protective of coastal resources. As noted previously, the project would reduce but not minimize risks due to geologic hazards, thus making it inconsistent with Coastal Act Sections 30253(a)-(b). However, denying the project because of its inconsistency with these policies would result in significant adverse effects on biological resources.

In sum, the Commission finds that while the project would not adequately minimize risks due to geologic hazards and could require a shoreline protection structure, it would also, over the long-term, significantly reduce most of the risks associated with those hazards, since the hazardous materials that could be released during seismic events will be removed from the site to safer offsite locations. This would both reduce the risks associated with those geologic hazards and increase protection of coastal biological resources. The required Special Condition, along with the conditions already required by this permit, are necessary to ensure the project's adverse impacts are minimized and its benefits are fully realized. Therefore, the Commission finds that approval of the proposed project, notwithstanding its inconsistencies with several Coastal Act policies is "most protective of coastal resources" for purposes of the conflict resolution provisions of Coastal Act Section 30007.5.

I. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 13096 of the Commission's administrative regulations requires Commission approval of coastal development permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits approval of a proposed development if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant impacts that the activity may have on the environment. As discussed above, the proposed project has been conditioned to be found consistent with the policies of the Coastal Act. Mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, that would substantially lessen any significant adverse impact that the activity would have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of CEQA.

APPENDIX A: SUBSTANTIVE FILE DOCUMENTS

California Coastal Commission. *Final Adopted Findings for Coastal Development Permit #E-05-001 – PG&E's Independent Spent Fuel Storage Installation (ISFSI) Project*. September 15, 2005.

California Energy Commission. *Application for Certification, Humboldt Bay Generating Station, Petition for Modification No. 1 for Fields Landing Laydown Area*. January 2009.

Nuclear Regulatory Commission. *Fact Sheet on Decommissioning Nuclear Power Plants*, January 2008 (accessed November 2, 2009 via http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html)

Pacific Gas & Electric Company. *Final Draft Interim Measures/Removal Action Work Plan PG&E Humboldt Bay Power Plant – Eureka, California*, prepared by Arcadis Consulting, October 29, 2009.

_____. *Draft Current Conditions Report*, prepared by Arcadis, June 2009.

_____. *Post-Shutdown Decommissioning Activity Report*, May 2009.

_____. *Fields Landing Laydown Area for the Humboldt Bay Generating Station, Humboldt County California*, prepared for the California Energy Commission's Application For Certification #06-AFC-7C, January 2009.

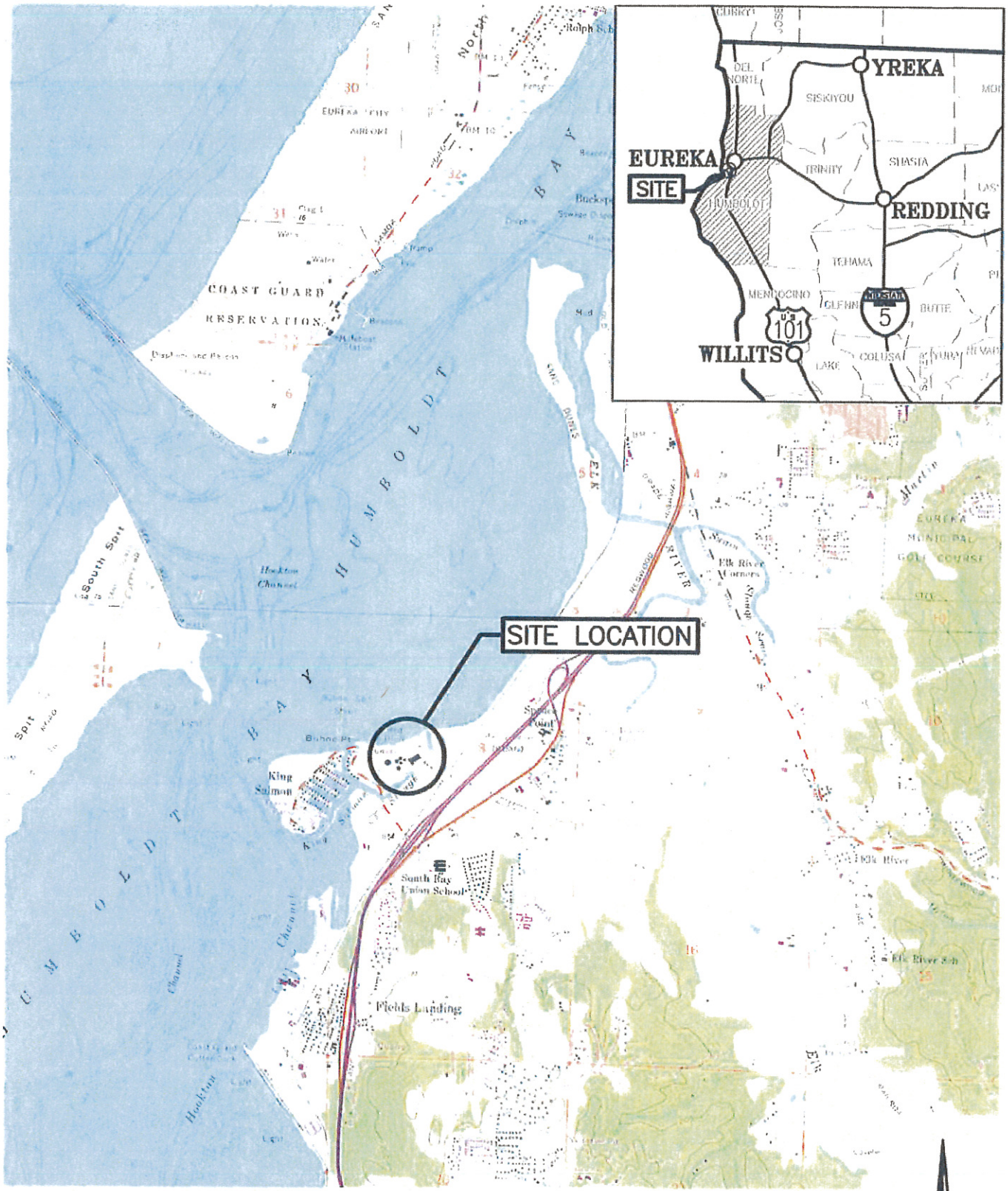
_____. *Asbestos Survey and Limited Lead, Chromium, and PCB Paint Survey, PG&E Power Plant, Eureka, California*, by Winzler and Kelly, 2009.

_____. *Radiological Characterization Report, Humboldt Bay Power Plant, Eureka, California*, by Eneron, 2008.

_____. *Safety Analysis Report*, *Environmental Report*, and *Emergency Plan* from application to Nuclear Regulatory Commission for 10 CFR 72 ISFSI License, 2003.

_____. "*Technical Memorandum: Hydrologic Impacts of Discontinuation of Cooling Water Withdrawals at the Humboldt Bay Power Plant, prepared by CH2MHill, March 27, 2009.*"

SHN Consulting Engineers & Geologists, Inc., *Assessment of Hydrologic Impacts Associated With Slurry Wall Installation, Humboldt Bay Power Plant, Eureka, California*, August 15, 2012.



SOURCE: EUREKA AND FIELDS LANDING USGS 7.5 MINUTE QUADRANGLES

EXHIBIT No. 1
E-09-010-A3
Pacific Gas & Electric Co.

N

=3000'±

SHN Consulting Engineers & Geologists, Inc.	Pacific Gas & Electric Humboldt Bay Power Plant Eureka, California		Site Location Map SHN 012125
	July, 2012	012125-SITE-LCTN	Figure 1

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01, UNIT 1 - Removed
02, UNIT 2 - Removed
03, UNIT 3
04, Hot Shop
05, Welding Shop
06, Administration Annex
07, Training/Network Building
08, Security Building
09, FFD Trailer
10, Assembly Buillding
10-A, Initial Training and Badging
10-B, Warehouse Office - Removed
11, Primary Alarm Station
12-1, Decom Safety Trailer
12-2, General Engineering Trailer
12-3, Mechanical/Piping Eng Trailer
12-4, Civil/Structural Eng Trailer
12-5, Paint/GC Storage
12-6, Engineering Trailer
12-7, Engineering Trailer
13, Count Room
13-A, Fossil Decommissioning Trailer
13-B, RVP Office Trailer
14, Solid RAD waste Handling Bldg
15, Low Level RAD waste Bldg
16, Liquid RAD waste Bldg
17, RP Instrumental Bldg
18, Unit 3 Access Control
19, RAD waste Office Trailer A
20, RAD waste Office Trailer B
21, Hazardous Waste Storage
22, Newgen/RP 6-Wide Office Tlr
24-A, 24-B, 24-C, 24-D, 24-E, 24-F, 24-H, 24-I, 24-J; Decom Office Trialers
25, DECOM 6-Wide Office Trailer
26, Paint/Sandblast Building
27, HBPP Firepump House - Removed
28, Mobile Emergency Power Plant 1 - Removed
29, Mobile Emergency Power Plant 1 - Removed
30, M.E.P.P. Airstart Building
31, Relay Building
32, Rigging Storage - Removed
34, Shepherds Source
35, UNIT 3 Work Crew Building
36, HBGS Work Shop
37, HBGS Control Room
38, HBGS MB-BLDG/Control
39, HBGS Engine Hall
40, LV-ROOM
41, HBGS Firepump House
43, Wach's Trailer
44, Rubb Tent
66, PAO Trailer

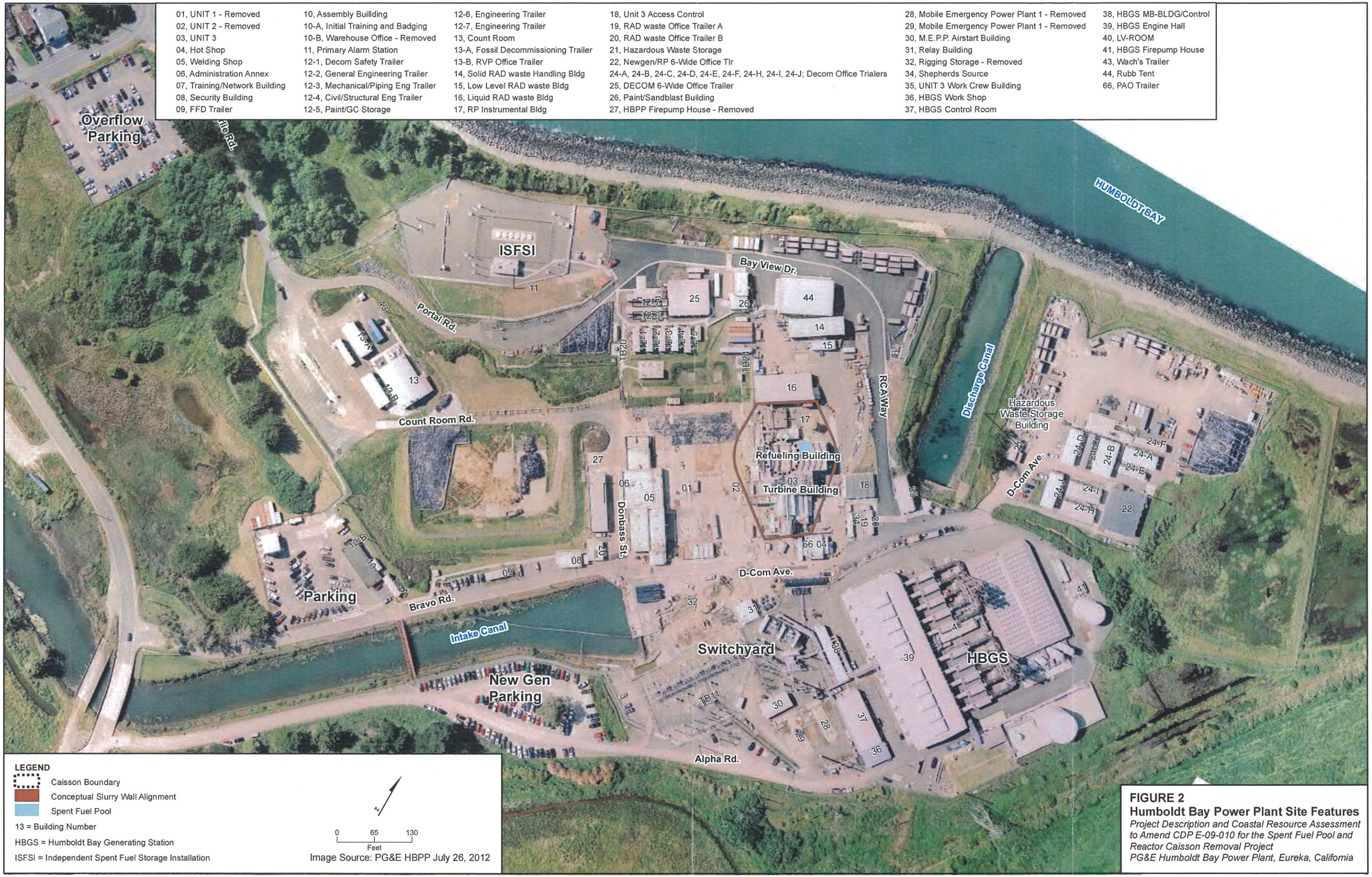
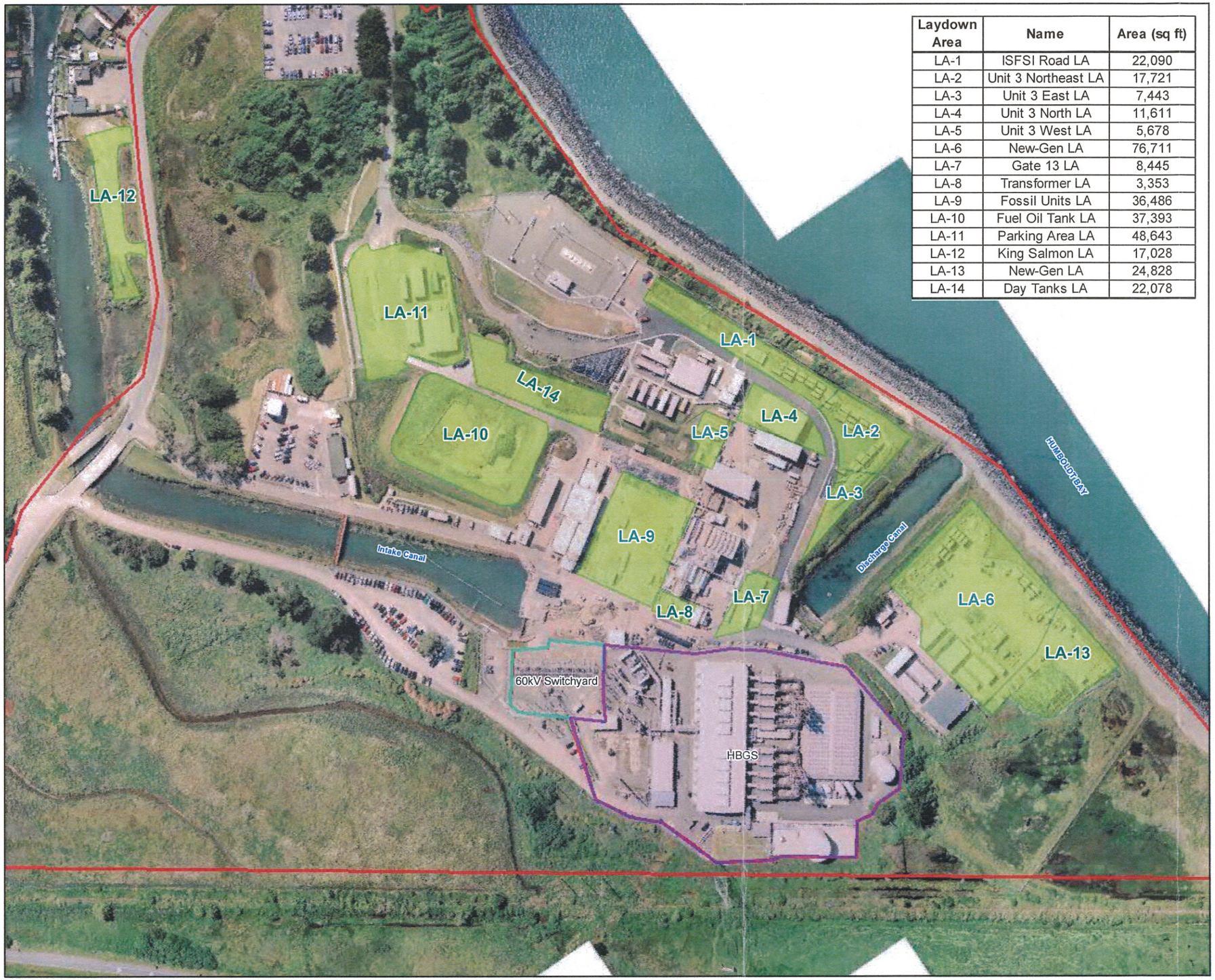
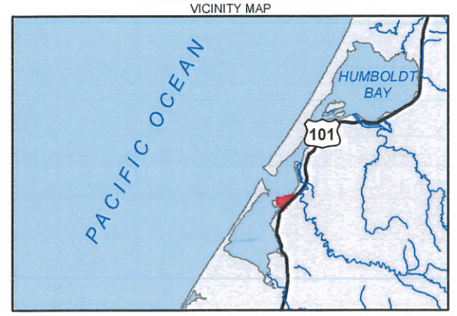


FIGURE 2
Humboldt Bay Power Plant Site Features
Project Description and Coastal Resource Assessment to Amend CDP E-09-010 for the Spent Fuel Pool and Reactor Caisson Removal Project
PG&E Humboldt Bay Power Plant, Eureka, California



Laydown Area	Name	Area (sq ft)
LA-1	ISFSI Road LA	22,090
LA-2	Unit 3 Northeast LA	17,721
LA-3	Unit 3 East LA	7,443
LA-4	Unit 3 North LA	11,611
LA-5	Unit 3 West LA	5,678
LA-6	New-Gen LA	76,711
LA-7	Gate 13 LA	8,445
LA-8	Transformer LA	3,353
LA-9	Fossil Units LA	36,486
LA-10	Fuel Oil Tank LA	37,393
LA-11	Parking Area LA	48,643
LA-12	King Salmon LA	17,028
LA-13	New-Gen LA	24,828
LA-14	Day Tanks LA	22,078

VICINITY MAP



LEGEND
- 60kV SWITCHYARD
- HBGS
- PROPERTY BOUNDARY
- PROPOSED STAGING AREA

0 100 200
FEET

N

EXHIBIT No. 3
E-09-010-A3
Pacific Gas & Electric Co.

FIGURE 4
Decommissioning Staging and Laydown Areas
Project Description and Coastal Resource Assessment to Amend CDP E-09-010 for the Spent Fuel Pool and Reactor Caisson Removal Project
PG&E Humboldt Bay Power Plant, Eureka, California

V:\HUMBOLDTBAY\MAPFILES\CDP_ASSESSMENT\2012_CRA_FIGURES\SECTION_2\FIG4_DECOMMISSIONINGSTAGING_LAYDOWNAREAS.MXD TMCBROOM 1/10/2013 8:03:24 AM

CH2MHILL

Hydromill

Clam Dredge

Hydromill Cutting Head

EXHIBIT No. 4
E-09-010-A3
Pacific Gas & Electric Co.

FIGURE 6
Typical Slurry Wall Equipment
Project Description and Coastal Resource Assessment to Amend CDP E-09-010 for the Spent Fuel Pool and Reactor Caisson Removal Project
PG&E Humboldt Bay Power Plant, Eureka, California

CALIFORNIA COASTAL COMMISSION
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FAX (415) 904- 5400

Date Filed:	November 3, 2009
49th Day:	December 22, 2009
Staff:	TRL-SF
Staff Report:	November 19, 2009
Hearing Date:	December 10, 2009
Commission Action:	Approved with Conditions 12-0

FINAL ADOPTED FINDINGS
COASTAL DEVELOPMENT PERMIT

Application File No.: **E-09-010**

Applicant: **Pacific Gas & Electric Company**

Project Location: Humboldt Bay Power Plant, adjacent to Humboldt Bay near King Salmon, Humboldt County.

Project Description: Demolish and decommission two gas-fired and one nuclear power generating units at the Humboldt Bay Power Plant.

Substantive File Documents: See Appendix A

EXECUTIVE SUMMARY

Pacific Gas & Electric Company (PG&E) proposes to demolish and decommission three power generating units at its Humboldt Bay Power Plant (HBPP), located on the shoreline of Humboldt Bay just south of the City of Eureka. Main project activities include constructing access roads, equipment laydown areas, and staging areas, demolishing the existing power plant structures and associated structures and facilities, and conducting site cleanup and remediation. The power units to be removed include two gas-fired units that have been in place since the mid-1950s and a nuclear unit that operated from 1963 to 1976. Significant elements of the project would be conducted pursuant to a Voluntary Cleanup Program pursuant to California's Department of Toxic Substances Control (DTSC) and pursuant to the federal Nuclear Regulatory Commission's (NRC's) decommissioning and license termination processes.

In these Recommended Findings, staff recommends the Commission **approve** the proposed project, as conditioned. The Commission's approval would allow PG&E to conduct initial site cleanup and remediation, to remove structures and soils at the gas-powered units' location to

about twelve feet below grade, and to remove some structures and soil associated with the nuclear unit to about 42 feet below grade. Excavation of soils and materials could total up to about 30,000 cubic yards.

The Commission's approval would not, however, permit all development likely to be needed to complete decommissioning, as key elements regarding the scope of the project, the extent of contamination, and final expected site conditions are not yet known, and will be developed through additional studies and site characterization as the project is implemented. Future development not part of the currently proposed project could include onsite soil treatment, excavation and removal of additional structures, and other similar measures that could adversely affect wetlands, environmentally sensitive habitat areas, or other coastal resources. These proposed developments will be subject to additional Commission review and approval.

Key Issues: Significant issues associated with the proposed project's conformity to Coastal Act policies include:

- **Geologic Hazards:** This report describes the seismic characteristics of the project site and surrounding area, the slope stability at the project site, and coastal erosion concerns. It addresses Coastal Act concerns related to structural stability, the stability of nearby landforms, and the potential for coastal processes to affect the proposed project.

  The project site is subject to several extreme geologic hazards, such as the potential for very high levels of ground shaking during seismic events, fault rupture in several areas of the site, and tsunami runup that could inundate the entire site. Development expected to occur during the project is not designed to withstand the full range of potential hazards and the long-term presence of some project elements will likely result in the eventual need for a shoreline protective device. As a result, the proposed development does not conform to Coastal Act provisions related to geologic hazards. This inconsistency results in a conflict with other Coastal Act policies that must be resolved through application of Coastal Act Section 30007.5, as described below.

- **Conflict Resolution:** The project as proposed is inconsistent with Coastal Act Sections 30253(1)-(2) and 30251. However, denying the project to resolve these inconsistencies would result in nonconformity to other Coastal Act policies, specifically Sections 30230, 30231, and 30240 related to marine resources, water quality, and environmentally sensitive habitat areas.

  The Commission must therefore apply Sections 30007.5 and 30200(b), which allow the Commission to approve projects involving these conflicts in a manner that, on balance, is most protective of significant coastal resources. Staff recommends the Commission determine the benefits to marine resources, water quality, and environmentally sensitive habitat areas outweigh the project's nonconformity to Coastal Act policies regarding hazards and shoreline protective devices.

This issue is similar to the Commission's Findings for PG&E's Independent Spent Fuel Storage Facility (ISFSI), which the Commission approved in 2005. For that project, the Commission found that although the project was not designed to withstand the site's geologic hazards, it was on balance more protective of coastal resources and could therefore be approved.

- **Marine Resources and Water Quality:** Because project development has the potential to adversely affect nearby coastal waters and wetlands, **Special Condition 1** would require PG&E to provide for Executive Director review and approval a Stormwater Management Plan describing measures that will be implemented to protect coastal waters, wetlands, and their associated biological resources. Additionally, **Special Condition 2** would require PG&E to hire a Biologist to implement key elements of the approved Stormwater Management Plan, and **Special Condition 3** would require PG&E submit a site restoration plan for further Commission review and approval.

- **Archaeological Resources:** The project site is located along the shoreline of Humboldt Bay, an area of rich biological resources used by past inhabitants that may have left an archaeological record. **Special Condition 4** would require PG&E to submit for Executive Director review and approval documentation that specifies how PG&E will address potential archaeological finds during the project.

- **Visual Resources:** The site is at a visually prominent location on the shoreline of Humboldt Bay. **Special Condition 5** would require PG&E to minimize potential visual impacts by using neutral tones in project-related developments and directing project-related lighting downward and inward to the extent allowed by safety requirements.

  Note: Because federal law pre-empts the state from imposing requirements related to nuclear safety or radiation hazards, this report evaluates only those issues necessary to determine conformity to the policies of the Coastal Act and does not impose requirements on aspects of the proposed project pre-empted by federal law.

Staff recommends that the Commission **approve** the proposed project, as conditioned.

TABLE OF CONTENTS

1.0 STAFF RECOMMENDATION

Motion:

*I move that the Commission **approve** Coastal Development Permit E-09-010 subject to conditions set forth in the staff recommendation specified below.*

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of Commissioners present.

Resolution:

*The Commission hereby **approves** the Coastal Development Permit for the proposed project and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.*

2.0 STANDARD CONDITIONS

1. **Notice of Receipt and Acknowledgment**: This permit is not valid until a copy of the permit is signed by the Permittee or authorized agent, acknowledging receipt of the permit and the acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration**: Construction activities for the proposed project must be initiated within two years of issuance of this permit. This permit will expire two years from the date on which the Commission approved the proposed project if development has not begun. Construction of the development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made at least six months prior to the expiration date.

3. **Interpretation**: Any questions of intent or interpretation of any condition will be resolved by the Executive Director of the Commission (hereinafter, "Executive Director") or the Commission.

4. **Assignment**: The permit may be assigned to any qualified person, provided the assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land**: These terms and conditions shall be perpetual, and it is the intention of the Commission and the Permittee to bind all future owners and possessors of the subject property to the terms and conditions.

3.0 SPECIAL CONDITIONS

1. **Coastal Water Quality and Wetland Protection:** PRIOR TO ANY PROJECT-RELATED GRADING OR FILLING, the Permittee shall provide for the Executive Director's review and approval a Stormwater Management Plan that describes all structural and non-structural measures the Permittee will implement to avoid and minimize project-related impacts to wetlands and coastal waters. The Permittee shall implement the Plan as approved by the Executive Director.

   The Plan shall include locations of all facilities and structures to be built during the project and the measures incorporated in each to avoid and minimize wetland and water quality impacts. The Plan shall also identify measures the Permittee will implement to store and/or contain materials, soils, and debris originating from the project in a manner that precludes their uncontrolled entry and dispersion into nearby coastal waters or wetlands. Any debris that inadvertently enters coastal waters or wetlands shall be removed immediately.

   The Plan will identify Best Management Practices (BMPs) that will be implemented during project activities to protect wetlands and coastal waters in conformance with the following:
   - Peak runoff rates and average volumes shall not exceed conditions.
   - Appropriate structural and non-structural BMPs shall be designed to treat, infiltrate, or filter the runoff from all surfaces and activities on the development site.
   - Structural BMPs (or suites of BMPs) shall be designed to treat, infiltrate or filter the amount of stormwater runoff produced by all storms up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, and/or the 85th percentile, 1-hour storm event, with an appropriate safety factor (i.e., 2 or greater), for flow-based BMPs.
   - Runoff from all structures and parking areas shall be collected and directed through a system of structural BMPs of vegetated areas and/or gravel filter strips or other vegetated or media filter devices. The filter elements shall be designed to 1) trap sediment, particulates and other solids and 2) remove or mitigate contaminants through infiltration and/or biological uptake. The drainage system shall also be designed to convey and discharge runoff in excess of this standard from the building site in a non-erosive manner.
   - The Plan shall provide for the treatment of runoff from parking lots using appropriate structural and non-structural BMPs designed specifically to minimize vehicular contaminants (oil, grease, automotive fluids, and heavy metals), sediments, and floatables and particulate debris.
   - All BMPs shall be operated, monitored, and maintained for the duration of project activities requiring the use of the BMPs. At a minimum, all structural BMPs shall be inspected, cleaned-out, and where necessary, repaired at least twice per month between October 15 and April 15 of each year and at least once per month between April 15 and October 15 of each year.

- The Plan shall identify a worker training program to be implemented that will identify coastal waters, wetlands, and their associated biological resources on and near the project site, identify measures to be taken to avoid impacts to these resources, and identify the role and responsibilities of the Biologist as described in **Special Condition 2** below.
- The Plan shall include measures for reporting any events where BMPs did not prevent adverse impacts to wetlands or coastal waters and the measures taken in response to these events.

Prior to implementing any new or modified project developments, facility locations, or BMPs not included in the initial Plan, the Permittee shall submit for Executive Director review and approval proposed modifications needed to incorporate these project components into the Plan.

2. **Protection of Biological Resources:** PRIOR TO ANY PROJECT-RELATED GRADING OR FILLING, the Permittee shall assign one or more Biologists to implement the approved Stormwater Management Plan. The Biologist(s) are to be approved by the Executive Director and must meet the following minimum qualifications:
   - At least a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field.
   - At least three years of field biology experience or current certification through a nationally recognized biological society, such as the Ecological Society of America or The Wildlife Society – and, at least one year of field experience with biological resources found in or near the project area.

   The Permittee shall employ or have under contract the Biologist(s) during the duration of the approved project. The Permittee shall ensure that the Biologists(s) conduct the following during any project activities involving mobilization, ground disturbance, grading, soil movement, or other activities that rely on approved Stormwater Management Plan measures to avoid or minimize impacts to coastal waters, wetlands, and their associated biological resources:
   - Prior to installing BMPs, clearly mark sensitive biological resources on and near the site of planned project activities.
   - Conduct monitoring at and near active construction areas pursuant to the schedule identified in the approved Stormwater Management Plan to ensure BMPS are functioning in a manner that prevents and minimizes adverse impacts.
   - Provide reports as required by the approved Stormwater Management Plan regarding any failure of BMPs and the measures taken to correct those failures.
   - Conduct worker training as required by the approved Stormwater Management Plan to identify the location and types of sensitive biological resources on and near the project site and the measures to be taken to avoid impacts to these resources.

   The Biologist(s) shall require a halt to any project activities when he or she determines that continuing the activities would result in an unauthorized adverse impact to coastal waters,

wetlands, and their associated biological resources. The Biologist(s) shall inform the Permittee what measures are needed to address the impact and may allow activities to resume after necessary measures are implemented.

3. **Site Restoration:** No later than March 31, 2015, the Permittee shall submit a coastal development permit application describing proposed measures to restore the areas affected by the development activities approved pursuant to this permit. The Permittee may request the Executive Director extend this deadline upon a showing of good cause.

4. **Archaeological Resources:** PRIOR TO THE START OF GROUND DISTURBING ACTIVITIES, the Permittee shall submit for Executive Director review and approval an Archaeological Resources Protection Plan that includes the following:

   - A description of the worker training program to be implemented to assist workers in identifying potential cultural resources;
   - Monitoring to be conducted to identify potential resources that may be detected during clearing, trenching, and excavation activities;
   - Identifying the cultural resources specialist to be retained on call to investigate any potential cultural resources found during project activities; and,
   - Procedures to be implemented for halting construction and evaluating resources should they be discovered.

5. **Visual Resources:** All structures and fixtures constructed or installed as part of the project and visible from public areas, including shoreline areas of Humboldt Bay, shall be painted or otherwise finished in neutral tones that minimize their visibility from those public areas. Lighting used for project activities shall be directed downward and away from offsite areas to the extent allowed pursuant to applicable human health and safety requirements.

4.0 FINDINGS AND DECLARATIONS

The Commission finds and declares as follows:

4.1 PROJECT PURPOSE AND DESCRIPTION

The project's primary purpose is to demolish and decommission two active gas-fired electrical power generating units and one inactive nuclear unit at the Humboldt Bay Power Plant (HBPP), located along the shoreline of Humboldt Bay, just south of the City of Eureka. Pacific Gas & Electric Company (PG&E) has owned and operated the power plant since the 1950s. PG&E's intended end result of the project is to remove all structures to grade, to remove some below-grade structures, and to conduct the decommissioning and cleanup actions needed to allow industrial re-use of the site.

> **Note:** The project, as currently proposed by PG&E and as evaluated herein, includes initial activities and some of the longer-term activities PG&E expects to conduct for completing decommissioning. Some aspects of the full decommissioning remain to be determined and will be developed based on upcoming site characterization studies. These activities will require additional Commission review and approval later in the decommissioning process.

BACKGROUND

The HBPP is located just south of Eureka along the shoreline of Humboldt Bay near the community of King Salmon (see Exhibit 1 – Location Map). The site currently includes two natural gas-powered electrical generating units and an inactive nuclear generating unit. To replace the existing gas-powered units, PG&E is constructing new power generating units at the site, just southeast of the existing units.

The two gas-fired units were constructed in the early 1950s. The nuclear unit started operation in 1963 as one of the first commercial reactors in the U.S. PG&E shut down the facility in 1976, pending review of seismic safety upgrades needed to comply with an order issued by the federal Nuclear Regulatory Commission (NRC) earlier that year. In 1983, PG&E determined it would not be cost-effective to perform the modifications necessary to re-start the unit, so it started the process to decommission the facility and put it into "safe storage" (or SAFSTOR), pursuant to NRC regulations. In 1984, PG&E published its federally required *Environmental Report* detailing the expected environmental effects of decommissioning. In 1985, the NRC amended PG&E's license to "possess but not operate" status and approved PG&E's SAFSTOR plan in 1998. Also in 1998, PG&E submitted its initial *Post-Shutdown Decommissioning Activities Report* to the NRC. More recently, in May 2009, PG&E published a revision to that report describing the major activities implemented to date and identifying activities it plans to complete the Unit 3 decommissioning. The planned activities that are part of the current proposed project are described in more detail below. The facility's current NRC license expires in 2015.

PREVIOUS COMMISSION ACTION

The Commission previously approved several CDPs for projects PG&E has implemented as part of its decommissioning or to prepare the site for demolition and decommission, including:

- CDP E-05-001: In September 2005, the Commission approved PG&E's Independent Spent Fuel Storage Installation (ISFSI) at the project site. The ISFSI is a high-security, robust storage facility for the spent fuel generated at Unit 3, and the Commission's approval allowed PG&E to move spent fuel to the ISFSI from wet storage within the Unit 3 complex, which was a necessary part of the Unit 3 decommissioning. PG&E completed the fuel transfer in December 2008.
- E-07-005: In October 2007, the Commission approved demolition of effluent ponds and placement of office buildings to be used during the decommissioning project.
- E-07-013: In October 2008, the Commission approved removal of a fuel oil pipeline as part of the retirement of Units 1 and 2.
- E-08-003: In May 2008, the Commission approved removal of a large fuel storage tank as part of project decommissioning.
- E-09-005: In June 2009, the Commission approved site modifications, such as expanding and constructing access roads, grading areas for laydown and storage, etc. to allow PG&E to prepare for decommissioning activities.

Additionally, the California Energy Commission in September 2008 approved PG&E's new power plant that is currently being built on site and is intended to replace the power units being removed through this project. The new power plant is expected to start operations in July 2010.

SITE ENVIRONMENTAL CHARACTERISTICS

The power plant site is a 143-acre parcel located on the shore of Humboldt Bay just east of the community of King Salmon (see Exhibit 2 – Site Plan). Several types of habitat exist on and near the site, with the most prominent being those associated with the Bay's open waters, tidal mudflats, and tidal marshes. Roughly half the site consists of low-lying coastal wetlands or areas of uplands with native or sensitive habitat. Developed portions of the site consist largely of former coastal terrace prairie or wetland areas that have been substantially disturbed due to the long-term presence of the power plant. Prior to the power plant being built in the 1950s, parts of the site were used for agriculture.

The site extends along about one-half mile of the Humboldt Bay shoreline, most of which includes riprap placed to protect the power plant. The site also includes an intake canal that carries water from Humboldt Bay to cool the power plant and a discharge canal that carries water from the power plant cooling system to the Bay. To the south and east of the power plant lies an extensive area of tidal marsh bisected by a rail line.

Most developed areas of the site range from about ten to forty feet in elevation, although the site also includes a coastal bluff that rises about 60 feet above Humboldt Bay. The bluff is now the site of PG&E's ISFSI. Much of the lower elevation areas of the site are underlain with

groundwater that reaches within about three to 15 feet of the ground surface, with another lower water-bearing zone from about 30 to 100 feet bgs. The two zones are separated by a low permeability layer of silt and clay. The lower portions of the site, which are mostly undeveloped areas, wetlands, or coastal waters, are below the site's Base Flood Elevation as determined by Humboldt County.

The site is subject to relatively extreme geologic hazards, due largely to its location near the "Triple Junction", an area offshore of the Humboldt/Mendocino coastline where three crustal plates converge and cause strong seismic events. The site itself is subject to strong ground shaking, liquefaction, tsunamis and tsunami runups, and coastal erosion, all of which lead to the project's nonconformity to the Coastal Act's provisions related to geologic hazards, as described later in these Findings.

MAIN PROJECT ACTIVITIES

PG&E expects project activities to occur over about six years and plans to implement the project in several phases, with some overlap among the various activities. Project activities will take place on only about 23 of the site's 143 acres, largely because of several significant site constraints, including the presence of a new power plant (built to replace Units 1 and 2) and the presence of the aforementioned extensive wetlands and sensitive habitats. The main project activities are described below.

Preparatory and support activities: PG&E will construct access roads, equipment laydown and storage areas, and construct or modify offices and buildings for use during the project. Construction-related activities could include placement of up to about twenty additional construction trailers at various locations within the already developed or disturbed portions of the project site. PG&E also plans to conduct internal renovations of an existing warehouse and possibly remove all or part of an exterior wall common to the warehouse, an office, and Unit 1. PG&E will also remove several onsite mobile emergency power units and its Liquid Fuel Oil (LFO) Tank #1 as well as the berm surrounding the tank. The LFO Tank and its containment berm are adjacent to an area of regularly mowed grasses that includes about 0.2 acres of Commission-jurisdiction wetlands (due to the presence of hydrophytic vegetation) and about 0.012 acres of Corps/Commission-jurisdiction wetland associated with a detention area. However, PG&E plans to avoid direct impacts to these areas through fencing and Best Management Practices as described in Section 4.3.2 of these Findings.

In addition to the activities occurring within the power plant site boundaries, PG&E plans to also use two nearby offsite areas in Fields Landing for equipment staging and laydown. PG&E is currently using these offsite areas during construction of its new power plant, and it plans to obtain leases to use them during the proposed decommissioning project as well. The two sites – one of about 28.3 acres located about one-half mile south of the plant and one of about 1.6 acres located just over a mile south of the plant – consist of vacant land formerly used for forest products storage and equipment/laydown areas for other construction projects. Although largely disturbed, they are adjacent to Humboldt Bay and include some areas of remnant native vegetation and habitat.

Unit 1 and 2 Demolition: PG&E will demolish and remove to about three feet below grade all structures associated with the two gas-powered power units, including the units themselves, an unused liquid fuel oil tank, an intake pump, backup power engines, and other similar facilities or equipment. Because of the limited space on site, after demolishing Units 1 and 2, PG&E will use the newly cleared area to decommission Unit 3. PG&E will conduct most of the Unit 1 and 2 demolition after the new power plant is operating, which is expected to be July 2010.

Unit 3 Decommissioning: PG&E will remove many of the Unit 3 systems, including the refueling building, turbine building, pipe gallery and tunnel, and associated tanks, pumps, condensers, and ancillary systems, the reactor vessel, suppression pools, caisson sump, reactor equipment drain tank, and other associated components. It will also remove the existing liquid rad waste processing facility and replace it with a temporary system for use during decommissioning. Most of these activities will occur within the facility's Radiological Controlled Area (RCA), which is the high-security area surrounding the nuclear unit. As noted above, however, some work will be done in the former Unit 1 and 2 footprint.

Site Cleanup: Significant project elements involve cleanup and remediation of contaminants related to power plant operations. The facility has been on the site since the 1950s and has created areas of soil and groundwater contamination. During the project, PG&E will conduct different types of hazardous materials abatement and waste management and will salvage or recycle materials as feasible. It will also use several existing facilities during the cleanup, such as a concrete containment pad and the power plant's sand-blasting facility. Most of the project's cleanup activities will involve remediating part of the site contamination through two main processes – a Voluntary Cleanup Program in conjunction with the state's Department of Toxic Substance Control (DTSC) and the federal Nuclear Regulatory Commission's (NRC's) decommissioning and license termination process:

- **DTSC Voluntary Cleanup Program:** To guide its initial cleanup activities, PG&E has prepared a proposed Interim Measures Removal Action Work Plan (IM/RAW) pursuant to Division 20, Chapter 6.8 of the state's Health and Safety Code, which allows entities to conduct voluntary cleanups subject to regulation and oversight by DTSC. This proposed IM/RAW, currently under DTSC review, identifies site-specific interim measures needed to meet cleanup objectives. DTSC has also prepared for CEQA purposes a Negative Declaration describing the environmental effects of the proposed initial cleanup actions.[1]

  The proposed IM/RAW describes how PG&E plans to manage soils containing "constituents of potential concern" (COPCs), which include contaminants such as asbestos, metals, and petroleum-related hydrocarbons, and may include radiological constituents. PG&E proposes to manage, treat, and/or transport soils based on several hazardous waste and regulatory

[1] As of the date of this staff report, DTSC has not yet completed the CEQA process; however, staff anticipates that it will be completed prior to the Commission's scheduled December 10, 2009 hearing. DTSC published the Negative Declaration on October 30, 2009 with a comment period running until December 4, 2009, and DTSC anticipates that it will certify the document by December 7, 2009. Staff will inform the Commission about the status of the necessary CEQA review at the Commission's December hearing.

thresholds, including the California Human Health Screening Levels (CHHSLs), the Regional Water Quality Control Board's Environmental Screening Levels (ESLs) and the U.S. EPA Regional Screening Levels (RSLs). These levels determine whether soils will remain in place, may be used for fill, grading materials, or other purposes, or will require special cleanup, handling, or transport to approved disposal facilities. Part of the intent of the IM/RAW is to ensure the initial short-term site cleanup activities are consistent with the long-term site cleanup objective of preparing the site for industrial re-use. To guide site cleanup after this initial phase, PG&E will later develop a final remedial action plan consistent with DTSC regulations and guidance; however, final remedial actions and cleanup levels have not yet been established. Development necessary to conduct the final remediation actions will be subject to additional Commission review and approval.

- **Cleanup associated with NRC License Termination:** Unit 3's permanent closure is subject to NRC requirements for terminating PG&E's approvals to operate the facility and to possess nuclear materials. These NRC requirements guide plant decommissioning, cleanup of radioactive structures and systems, and removing and storing radioactive materials.

  The NRC's decommissioning process includes three main phases – initial activities, major decommissioning and storage activities, and license termination activities. As noted previously, PG&E has conducted most of the required initial activities and is now entering the major decommissioning phase, which involves permanent removal of major facility components, such as the reactor vessel, steam generators, large piping systems, and pumps.

  PG&E described some of its planned decommissioning activities in its May 2009 *Revision* of the facility's *Post-Shutdown Decommissioning Activities Report*. The *Revision* notes that the facility has experienced greater radionuclide dispersal within Unit 3 systems than was evaluated in the NRC's generic decommissioning documents, but that PG&E will implement additional radiological controls to ensure the project does not exceed allowable occupational or public doses.[2] Controls and measures related to this aspect of decommissioning are subject to NRC jurisdiction only.

  During this phase, PG&E must additionally file its License Termination Plan at least two years before expected termination of the license. PG&E expects to file that Plan in 2013. That Plan is to provide updated environmental information, describe site characterization, identify activities needed to dismantle remaining structures and remediate the site, and describe proposed final radiological surveys that will be conducted to determine whether the site can be released for other uses. Activities PG&E proposes to conduct pursuant to this Plan will be subject to additional Commission review and approval.

[2] The NRC published in 1988 its *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* and in 2002 published *Supplement 1* of that document. Those documents establish allowable occupational and public doses from decommissioning activities. PG&E noted that the initial construction of Unit 3 with stainless steel fuel rod assemblies instead of more recently developed alloys resulted in greater radionuclide dispersal within the Unit 3 systems than is addressed in the NRC's generic decommissioning documents. PG&E states that it will use best management practices to minimize exposures, and notes that the 20+ years of SAFSTOR status has allowed some level of radioactivity decay expected to reduce occupational doses.

> ***Note:*** The NRC generally has exclusive jurisdiction over radiological aspects of projects associated with licensed nuclear power plants, and the Commission is usually prohibited from imposing conditions related to radiological concerns. However, because this project is meant to terminate NRC involvement with the facility and establish post-license site conditions, PG&E will be subject to state cleanup and remediation standards through the DTSC. While the NRC has primary jurisdiction for the handling and disposition of radiological materials associated with Unit 3, DTSC may establish the post-license standards for the remaining onsite contaminants.

Site Contaminant Characteristics and Proposed Remediation Measures: PG&E's completed site characterization studies include:

- 2009 *Asbestos Survey and Limited Lead, Chromium, and PCB Paint Survey*: identifies the presence of those contaminants in several power plant structures and will be used in implementing necessary protective measures during demolition and decommissioning.

- 2009 *Draft Current Conditions Report*: identifies the presence of Constituents of Potential Concern (COPCs) in both upland and wetland soils on site. The Report identifies the following contaminants in upland soils – asbestos, Cesium-137, arsenic, total petroleum hydrocarbons (TPHs) (primarily in the form of diesel), semivolatile organic compounds (SOVs), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) – and the following in wetland soils – Cesium-137, arsenic, chromium, copper, lead, mercury, nickel, and zinc.

- November 2008 *Radiological Characterization Report*: identifies some level of radiological contamination throughout surveyed areas of the HBPP site.

The proposed IM/RAW identifies several areas where PG&E will conduct initial cleanup activities, mostly for areas with identified soil contamination primarily in the form of petroleum hydrocarbons and metals. These include the area around Liquid Fuel Oil (LFO) Tank #1 and its surrounding berm, with about 1000 to 1200 cubic yards of contaminated soil, an area around a mobile emergency power unit, with about 200 cubic yards, and an access road near LFO Tank #1, with about 600-700 cubic yards. PG&E anticipated that about another 3000 cubic yards of soil may also be excavated around some other similar structures within the project site.

The IM/RAW proposes to conduct initial soil remediation either through on-site reuse, which would result in using soils with acceptably low contaminant levels as fill or as subgrade materials in parking lots or staging areas, or through off-site disposal, which would require the soil be transported by truck to approved facilities. PG&E considered, but eliminated from further consideration, the use of on-site treatment methods. PG&E will sample soils based on the total volume to be excavated from each area[3] and based on its proximity to likely

[3] For soil volumes up to 1000 cubic yards, PG&E would take a sample for each 250 cubic yards; for soil volumes from 1000 to 5000 cubic yards, 4 samples would be taken from the first 1000 cubic yards, plus one sample for each additional 500 cubic yards; and for volumes greater than 5000 cubic yards, 12 samples would be taken for the first 5000 cubic yards with one sample for each additional 1000 cubic yards.

contaminant sources.[4] PG&E has identified four possible sites if offsite disposal is required, with site selection depending on the type of waste involved.[5] Trucks used to transport material offsite will cover and contain the soil and be subject to the *HBPP Hazardous Materials/Waste Release During Off Site Transportation* document, pursuant to applicable requirements of the California Health and Safety Code and Department of Transportation and California Highway Patrol regulations regarding emergency response procedures. Trucks will use an entrance and exit along King Salmon Avenue and may require short-term traffic controls – e.g., flaggers, warning cones, etc. PG&E is considering transporting some project components offsite by ship or barge; however that option is not part of the currently proposed project and development associated with that option would require additional Commission review and approval.

Because site characterization is not yet complete, PG&E is not yet proposing its full remediation approach and has not yet described its planned remediation within onsite wetland areas, if necessary, or the extent of remediation that will be required to address radiological contaminants. Based on additional characterization results (including those described below) and the determination by DTSC and the NRC of necessary cleanup levels, PG&E may be required as part of a future Remedial Action Plan to conduct cleanup activities that will affect coastal resources such as wetland areas and groundwater. As described in these Findings, any such activities will be subject to future Commission review and approval.

Additional contaminant characterization: As the project progresses, PG&E plans to conduct additional characterization, including the studies described below:

- **Unit 1 and 2 footprint area:** As noted previously, PG&E will use the footprint of the demolished Units 1 and 2 during Unit 3 decommissioning. After decommissioning is complete, PG&E will review site conditions within this area to determine whether remaining below-grade structures or other materials need to be remediated. Based on currently available information, PG&E expects it will remove soils at a depth of up to three feet; however, it has also considered a "worst-case scenario" that would involve removal of all soil and below grade structures within this Unit 1 and 2 footprint area to 12 feet below the ground surface. This would require removal of about 20,000 cubic yards of material (about 1,000 20-yard truckloads) over the 1.5-acre Unit 1 and 2 footprint. Removing this type and amount of material is included in the description of the proposed project and is therefore authorized by issuance of this permit.

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[4] Soil would be analyzed for metals, Total Petroleum Hydrocarbons (TPHs), Polycyclic Aromatic Hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), asbestos, Cesium-137, and other materials based in part on their location and potential contaminant pathways.

[5] The IM/RAW identifies the following landfills (and types of wastes accepted) as possible disposal sites:
- Kettleman City, CA – Class I (RCRA Hazardous and Non-RCRA Hazardous), Class II, and Class III Nonhazardous.
- Clive, UT – Class A Low-level radioactive waste.
- Livermore, CA – Class II and Class III Nonhazardous.
- Anderson, CA – Class III Nonhazardous.

- **Unit 3:** Much of Unit 3 is below ground level and demolition will require PG&E to remove several below grade structures and some as-of-yet unknown amount of soil and other materials. The extent and amount of removal has not yet been determined, and will depend on additional site characterization results and development of the "Derived Concentration Guideline Levels" (DCGLs), which are site-specific and radionuclide-specific levels of residual radioactivity based on concentration, dose, or risk criterion. Once defined, they will establish the allowable levels for remaining radiological components in the soil. PG&E proposes as part of its CDP application to remove most of the structures and materials associated with Unit 3 to about 42 feet below ground surface, which would total about 7070 cubic yards of materials. The description for the proposed project includes this type and amount of remediation, so such development would be authorized by issuance of this permit. PG&E is not currently proposing to remove several of the below-grade structures, as their eventual disposition will depend on future site characterization. These include the spent fuel pool, pipe tunnel, and reactor caisson, which would require removing about 11,000 additional cubic yards of material down to about 92 feet below ground surface. This potential work would likely require significant additional excavation, treatment, and remedial measures that are not addressed in this staff report and would require additional Commission review and approval.

Long-term presence of radioactive wastes: A significant project element is how PG&E proposes to handle and store some of the radioactive materials that will result from Unit 3 decommissioning. The project will generate "Class B", "Class C", and "Greater Than Class C" (GTCC) wastes, which are materials that require special handling and treatment pursuant to NRC requirements.[6] PG&E plans to store the relatively high-level GTCC wastes within the onsite ISFSI, which is designed to hold such materials. In planning the ISFSI, PG&E included sufficient storage area for the GTCC waste it expected to generate during decommissioning.

However, the ISFSI does not have sufficient storage to hold the as-of-yet undetermined amounts of "Class B" and "Class C" waste to be generated during decommissioning. Because there are currently no available offsite facilities in which PG&E can permanently dispose of this material, PG&E proposes to store the material onsite in its existing high-level storage vault until a suitable offsite disposal option is available. This facility is located near Unit 3 and its associated structures and has three compartments totaling about 1150 cubic feet of potential storage space. The amount of waste stored, however, depends on the type of waste and its radiological state – i.e., "hotter" materials need more shielding (i.e. larger packaging), requiring more space. The facility is not designed for permanent storage, so PG&E must at some point establish an alternative storage method for these wastes. However, without a currently available alternative,

[6] Pursuant to 10 CFR 61.55, the NRC classifies low-level radioactive waste into four classes, based on their radioactivity levels and their half-life longevity. In order of increasing hazard, they are Class A, Class B, Class C (all of which are considered relatively low-level wastes), and Greater Than Class C Waste. The classes have different standards for storage and disposal – for example, Class B storage standards are based on the materials decaying sufficiently within 100 years to not cause a hazard; Class C wastes are assumed to not present a hazard within 500 years; and Greater Than Class C wastes require longer protection times.

the Commission must assume that these wastes will remain on site in perpetuity. When a suitable offsite option becomes available, PG&E would then submit an application for a new or amended permit requesting the Commission approve the measures needed to transport the materials.[7]

Other Activities and Development Anticipated But Not Part of the Currently Proposed Project: In addition to the potential activities described above that will require future Commission review and approval, PG&E has identified the following potential activities:

- **Additional Class B and/or Class C Wastes:** PG&E has anticipated that decommissioning could result in more Class B and Class C wastes than can be stored in the existing onsite high-level storage vault. If PG&E needs additional storage, it will submit for additional Commission review and approval a proposal to use Secure Environmental Containers (SECs), which are made of steel-reinforced concrete and which would be placed near the ISFSI site. Any such proposed storage would require new or amended Commission approval.

- **Project effects on the facility's intake/discharge canals:** For the past several decades, the project has relied on cooling water pumped from Humboldt Bay through Fisherman's Channel in King Salmon to an inlet channel at the project site. The typical water flow has been about 76 million gallons per day (MGD). By the end of decommissioning, and with the new air-cooled power plant currently under construction, PG&E will no longer need this cooling water supply.

  PG&E is not currently proposing to modify or fill in the inlet channel; however, discontinuing use of this cooling water and the intake channel will require future attention for at least two reasons: first, PG&E has identified contamination within the channel that will likely be subject to cleanup measures to be developed in an upcoming remedial action plan; and second, ending the cooling water flow will significantly reduce water movement through Fisherman's Channel and the PG&E intake channel and is expected to increase sediment deposition near the power plant intake structure within PG&E's intake channel." In 2010, PG&E plans to conduct additional characterization within the channel to determine necessary remediation measures. These issues will also be subject to future Commission review and approval.

[7] PG&E describes one potential site that may be available at some future date. In January 2009, Texas granted a license to a facility in Andrews County, Texas that would allow it to accept for permanent disposal low-level nuclear wastes. However, that license approval has been appealed, and the facility has not yet met pre-construction conditions. If the appeal is dismissed and the facility is constructed, Texas would also have to agree to accept imported wastes, and the Southwest Compact, of which both California and Texas are members, would have to agree to accept wastes from PG&E. PG&E would then have to identify acceptable methods to handle and transport the wastes to the facility.

4.2 COASTAL COMMISSION JURISDICTION

COMMISSION PERMIT JURISDICTION

The project site is entirely within the coastal zone and within the Commission's retained jurisdiction. Although the project consists primarily of demolition and decommissioning (rather than constructing new buildings), most of the project activities are considered "development" as defined in the Coastal Act.[8]

OTHER STATE AND LOCAL PERMITS

Department of Toxic Substances Control: The project is subject to cleanup requirements of the California Department of Toxic Substances Control (DTSC), which is also serving as the CEQA Lead Agency.[9] DTSC is the lead regulatory agency for investigating, assessing, and remediating onsite contaminants associated with past power plant operations, and PG&E is conducting the necessary site cleanup through a Voluntary Cleanup Agreement with DTSC. DTSC is reviewing a proposed Interim Measures Removal Action Work Plan (IM/RAW), which describes measures needed to conduct initial cleanup activities associated with the project. The proposed IM/RAW has identified about 5,000 cubic yards of soils with contaminant levels requiring treatment or special handling. DTSC will also guide development of PG&E's final remediation plan, which will be based in part on additional site surveys and characterization planned over the next several years.

Regional Water Quality Control Board: The project is subject to approvals by the Regional Water Quality Control Board (RWQCB) for proposed changes to the power plant discharges and for discharges related to demolition and decommissioning. In October 2008, the Regional Board issued a water quality certification for the new power plant, the Humboldt Bay Generating Station, that requires PG&E prepare a post-construction stormwater management plan for the

[8] "Development" as defined in Coastal Act Section 30106 means "on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).

As used in this section, 'structure' includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line."

[9] As noted previously, DTSC expects to certify its CEQA document before the Commission's hearing on December 10, 2009.

Humboldt Bay Power Plant." PG&E will also be subject to conditions of a construction stormwater permit to be issued by the Board and a modified NPDES permit to address the changes in discharges during demolition and decommissioning.

FEDERAL PERMITS

Nuclear Regulatory Commission (NRC): The nuclear unit's decommissioning is subject to regulation and oversight by the federal NRC. The NRC has exclusive jurisdiction over radiological aspects of licensed nuclear reactors, storage of materials generated by those reactors, and reactor decommissioning. For projects involving those aspects of the NRC's jurisdiction, the state is preempted from imposing upon nuclear facility operators any regulatory requirements concerning radiation hazards and nuclear safety, though the state may impose requirements related to other issues.[10] The facility's current and proposed possession, handling, storage, and transportation of nuclear materials are therefore precluded from state regulation.

The Coastal Commission findings herein address only those state concerns related to conformity to applicable policies of the Coastal Act, and do not evaluate or condition the proposed project with respect to nuclear safety or radiological issues during the term of NRC's regulatory oversight. However, because the project will result in termination of PG&E's NRC-licensed activities for Unit 3, the state has jurisdiction over post-license site conditions, including those related to radiological concerns. Part of the expected DTSC review will include establishing allowable levels of remaining radiological components at the site and developing remedial actions needed to meet those levels. The Commission expects that those actions will constitute "development", thereby requiring additional Commission review and approval.

[10] The U.S. Supreme Court, in *Pacific Gas and Electric Company v. State Energy Commission, 461 U.S. 190, 103 S.Ct. 1713 (1983),* held that the federal government has preempted the entire field of "radiological safety aspects involved in the construction and operation of a nuclear plant, but that the states retain their traditional responsibility in the field of regulating electrical utilities for determining questions of need, reliability, costs, and other related state concerns."

4.3 CONFORMITY TO COASTAL ACT APPLICABLE POLICIES

4.3.1 GEOLOGIC HAZARDS

Coastal Act Section 30253 states, in relevant part:

> *New development shall:*
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
> *(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs…*

The project site is located on the shoreline of Humboldt Bay directly opposite the mouth of the Bay. Most of the site is relatively level and consist primarily of current or former wetlands and developed or landscaped areas. The coastal bluff on the site consists largely of a marine terrace deposit made up of poorly cemented sands and interbedded clays.

The site is subject to several geologic hazards, including seismic activity, coastal erosion, tsunamis, and tsunami runup, each of which is briefly summarized below. Following the summary, the Findings describe whether components of the proposed project conform to the requirements of Coastal Act Section 30253. Most of the review described in these Findings is based on the analysis conducted by the Commission's geologist and adopted by the Commission in its 2005 approval of PG&E's ISFSI project at this same site. Exhibit 3 of these Findings provides the Geotechnical Review Memorandum the Commission staff geologist prepared for the Commission's review of that project, including an assessment of documents from PG&E and others describing geologic hazards of the site and area, and recommendations regarding the ISFSI's conformity to Coastal Act policies related to geologic hazard risks. That Review is pertinent to this project because both the ISFSI and the current project involve the potential long-term presence of structures that will be subject to the range of geologic hazards identified at the site. As noted previously, because there are no available alternatives for permanent storage of some of the wastes PG&E expects to generate during decommissioning, the Commission must assume for purposes of Coastal Act conformity that parts of the project will remain on site in perpetuity.

SITE GEOLOGIC HAZARDS

The project site is near the southern end of the Cascadia Subduction Zone and near a location known as the "Mendocino Triple Junction" where three crustal plates converge – the Pacific Plate to the south; the Gorda Plate and its extension, the Juan de Fuca Plate to the north; and, the North American Plate to the east. Due to its location, the site is subject to substantial levels of geologic hazards, as described below.

Site seismic characteristics: The Humboldt Bay area has been subject to very large earthquakes of a magnitude of about 9.0 that occur roughly every 300 to 400 years,[11] with the last such earthquake occurring in 1700. The area has also experienced more than 120 earthquakes greater than magnitude 5 recorded within 100 miles of the site and 10 over magnitude 7. The immediate project area includes at least two active faults, with the Buhne Point Fault directly under the onsite bluff and surfacing about 300 feet to the southwest, and the Discharge Canal Fault about 500 feet further east. These two faults create a wedge, which is uplifted during fault movements, and which is largely responsible for the topography and elevation of Buhne Point. About two miles away is the surface trace of another fault – the Little Salmon Fault – that underlies the site and which is thought to rupture concurrently with the Cascadia Subduction Zone.

Earthquakes may be rated by the amount of ground shaking they cause.[12] The Humboldt Bay Power Plant has experienced six earthquakes with ground motion of greater than 0.10 g. The relationship between an earthquake's magnitude and its rate of ground shaking is not linear. For example, the two quakes producing the largest recorded ground motions at the site (0.30 g and 0.55 g) were of magnitude 5.3 and 5.4, respectively, while a recent magnitude 7.2 quake in June 2005 produced ground motion of less than 0.1 g. Additionally, earthquakes affect structures based on the frequency (in cycles per second) of the seismic waves they generate. Generally, high frequency shaking is more damaging to smaller, more rigid structures, and low frequency shaking is more damaging to larger or more flexible structures.

Liquefaction: Liquefaction can occur during ground shaking when loosely consolidated soils are saturated with water. Much of the site may be subject to liquefaction, as parts of it are underlain with relatively loose and poorly consolidated sands, silts, and organic materials, and a groundwater table that extends to within about three feet of the surface. However, the site's higher elevations are underlain with dense, stiff clays and sands of a type not subject to liquefaction, and tests PG&E conducted during its ISFSI project design showed that these soils were unlikely to liquefy. It is therefore likely that liquefaction may occur on parts of the lower site elevations, but the Commission concurs with both its staff geologist and PG&E that liquefaction will not occur in these higher elevation areas on site.

Slope stability: Most of the site, except for the Buhne Point bluff, is relatively level and does not raise concerns about slope stability. The bluff's north and west slopes are relatively steep, and those on the east and south are relatively gentle. During the ISFSI review, PG&E assessed slope stability under static conditions and determined the factor of safety to be 2.69 for the north side

[11] An earthquake's magnitude is a measure of energy released by an earthquake, as expressed on a logarithmic scale measuring the horizontal displacement caused by an earthquake and detected on a seismograph. A magnitude 6 earthquake, for example, produces ten times the amount of ground shaking as a magnitude 5 earthquake.

[12] Ground shaking is a measure of the movement caused by the earthquake compared to the rate of acceleration caused by gravity. "Peak ground acceleration" (PGA) can be measured as a vertical or horizontal movement. For example, a PGA of 0.1 g means that the ground accelerated at one-tenth the rate of acceleration resulting from gravity (9.81 meters per second squared). PGA depends not only on the intensity or magnitude of an earthquake, but on the distance from the quake and on characteristics of the site – for example, ground acceleration will vary based on the depth and firmness of soil or bedrock at the site.

of the site (the coastal bluff) and 4.94 for the southern slope. For most coastal developments, a safety factor of at least 1.5 is considered necessary to ensure slope stability for the life of a proposed project. As discussed under "coastal erosion", however, this level of stability cannot be assured in perpetuity if coastal erosion impinges on the site.

The slope stability analyses indicated yield accelerations—the level of ground shaking needed to instigate landslides—to be 0.69g and 0.66g for the coastal bluff and the southern slope, respectively. Since these levels of ground shaking are less than the design basis earthquake, it is likely that the slopes will fail during such an earthquake. The amount of displacements of the slide masses was calculated using a Newmark sliding block approach to be about one foot during the design basis earthquake, which far exceeds the 50 mm (about two inches) usually considered acceptable for new construction.

Surface fault rupture: As noted above, several active faults underlie the site. The Little Salmon Fault, the Bay Entrance Fault and the Buhne Point fault all dip to the northeast and underlie the site at various depths. The surface trace of the Buhne Point fault lies only about 300 feet south of the ISFSI site, and the surface trace of the Discharge Canal fault lies about 500 feet to the north. Through movement on these faults, the wedge formed by these two faults is gradually uplifted and tilted. During ISFSI site design, PG&E conducted geotechnical studies that included trenching across the site. The trenches encountered sand-filled fractures, though none showed detectable offset and so were not considered active faults. PG&E proposed that future deformation from displacement on the Little Salmon fault will be minor tilting with no differential displacements. The Commission's staff geologist agreed that this is likely, but additionally believed it is possible that one or both of these faults will shift position and that future fault movement could occur at the site. It is quite common for faults to rupture along traces offset from previous ruptures, defining a "fault zone" rather than a single fault plane. This is, in fact, the case for these two faults, although the zone of fracturing does not appear to be more than a few tens of feet wide. It is also possible that future movement along these faults could result in a different style of faulting. Overall, the Commission concurred with the staff geologist's position that during the perpetual presence of the ISFSI at this site, it could be subjected to fault rupture.

Tsunami: The project site is within an area identified as subject to tsunami hazards. It is on the shoreline of Humboldt Bay and directly opposite the mouth of the Bay, so it could readily be subject to direct or indirect tsunami wave energy. As noted previously, the site has experienced a series of very large earthquakes, many of which resulted in tsunamis.

During the Commission's 2005 ISFSI review, PG&E calculated that the maximum tsunami runup resulting from a Cascadian Subduction Zone earthquake during Mean Higher High Water would be from about 23 to 38 feet, which would inundate the lower elevation portions of the site but would not affect the higher parts of the bluff, including the ISFSI site at 44 feet elevation. PG&E therefore proposed that the ISFSI would not be inundated, and because the ISFSI is below grade, also proposed that it would not be damaged by debris carried by the tsunami.

For several reasons, however, the Commission concluded that the site would not be safe from tsunami hazards either during the relatively short-term or in perpetuity. First, similarities between the expected Cascadian Subduction Zone earthquakes and the December 2004 Sumatran earthquake raise doubts as to the validity of the expected tsunami runup height at the ISFSI site. The Sumatran quake and its resulting tsunami were caused by mechanisms similar to those causing Cascadian subduction quakes, but its tsunami runups were as high as 130 feet, about three times higher than PG&E's predicted runup levels. Additionally, PG&E's predicted 38-foot runup is based only on the height above Mean Higher High Water and does not include the customary additional height provided if the tsunami occurred during a 100-year storm surge. Further, the project site is on a peninsula made up of poorly consolidated soils, and it would be subject during a tsunami to wave energy from both incoming and retreating waves, which could result in substantial erosion and damage.

During the ISFSI review, because the ISFSI is expected to remain in perpetuity, Commission staff requested PG&E additionally evaluate the longer-term potential for tsunami effects. PG&E applied the rate of tectonic uplift at Buhne Point (estimated at about 1.3 feet per 100 years) to several scenarios for anticipated rates of sea level rise. The analyses found that during the next several thousand years, overtopping of the site would be likely.

Coastal Erosion: Section 30253(2) of the Coastal Act requires, in part, that new development not require construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. The proposed project site is in an area where past coastal erosion rates have been among the highest in the state, due in part to the site's location across from two jetties built to maintain the mouth of Humboldt Bay that direct wave energy towards the site. PG&E's assessment of historical shoreline retreat in the area between 1858 and 2000 shows a shoreline retreat of from about 1250 to 1500 feet. Since 1952, however, the site has been protected by a riprap revetment built to protect the power plant. The revetment was enlarged in 1956-57 and repaired in 1989 after being damaged in winter storms. The revetment has essentially halted retreat of the shoreline; however, the bluff above the revetment has continued to retreat, at a rate of about one to four inches per year, a rate likely to continue until it attains a stable slope angle.

APPLYING SECTION 30253 TO SITE CHARACTERISTICS AND THE PROPOSED PROJECT

Most of the project development will be temporary in nature, as it is meant to support the demolition and decommissioning activities PG&E expects to conduct over the next six years. However, although temporary, these developments will be subject to several of the site's aforementioned geologic hazards during that time, including potential ground shaking, surface fault rupture, liquefaction, and tsunami runup. Project development associated with longer term onsite storage would additionally be subject to potential coastal erosion and sea level rise.

Ground shaking and surface fault rupture: The Commission found in its review of PG&E's ISFSI project that PG&E had designed the ISFSI to withstand the "maximum credible earthquake" at the site, and therefore found that project was consistent with Coastal Act Section

30253(1) with respect to the ground motion hazard.[13] However, the ISFSI is one of the few structures in the world expected to withstand that force. The temporary structures and development for this current project – e.g., modular offices, structures with standard foundations, etc. – are designed to withstand a far lower level of ground motion, which is reasonable for most sites and uses, but does not result in conformity to this Coastal Act provision. Similarly, this project's temporary structures and developments are not designed to withstand the expected levels of surface fault rupture at this site. We note that the Commission found during its review of PG&E's ISFSI project that the comparatively robust design of the ISFSI was also not found adequate to withstand expected surface fault ruptures at this location. Accordingly, the Commission finds that the current project is not consistent with the requirement of Coastal Act Section 30253(1) to minimize risk with respect to surface fault rupture.

Liquefaction: As noted above, liquefaction is not likely on the higher elevation parts of the project site though it could occur in the lower elevation areas. The liquefaction potential is likely less on those project site areas with paved surfaces and soils compacted over years of use, which is where most activities will occur.

Tsunami runup: As noted previously, the entire site is subject to tsunami runup levels that could result from feasibly expected seismic activity at or near the site. Based on the analyses herein, the Commission finds that this project is not consistent with the requirement of Section 30253(1) to minimize risks associated with tsunamis and tsunami runup.

Coastal erosion: During the approximately six years of expected project activities, coastal erosion is not expected to substantially affect the site; however, coastal erosion is likely to be significant during the period of perpetual material storage on site and is likely to result in the eventual need for a shoreline protective device. Additionally, as the Commission determined in the ISFSI project, the existing rate of bluff retreat resulted in an inadequate static factor of safety for the site. To partially address these issues, the long-term portions of the project would benefit from two **Special Conditions** established in the Commission's ISFSI approval, which require PG&E to monitor and report to the Executive Director the rates of change on the bluff slopes and the rate of shoreline erosion along the project site.[14] Those conditions are meant to provide

[13] PG&E designed the ISFSI in part using a probabilistic assessment of the "maximum credible earthquake" likely to occur at the site during a 2000-year return period. This design earthquake is of magnitude 9.1, roughly equivalent to the recent Sumatra earthquake of December 2004, and has a peak acceleration of almost 2.9 g, which is equivalent to the force near the upper limit of any earthquake anywhere in the world.

[14] **Special Condition 1** of CDP #E-05-001 states : "*Monitoring Bluff Slopes*: Prior to starting construction, the Permittee shall survey the bluff slopes adjacent to the ISFSI structure to establish the location of the bluff edge and shall set permanent monuments sufficiently far back from the bluff edge to allow their use during future surveys. Thereafter, and no less than every five years, the Permittee shall monitor those bluff slopes for sliding, ground movement, or other motion. Monitoring shall be done using the measures and monitoring devices described in the project's *Safety Analysis Report*. No later than June 30 of each subsequent fifth year, the Permittee shall submit a report, prepared by a licensed Civil Engineering Geologist, to the Executive Director describing the results of the monitoring. If during any five-year period, monitoring shows any horizontal or vertical movement of the bluff slope or edge of two feet or greater, monitoring and reporting shall then be done on an annual basis, with the report described above being submitted no later than June 30 of each year. If during five consecutive annual monitoring periods, movement of the bluff slope and edge totals less than two feet, monitoring and reporting may return to a

adequate time to plan for, design, and implement any necessary modifications to the site or to site storage; however, they do not allow the project to conform sufficiently to Section 30253(2).

CONCLUSION

To reduce potential risks, PG&E will locate most new structures on previously developed areas of the project site and at elevations where liquefaction and tsunami runup risks are lower. The temporary structures PG&E will place to provide office space and to support decommissioning will be designed to meet the 2007 California Building Code and will be sited based in part of a soils report to be prepared by a licensed Civil Engineer that will describe any known geotechnical concerns and identified needed mitigation measures. Structures located outside the facility's Radiological Controlled Area will be subject to building permits from Humboldt County. PG&E states in its application that it will also provide to the Commission the design and location of its proposed liquid rad waste treatment facility once the information is available. **Special Condition 1** (discussed in more detail in the following Section) ensures that PG&E will provide that information for Executive Director review and approval.

Even with these measures, however, the site and proposed development are likely to be subject to severe ground shaking, surface fault rupture, liquefaction, slope failures, tsunamis, and coastal erosion, either during the relatively short-term duration of the planned decommissioning activities (during the next six years) or during the expected long-term storage of materials on site. Neither the short- nor expected long-term project elements are designed to withstand the

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five-year period. The Permittee shall notify County staff and the Executive Director immediately in the event of slope failure or movement that may indicate imminent slope failure. If monitoring results for any reporting period indicate slope movement that may require additional measures to protect the development, the Permittee shall submit a coastal development permit application or request for an amendment to this permit."

Special Condition 2 of CDP #E-05-001 states: "*Monitoring Shoreline Erosion*: Prior to starting construction, the Permittee shall survey the shoreline of the ISFSI site to establish the location of the existing riprap and the lower toe of the bluff. Thereafter, and no less than every five years, the Permittee shall conduct surveys of the shoreline and lower toe of the bluff of the ISFSI site. Surveys shall be conducted by a licensed Surveyor or Civil Engineer. Each survey shall be performed in the early spring when the beach level is lowest and the lower bluff face is most exposed, or as close to that time as is feasible. Each survey shall record the position of the lower toe of the bluff using conventional survey techniques (total station, rod and level, plane table, etc.), differential Global Positioning System (GPS), photogrammetry (with current ortho-rectified aerial photographs), by ground Light Detection and Ranging (LIDAR), or other comparable technique. Survey techniques used shall be consistent throughout the survey period or shall allow consistent comparison of yearly data. Survey measurements shall be accurate within 0.5' horizontal and 1.0' vertical.

The Permittee shall report the results of each survey to the Executive Director by June 30 of every fifth year. Each report shall include narrative and mapped analysis of the survey data, a determination of the average retreat rate for the full survey area, identification of any locations where the bluff change rate is more than two standard deviations from the average. Bluff change shall be calculated at 50' intervals (or smaller) to determine the average retreat, standard deviation and to identify areas of outlier retreat rates.

If monitoring results for any survey indicate the development may be threatened by coastal erosion in less than five years, the Permittee shall submit within sixty days of the annual survey report a coastal development permit application or request for an amendment to this permit to relocate the ISFSI or other project components as needed."

range of potential geologic hazards at the site, and the Commission therefore finds that the project does not fully conform to the Section 30253(1) requirement that new development minimize risks to life and property, and that it not require shoreline protective devices during its anticipated operating life, pursuant to Section 30253(2). Although the long-term aspects of the project will benefit from CDP #E-05-001's Special Conditions 1 and 2, those conditions do not result in full conformity to Section 30253.

Nonetheless, although conducting the project in the proposed manner at this location results in inconsistencies with Sections 30253(1) and (2), to deny the proposed project or to modify it to remove these inconsistencies would result in effects on coastal resources that conflict with other Chapter 3 policies. The Commission must resolve these inconsistencies by applying Coastal Act Section 30007.5, as is described below in Section 4.3.7 of this report.

4.3.2 MARINE RESOURCES AND WATER QUALITY

Coastal Act Section 30230 states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act Section 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

BACKGROUND AND ANALYSIS

The Coastal Act generally requires that coastal waters and wetlands and their associated biological productivity be maintained and protected. Without necessary mitigation measures, many of the proposed project activities could adversely affect these coastal resources.

Most of the project will occur at the power plant site adjacent to Humboldt Bay and involve activities that could affect water quality and biological productivity in and near the Bay and in nearby wetlands. Habitat at or near the site is considered suitable for several special-status fish species, including Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss*), coastal cutthroat trout (*Oncorhynchus clarki clarki*), and tidewater goby (*Eucyclogobius newberryi*). Project activities include grading and excavation, soil removal and stockpiling, handling and treatment of contaminated soils, placement of new structures, and construction-related activities associated with each, all of which could alter runoff and sedimentation characteristics at the site. PG&E also proposes to use for equipment laydown and storage two sites in Fields Landing that are adjacent to the Bay and include areas with wetland vegetation.

Avoiding direct wetland impacts: As noted above, the project site includes extensive areas of wetlands and Bay shoreline. Although the project as currently proposed does not anticipate direct wetland impacts, many of the project activities could affect wetlands and water quality through runoff, sedimentation, or inadvertent use of equipment in or near those areas. At the power plant site, PG&E has identified about 0.3 acres of relatively low-quality wetlands near the

liquid fuel oil tank and containment berm it plans to remove as part of the project. It has also identified an area of native wetland vegetation and habitat near one of the two areas it plans to use in nearby Fields Landing for equipment staging and laydown. That area supports wetland species such alder (*Alnus rubra*), brass buttons (*Cotula coronopifolia*) pennyroyal (*Mentha pulegium*), and rabbit's foot (*Polypogon monspeliensis*), and includes potential habitat for the Northern red-legged frog (*Rana aurora*), although none have been observed. Both laydown areas are also adjacent to the Humboldt Bay shoreline. Activities at these laydown sites would occur near, but not directly on, the shoreline, which is rip-rapped and supports primarily ruderal species. The protective measures described below are intended in part to avoid direct impacts and to minimize any adverse impacts in each of these wetland areas.

Protecting wetland and water quality: The project involves excavating, testing, and transporting several thousand cubic yards of both clean and contaminated soil, generating significant amounts of construction waste, and using numerous motor vehicles and types of heavy equipment, all of which could cause contaminated runoff and sedimentation into coastal waters or nearby wetlands. During the project, PG&E will be conducting various cleanup activities, including sand-blasting, operating a liquid radwaste facility, and other similar activities that could result in additional runoff and sedimentation effects.

To minimize potential adverse effects, PG&E will be required to control and treat some runoff and sedimentation through its existing NPDES permit issued by the North Coast Regional Water Quality Control Board, which includes conditions limiting the allowable volumes and types of discharges from several facilities at the site. Many of the project activities will take place within areas already covered by the NPDES permit and where PG&E has already installed water quality control measures as part of its ongoing operations. As noted earlier, the Regional Board will modify this permit later in the project to address changed site conditions. PG&E will also be subject to a construction stormwater permit from the Regional Board meant to avoid and minimize adverse effects to nearby waterbodies.

For the currently proposed project, PG&E has proposed several stormwater Best Management Practices (BMPs) to minimize the potential effects of construction-related runoff into nearby wetlands or other coastal waters. These BMPs will include measures such as installing and maintaining temporary fencing to prevent vehicles and equipment from entering biological sensitive areas, installing and maintaining barriers and filters to prevent untreated runoff from entering wetlands or coastal waters, seeding and revegetating disturbed areas, and other similar measures. The project will be also subject to a Construction Stormwater Permit from the Regional Water Quality Control Board to ensure it meets the state's water quality requirements. To ensure the project BMPs are adequate to protect coastal resources and will result in conformity to applicable Coastal Act policies, **Special Condition 1** requires PG&E to submit for Executive Director review and approval a Stormwater Management Plan that describes the BMPs it will implement to ensure conformity to Coastal Act provisions. **Special Condition 1** includes provisions to ensure PG&E includes measures in that Plan to minimize runoff and sedimentation from excavated soils, to identify the location and BMPs incorporated into each

new facility used during the project, and other similar requirements.[15] Additionally, **Special Condition 2** requires PG&E to hire a designated project biologist to implement many of the protective measures needed to ensure project activities do not cause adverse effects in the nearby wetlands or coastal waters. These measures include conducting biological monitoring during project-related activities that have the potential to affect wetlands or water quality, and providing worker awareness training on how to avoid wetland and water quality impacts. To ensure project development results in long-term protection of these resources and does not create conditions that would adversely affect coastal waters and habitat, **Special Condition 3** requires PG&E to submit a site restoration plan for Commission review and approval.

Potential project development not yet proposed: Some potential project-related activities that could affect wetlands and water quality may later be proposed as part of the project and will require additional Commission review and approval. However, PG&E is not currently proposing any activities, such as remediation, within wetlands. Part of the ongoing cleanup effort will include additional testing and contaminant characterization within those areas, and any resulting remediation activities will be subject to further Commission review and approval. PG&E has also identified contamination within the power plant intake channel, but will conduct additional characterization to determine what remediation measures are needed to address the types and levels of contaminants. PG&E has also not yet identified whether it will fill or modify the intake and discharge channels. The power plant demolition and decommissioning allow PG&E to stop pumping up to 76 million gallons per day of cooling water from Humboldt Bay, which will likely increase sedimentation near the intake structure within the PG&E intake channel."[16] Development proposed to address these issues will require additional Commission review and approval.

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[15] As noted earlier, transporting contaminated soils offsite is subject to applicable provisions of the California Health and Safety Code and regulations of the Department of Transportation and California Highway Patrol.

[16] Pursuant to a condition of the October 2008 water quality certification issued by the Regional Board, PG&E submitted a hydrology report assessing the hydraulic and sedimentation effects of the changed pumping rate. The report was to identify the expected amount and extent of transport of contaminated sediments from the intake channel to Humboldt Bay. A primary concern was to identify whether ending the unidirectional flow caused by pumping in cooling water would allow the sediment contamination to be transported into the Bay.

PG&E submitted in March 2009 a Technical Memorandum to the Regional Board that included a hydraulic analysis and sediment transport analysis. PG&E modeled the expected water movement based on site conditions and tidal flows and conducted grain size sampling in the intake channel sediments. The Memorandum concluded that currents within the intake and Fisherman's Channel were due primarily to the existing cooling water intake flows, and that ending these flows would result in tidal currents dominating the water flow. Water velocities due to the area's tidal currents average from about 0.004 to 0.01 feet per second and the peak velocities range from about 0.01 to 0.03 feet per second. Regarding sediment transport, the Memorandum concluded that the contaminants of concern were associated with sediments consisting of about 90% silt or clay, and that mobilizing these sediments would require velocities of about one to three feet per second, well above the velocities expected when PG&E stops its use of cooling water. The Memorandum also identified the potential that other disturbances – such as a stormwater discharge within the channel, or bioturbation by organisms within the channel – could mobilize the sediments. However, because this area of the project site will undergo additional characterization, PG&E is not at this time proposing any activities within the channels. Activities proposed in the future to address contamination or to modify the channels will be subject to additional Commission review and approval.

CONCLUSION

Based on the above, the Commission finds that the project, as conditioned, conforms to the policies of Coastal Act Sections 30230 and 30231.

4.3.3 ENVIRONMENTALLY SENSITIVE HABITAT AREAS

Coastal Act Section 30240 states:

> *a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

BACKGROUND AND ANALYSIS

Much of the HBPP site is former coastal prairie terrace, although the power plant's presence during the past fifty years has resulted in significant areas of development, impervious surfaces, and other disturbances on the site. Vegetation occurring within the developed areas of the site is primarily ruderal or introduced species. Nearby, however, are extensive coastal marshes and the waters and shoreline of Humboldt Bay, all with associated upland areas that provide known or potential habitat for a variety of native or sensitive species.

Recent literature reviews and biological surveys have identified several sensitive species at or near the HBPP site. In 1999 and 2002, PG&E conducted site surveys for sensitive species, including terrestrial and marine plants and animals, and several areas of the overall power plant site could provide suitable habitat for such species. Habitat at or near the site is considered suitable for several special-status freshwater aquatic species, including northern red-legged frog (*Rana aurora*), foothill yellow-legged frog (*Rana boylii*), tailed frog (*Ascaphus truei*), southern torrent salamander (*Rhyacotriton variegatus*), and the northwestern pond turtle (*Actinemys marmorata marmorata*); however, none of these species were observed on site during these surveys. More recent surveys in 2006 identified sensitive animal species at or near the site including the Western snowy plover (*Charadrius alexandrinus nivosus*), California brown pelican (*Pelecanus occidentalis californicus*), bald eagle (*Haliaeetus leucocephalus*), and Northern red-legged frog, and plant species including the Humboldt Bay owl clover (*Castilleja ambigua ssp. humboldtiensis*) and Point Reyes bird's beak(*Cordylanthus maritimus ssp. palustris*). Of these, however, only the Northern red-legged frog has been identified in the area where project activities would occur, though it appears the project area does not provide critical areas for the frog, as it does not include breeding habitat, water sources, or similar higher quality habitat characteristics.

Project effects on ESHA: Project activities would occur on previously developed or previously disturbed areas of the site and are not expected to result in direct effects on ESHA. The project may cause indirect impacts to the nearby environmentally sensitive habitat areas due to runoff, sedimentation, and noise; however, these are not expected to be significant, in part due to

mitigation measures PG&E has included in the project. Additionally, the measures required through **Special Conditions 1, 2,** and **3** described in Section 4.3.2 of these Findings would also result in protection of nearby ESHA by ensuring both short- and long-term project impacts are avoided and minimized.

CONCLUSION

Based on the above, the Commission finds that the project conforms to the policies of Coastal Act Section 30240.

4.3.4 PUBLIC ACCESS AND RECREATION

Coastal Act Section 30211 states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coastal Act Section 30212(a) states:

> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) Adequate access exists nearby, or, (3) Agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

Coastal Act Section 30214 states, in relevant part:

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:
(1) Topographic and geologic site characteristics.
(2) The capacity of the site to sustain use and at what level of intensity.
(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.
(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

Coastal Act Section 30221 states:

> *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

BACKGROUND AND ANALYSIS

Coastal Act policies generally require that development located adjacent to the shoreline in an area with ongoing public use not interfere with that use and provide access to the shoreline. Public access to the Humboldt Bay shoreline is currently available adjacent to the power plant

site. As part of its approval of PG&E's ISFSI project, the Commission required PG&E to improve and protect through a deed restriction an existing pathway along the shoreline. This pathway primarily provides horizontal access along the shoreline, but allows vertical access across the riprap lining the shore. The pathway is used primarily for low-intensity recreational uses, such as saltwater fishing, bird and wildlife watching, and scenic enjoyment of the Bay. This section of shoreline is described in the Redwood Community Action Agency's 2001 *Humboldt Bay Trails Feasibility Study* as an important link in a planned system of trails around Humboldt Bay. The trail adjacent to the power plant would connect with trails planned in King Salmon to the west and to the railroad right-of-way to the south and east of the plant.

Although the project as currently proposed would not directly affect this accessway – e.g., there are no proposed trail closures or other access limitations – it may result in a minor reduction in public use during parts of the project due to noise and nearby construction activities. However, because the project site and accessway are already subject to these activities, this would likely represent only a minor change in existing conditions. If PG&E later requests project modifications that would affect this accessway or would otherwise interfere with public access to the shoreline, the Commission would then consider the need to amend this approval.

The project will also result in increased traffic on nearby sections of Highway 101 and on King Salmon Avenue, both of which are routes used for public access to the shoreline. Both roads are currently operating at "Level of Service A" (LOS A),[17] and additional project-related traffic is not expected to cause substantial changes to the current conditions. The project will require up to several hundred additional workers; however, this additional traffic is not expected to cause more than minor delays along either of the routes above. The project will also result in up to several thousand truck trips, depending on the amount of soil to be removed from the project site; however, these trips will be somewhat spread out throughout the expected six years of project activities and are not expected to cause more than minor delays along these routes.

CONCLUSION

Based on the discussion above, the Commission finds that the project will conform to the public access and recreation policies of the Coastal Act.

[17] "Level of Service" describes a road's operating conditions, with LOS A representing free-flowing conditions with little or no delay and LOS F representing saturated conditions with substantial delays. In this area of Humboldt County, the minimum acceptable condition is LOS C.

4.3.5 ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES

Coastal Act Section 30244 states:

> *Where development would adversely impact archaeological or paleontological resources by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

BACKGROUND AND ANALYSIS

The project site, located on the resource-rich shoreline of Humboldt Bay, has the potential to contain archaeological remains. Although an April 2006 archaeological survey at the site did not identify any such resources, the potential exists for previously unrecorded archeological resources to be located beneath power plant structures or beneath fill placed on the site during power plant construction.

In recognition of the potential presence of these resources, and as described in the project's CEQA document, PG&E will institute a construction worker training program to help identify cultural resources, conduct monitoring to identify potential resources that may be identified during clearing, trenching, and excavation activities, and will retain a cultural resources specialist on call to investigate any potential cultural resources found during project activities. PG&E will also implement procedures for halting construction and evaluating resources should they be discovered. To ensure these measures conform to Section 30244 requirements, **Special Condition 4** would require PG&E to submit for Executive Director review and approval documentation that specifically describes how PG&E will implement these measures.

CONCLUSION

Based on the discussion above, the Commission finds that the project, with the inclusion of **Special Condition 4**, will conform to the archaeological resource protection policies of Coastal Act Section 30244.

4.3.6 VISUAL RESOURCES

Coastal Act Section 30251 states, in relevant part:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas…*

BACKGROUND AND ANALYSIS

The Coastal Act generally requires that permitted development protect views to and along the coast. Although the proposed project's demolition and decommissioning activities will cause some visual impacts due to movement of large equipment, presence of lighting, etc., the site's visual characteristics after project completion are expected to be an improvement over existing conditions.

Project activities would occur on and near an area of the Humboldt Bay shoreline visible from publicly-accessible shoreline areas, recreational areas, and a wildlife refuge. Part of the project would occur on the onsite bluff at an elevation of about 40 feet above the Bay in areas that may be visible from the nearby community of King Salmon, the North and South Spit along the outer shore of Humboldt Bay, and the coastal waters of the Bay itself. These areas are valued in part for their views of the Bay, for wildlife and bird watching, for recreational activities, and for visual enjoyment of Humboldt Bay. Portions of the project would also be visible from a nearby stretch of Highway 101, which is described by CalTrans as "an eligible state scenic highway, not officially designated."

The main project activities affecting visual resources include equipment staging and movement, lighting needed during the project, and the actual demolition and decommissioning. There would also be new structures and buildings placed for use during the approximately six years of project activities. Many of these activities are similar to those already occurring at the power plant, but some would represent an intensification of some of the existing visual impacts. To reduce potential project impacts on visual resources, **Special Condition 5** would require PG&E to use neutral tones on all visible structures erected as part of this project and would require PG&E to direct all necessary lighting downward and inward to the extent allowed by NRC security requirements.

CONCLUSION

Based on the above, the Commission finds that the project, with the inclusion of **Special Condition 5**, will conform to the visual resource protection policies of Coastal Act Section 30251.

4.3.7 RESOLVING POLICY CONFLICTS

Coastal Act Section 30007.5 states:

> *The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.*

Coastal Act Section 30200(b) states:

> *Where the commission or any local government in implementing the provisions of this division identifies a conflict between the policies of this chapter, Section 30007.5 shall be utilized to resolve the conflict and the resolution of such conflicts shall be supported by appropriate findings setting forth the basis for the resolution of identified policy conflicts.*

As noted previously in this report, two main elements of the proposed project are inconsistent with Coastal Act Sections 30253(1)-(2) related to geologic hazards, as described in Section 4.3.1 of these Findings – first, the project is not designed to withstand the site's potential geologic hazards; and second, and the project potentially results in the long-term presence of hazardous materials on this unsuitable site. However, as explained below, denying the proposed project to eliminate these inconsistencies would lead to nonconformity with other Coastal Act policies, namely Sections 30230, 30231 (marine biology and water quality), and 30240 (environmentally sensitive habitat areas).

Regarding the inconsistency, even though the project site is subject to these hazards, it is the only location on which decommissioning can occur, and the project itself will result in reducing the potential for these hazards to adversely affect coastal resources. However, designing and constructing short- and long-term project components to be sufficiently robust to withstand the range of potential hazards would likely not be possible, given the extreme range of those hazards. This results in an inconsistency with the requirements of Section 30253(1) to minimize those risks. The longer-term project components – i.e., the potential for perpetual waste storage on site – would result in the eventual need for a shoreline protective device, which is not allowed pursuant to Section 30253(2). We note that the Commission made similar findings for the comparatively robust ISFSI, based on the site's relatively extreme potential for geologic hazards.

However, denying this part of the project on the basis of these inconsistencies would result in the continued presence of the power plant and its inherent hazards at its currently unsuitable location. The power plant is at a relatively low elevation close to coastal waters, environmentally sensitive habitat areas, and coastal wetlands. As designed and sited at its current location, the facility is subject to geologic hazards such as ground shaking, tsunamis, and

liquefaction, whereas removing it and most of its hazardous materials from the site would substantially reduce the potential for significant adverse effects to coastal resources associated with marine biology, water quality, and environmentally sensitive habitat areas. Further, completing the project will result in the cessation of the need for the facility to use about 76 MGD of estuarine water from the Bay and will reduce the amount of discharges to the Bay. In such a situation, when a proposed project is inconsistent with a Chapter 3 policy, and denial or modification of the project would be inconsistent with another policy, Section 30007.5 of the Coastal Act provides for resolution of such a policy conflict.

APPLYING SECTION 30007.5 TO THE PROPOSED PROJECT

As indicated previously, the standard of review for the Commission's decision on a coastal development permit in the Commission's retained jurisdiction is whether the proposed project is consistent with the Coastal Act's Chapter 3 policies. A proposal must generally be consistent with all relevant policies in order to be approved. If inconsistent with one or more policies, the proposal must normally be denied or conditioned to make it consistent with all relevant policies.

However, the Legislature recognized through Sections 30007.5 and 30200(b) that conflicts can occur among those policies. It therefore declared that when the Commission identifies a conflict among the policies of Chapter 3, the conflict is to be resolved "in a manner which on balance is the most protective of significant coastal resources", pursuant to Coastal Act Section 30007.5.

Resolving conflicts through application of Section 30007.5 involves the following seven steps:

1) The project, as proposed, is inconsistent with at least one Chapter 3 policy;
2) The project, if denied or modified to eliminate the inconsistency, would affect coastal resources in a manner inconsistent with at least one other Chapter 3 policy that affirmatively requires protection or enhancement of those resources;
3) The project, if approved, would be fully consistent with the policy that affirmatively mandates resource protection or enhancement;
4) The project, if approved, would result in tangible resource enhancement over existing conditions;
5) The benefits of the project are not independently required by some other body of law;
6) The benefits of the project must result from the main purpose of the project, rather than from an ancillary component appended to the project to "create a conflict"; and,
7) There are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies.

Each step is explained below in greater detail and applied to the proposed project.

1) The project, as proposed, is inconsistent with at least one Chapter 3 policy.

For the Commission to apply Section 30007.5, a proposed project must be inconsistent with an applicable Chapter 3 policy. In the case of this proposed project, the inconsistency is with Sections 30253(1)-(2).

2) The project, if denied or modified to eliminate the inconsistency, would affect coastal resources in a manner inconsistent with at least one other Chapter 3 policy that affirmatively requires protection or enhancement of those resources.

A true conflict between Chapter 3 policies results from a proposed project which is inconsistent with one or more policies, and for which denial or modification of the project would be inconsistent with at least one other Chapter 3 policy. Further, the policy inconsistency that would be caused by denial or modification must be with a policy that affirmatively mandates protection or enhancement of certain coastal resources. Denial of the project would be inconsistent with three policies of this type –Section 30230, which requires, in part, that "Marine resources shall be protected for such uses"; Section 30231, which requires, in part, that biological productivity "shall be maintained"; and Section 30240, which requires, in part, that environmentally sensitive habitat areas "shall be protected against any significant disruption of habitat values" *[emphasis added in each*]. In most cases, denying a proposed project will not cause adverse effects on coastal resources for which the Coastal Act mandates protection or enhancement, but will simply maintain the status quo. Where denial of a project would result in such effects, as with this project, a conflict between or among two or more Coastal Act policies is presented.

3) The project, if approved, would be fully consistent with the policy that affirmatively mandates resource protection or enhancement.

For denial of a project to be inconsistent with a Chapter 3 policy, the proposed project would have to protect or enhance the resource values for which the applicable Coastal Act policy includes an affirmative mandate. That is, if denial of a project would conflict with an affirmatively mandated Coastal Act policy, approval of the project would have to conform to that policy. If the Commission were to interpret this conflict resolution provision otherwise, then any proposal, no matter how inconsistent with Chapter 3, that offered a slight incremental improvement over existing conditions could result in a conflict that would allow the use of Section 30007.5. The Commission concludes that the conflict resolution provisions were not intended to apply to such minor incremental improvements.

Because the project decommissioning is designed to prevent releases that would adversely affect the biological resources mentioned above, the project, as proposed and conditioned, is therefore fully consistent with Coastal Act Sections 30230, 30231, and 30240.

4) The project, if approved, would result in tangible resource enhancement over existing conditions.

This aspect of the conflict between policies may be looked at from two perspectives – either approval of the project would result in improved conditions for a coastal resource subject to an affirmative mandate, or denial or modification of the project would result in continued degradation of that resource.

Project approval would result in most hazardous materials being removed entirely from the project site and some of those materials being relocated to a more protected part of the site, resulting in site conditions less susceptible to potential hazardous releases that would violate the Coastal Act's marine resource, water quality, and ESHA policies. Most of the materials would be removed from the site and stored at protected and secure inland locations. Some of the materials – Class B and Class C wastes, as previously described in these Findings – would be stored securely onsite at the high-level facility at a higher elevation, making them less susceptible to the site's geologic risks – e.g., the wastes would be less susceptible to tsunamis and not subject to liquefaction.

Denial of the project would result in the continued presence of hazardous materials and the continued higher risks associated with potential geologic events, including tsunamis and seismic movement. But for the project, the facility and the full range of hazardous materials could be expected to remain at the site for at least several more decades. During that time, it is probable that any of several events could occur that would be of sufficient magnitude to adversely affect the facility – an earthquake above the design limits of the facility, a tsunami, liquefaction, etc. Any of these events would likely result in damage or destruction of the facility and release of materials to the marine waters, tidal wetlands, and ESHA adjacent to the power plant, which would be inconsistent with Coastal Act policies established to protect marine life, water quality, and sensitive habitat areas. Therefore, denial of the project would conflict with the policies of Sections 30230, 30231, and 30240.

5) The benefits of the project are not independently required by some other body of law.

The benefits that would cause denial of the project to be inconsistent with a Chapter 3 policy cannot be those that the project proponent is already being required to provide pursuant to another agency's directive under another body of law. In other words, if the benefits would be provided regardless of the Commission's action on the proposed project, the project proponent cannot seek approval of an otherwise-unapprovable project on the basis that the project would produce those benefits – that is, the project proponent does not get credit for resource enhancements that it is already being compelled to provide. In the case of this project, PG&E is proposing to decommission the facility well in advance of the NRC's required time limit for decommissioning (which must occur no more than sixty years after the end of facility operations, or about 2036 for this facility). While PG&E must obtain project approvals from both the Coastal Commission and the NRC, decommissioning is not being immediately mandated by the NRC or any other regulatory body and PG&E could choose to maintain its existing system.

6) The benefits of the project must result from the main purpose of the project, rather than from an ancillary component appended to the project to "create a conflict".

A project's benefits to coastal resources must be integral to the project purpose. If a project is inconsistent with a Chapter 3 policy, and the main elements of the project do not result in the cessation of ongoing degradation of a resource the Commission is charged with enhancing, the project proponent cannot "create a conflict" by adding to the project an

independent component to remedy the resource degradation. The benefits of a project must be inherent in the purpose of the project. If this provision were otherwise, project proponents could regularly "create conflicts" and then request that the Commission use Section 30007.5 to approve otherwise unapprovable projects. The balancing provisions of the Coastal Act could not have been intended to foster such an artificial and easily manipulated process, and were not designed to barter amenities in exchange for project approval. In this case, the project purpose is to demolish and decommission structures that present a risk to coastal resources; the benefits are therefore integral to the project.

7) There are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies.

Finally, a project does not present a conflict among Chapter 3 policies if at least one feasible alternative would meet the project's objectives without violating any Chapter 3 policy. Thus, an alternatives analysis is a condition precedent to invocation of the balancing approach. If there are alternatives available that are consistent with all of the relevant Chapter 3 policies, then the proposed project does not create a true conflict among those policies.

As noted above, the "no action" alternative would result in the continued presence of the facility and associated materials on site and the continued risks resulting from that presence. Additionally, and as explained in Section 4.3.1 of these Findings, there are no available alternative offsite facilities for some of the materials to be generated – i.e., the Class B and Class C wastes – so PG&E's proposal to use its higher elevation onsite high-level facility provides the best feasible alternative. Finally, as discussed above, the extreme range of potential geologic hazards at this site makes it impractical to design and implement the temporary project developments and activities – e.g., the short-term facilities such as office buildings and temporary structures – in a way that would withstand those hazards.

Existence of a Conflict Between Chapter 3 Policies: Based on the above, the Commission finds that the proposed project presents a conflict between Sections 30253(1)-(2), on the one hand, and Sections 30230, 30231, and 30240 on the other, that must be resolved through application of Section 30007.5, as described below.

CONFLICT RESOLUTION

After establishing a conflict among Coastal Act policies, Section 30007.5 requires the Commission to resolve the conflict in a manner that is on balance most protective of coastal resources. As noted previously, the project would reduce but not minimize risks due to geologic hazards and it would eventually require shoreline protection during its anticipated life, thus making it inconsistent with Coastal Act Sections 30253(1)-(2). However, denying the project because of its inconsistency with these policies would result in significant adverse effects on biological resources due to the greater geologic risks associated with the existing storage area.

In sum, the Commission finds that while the project would not adequately minimize risks due to geologic hazards and would eventually require a shoreline protection structure, it would also, over the long-term significantly reduce most of those risks, since most of the facility and associated materials would be removed from the site and the remaining material would be placed at a safer onsite location. This would both reduce the risks associated with those geologic hazards and increase protection of coastal biological resources. The required Special Conditions are necessary to ensure the project's adverse impacts are minimized and its benefits are fully realized. Therefore, the Commission finds that approval of the proposed project notwithstanding its inconsistencies with several Coastal Act policies is "most protective of coastal resources" for purposes of the conflict resolution provisions of Coastal Act Section 30007.5.

5 CALIFORNIA ENVIRONMENTAL QUALITY ACT

***Note:** As of the date of this staff report, DTSC has not yet completed the CEQA process; however, staff anticipates that it will be completed prior to the Commission's scheduled December 10, 2009 hearing. DTSC published the Negative Determination on October 30, 2009 with a comment period running until December 4, 2009, and DTSC anticipates that it will certify the document by December 7, 2009. Staff will inform the Commission about the status of the necessary CEQA review at the Commission's December hearing.*

Section 13096 of the Commission's administrative regulations requires Commission approval of coastal development permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits approval of a proposed development if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant impacts that the activity may have on the environment. As discussed above, the proposed project has been conditioned to be found consistent with the policies of the Coastal Act. Mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, that would substantially lessen any significant adverse impact that the activity would have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of CEQA.

APPENDIX A: SUBSTANTIVE FILE DOCUMENTS

California Coastal Commission. *Final Adopted Findings for Coastal Development Permit #E-05-001 – PG&E's Independent Spent Fuel Storage Installation (ISFSI) Project*. September 15, 2005.

California Energy Commission. *Application for Certification, Humboldt Bay Generating Station, Petition for Modification No. 1 for Fields Landing Laydown Area*. January 2009.

Nuclear Regulatory Commission. *Fact Sheet on Decommissioning Nuclear Power Plants*, January 2008 (accessed November 2, 2009 via http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html)

Pacific Gas & Electric Company. *Final Draft Interim Measures/Removal Action Work Plan PG&E Humboldt Bay Power Plant – Eureka, California*, prepared by Arcadis Consulting, October 29, 2009.

_____. *Draft Current Conditions Report*, prepared by Arcadis, June 2009.

_____. *Post-Shutdown Decommissioning Activity Report*, May 2009.

_____. *Fields Landing Laydown Area for the Humboldt Bay Generating Station, Humboldt County California*, prepared for the California Energy Commission's Application For Certification #06-AFC-7C, January 2009.

_____. *Asbestos Survey and Limited Lead, Chromium, and PCB Paint Survey, PG&E Power Plant, Eureka, California*, by Winzler and Kelly, 2009.

_____. *Radiological Characterization Report, Humboldt Bay Power Plant, Eureka, California*, by Eneron, 2008.

_____. *Safety Analysis Report*, *Environmental Report*, and *Emergency Plan* from application to Nuclear Regulatory Commission for 10 CFR 72 ISFSI License, 2003.

_____. "Technical Memorandum: Hydrologic Impacts of Discontinuation of Cooling Water Withdrawals at the Humboldt Bay Power Plant, prepared by CH2MHill, March 27, 2009."