SOIL AND WATER RESOURCES

Ellen Townsend-Hough and John Kessler, P.E.

SUMMARY OF CONCLUSIONS

Staff has determined the proposed project would not result in any significant impacts to soil and water resources. The Humboldt Bay Repowering Project (HBRP) would comply with all applicable soil and water resource laws, ordinances, regulations, and standards (LORS) including Section 30231 of the Coastal Act. Potentially significant impacts would be mitigated through the preparation of construction and operation plans and the use of Best Management Practices (BMPs) that would mitigate problems related to soil erosion, contamination to surface and groundwater, use of potable water supplies, or non-compliance with wastewater treatment and discharge requirements.

INTRODUCTION

In this section staff analyzed potential significant adverse impacts to soil and water resources associated with construction and operation of Humboldt Bay Repowering Project. This analysis focuses on the following items, and whether:

- the project's demand for water could affect surface or groundwater supplies or local groundwater quality;
- construction or operation could lead to accelerated wind or water erosion and sedimentation;
- the project's wastewater management practices would lead to degradation of surface or ground water quality;
- project construction or operation could lead to degradation of surface water quality or drainage;
- the project has taken precautions to avoid adverse surface water impacts during operations, i.e. from flooding; and
- the project would comply with all applicable laws, ordinances, regulations and standards.

Where the potential for impacts is identified, mitigation and Conditions of Certification have been proposed.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

SOIL & WATER Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Federal LORS	
Clean Water Act (33 U.S.C. Section 1257 et seq.)	The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality, which includes regulation of stormwater discharges during construction and operation of a facility. These are normally addressed through a general National Pollutant Discharge Elimination System (NPDES) permit. For HBRP, regulation of water quality is administered by the North Coast Regional Water Quality Control Board (NCRWQCB).
Resource Conservation and Recovery Act	The Resource Conservation Recovery Act (RCRA) of 1976 (40 CFR Part 260 et seq.) seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
State LORS	
Water Code Section 13260	Requires filing with the appropriate Regional Board a report of waste discharge that could affect the water quality of the state, unless the requirement is waived pursuant to Water Code section 13269.
Local LORS	
Humboldt County	Regulates all industrial activities in the County through review and approval of a Plan of Operation submitted to the Community Development Services Department. Flood Ordinance Section 335-5 regulates the construction of flood barriers, which will unnaturally divert flood waters and may increase flood hazards in other areas.
State Policies and Guidance	
California Constitution, Article X, Section 2	This section requires that the water resources of the State be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use or unreasonable method of use of water is prohibited.
Title 23, California Code of Regulations, Chapter 15, Division 3	These regulations require that the Regional Water Quality Control Board (Regional Board) issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.
California Code of Regulations, Title 17	Title 17, Division 1, Chapter 5, addresses the requirements for backflow prevention and cross connections of potable and non-potable water lines.
California Code of Regulations, Title 23	Title 23, Division 3, Chapter 15, requires that the Regional Board issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.
SWRCB Water Quality Order 99-08	The SWRCB regulates stormwater discharges associated with construction projects affecting areas greater than or equal to 1 acre to protect state waters. Under Order 99-08, the SWRCB has issued a National Pollutant Discharge Elimination System (NPDES) General Permit for stormwater discharges associated with construction activity for which applicants can qualify if they meet the criteria and upon preparing and implementing an acceptable Storm Water Pollution Prevention Plan (SWPPP) and notifying the SWRCB with a Notice of Intent.
California Water Code Section 100	Requires the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and the waste or unreasonable

	use or unreasonable method of use of water be prevented, and that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.
California Water Code Section 100.5	Declares to be the established policy of the State that conformity of a use, method of use, or method of diversion of water with local custom shall not be solely determinative of its reasonableness, but shall be considered as one factor to be weighed in the determination of the reasonableness of the use, method of use, or method of diversion of water, within the meaning of Article X, Section 2 of the California Constitution.
California Water Code Section 13146	Requires that state offices, departments and boards in carrying out activities, which affect water quality, shall comply with state policy for water quality control unless otherwise directed or authorized by statute, in which case they shall indicate to the State Water Resources Control Board in writing their authority for not complying with such policy.
California Water Code Section 13247	Requires that state offices, departments, and boards, in carrying out activities which may affect water quality, shall comply with water quality control plans (i.e., Basin Plans) approved or adopted by the State Water Resources Control Board unless otherwise directed or authorized by statute, in which case they shall indicate to the appropriate Regional Water Quality Control Boards in writing their authority for not complying with such plans.
SWRCB Resolution 68-16	This resolution (the "Anti-Degradation Policy") declares that it is the State's policy for maintaining existing high quality waters to the maximum extent possible. The existing high water quality must be maintained until demonstrated to the State that any proposed change will be consistent with the maximum benefit to the people of the state and will not unreasonably affect present or future beneficial uses.
SWRCB Resolution 75-58	The principal policy of the SWRCB that addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. Resolution 75-58 defines brackish waters as "all waters with a salinity range of 1,000 to 30,000 mg/l" and fresh inland waters as those "which are suitable for use as a source of domestic, municipal, or agricultural water supply and which provide habitat for fish and wildlife". In a May 23, 2002 letter from the Chairman of the SWRCB to Energy Commission Commissioners, the principal of the policy was confirmed 'that the lowest quality cooling water reasonably available from both a technical and economic standpoint should be utilized as the source water for any evaporative cooling process utilized at these facilities'.
SWRCB Resolution 88-63	The Regional Water Quality Control Boards (Regional Boards) shall assure that the beneficial uses of municipal and domestic supply are designated for protection wherever those uses are presently being attained, and assure that any changes in beneficial use designations for waters of the State are consistent with all applicable regulations adopted by the Environmental Protection Agency. Where a body of water is not currently designated as but, in the opinion of a Regional Board, is presently or potentially suitable, the Regional Board shall include in the beneficial use designation. All surface and groundwater of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional

	Boards with the exception of certain defined surface and groundwater suitable for exception as a source of drinking water. Resolution 88-63 defines suitability of sources of drinking water. The total dissolved solids must exceed 3,000 mg/L for it to not be considered suitable, or potentially suitable, for municipal or domestic water supply.
The California Safe Drinking Water and Toxic Enforcement Act	This Act (California Health & Safety Code Section 25249.5 et seq.) prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity. The Regional Water Quality Control Board administers the requirements of the Act.
Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et esq.)	In the 2003 IEPR, consistent with State Water Resources Control Board Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating they will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound."

SETTING

The proposed HBRP project site is located at 1000 King Salmon Avenue, Humboldt County, California. The HBRP in on Buhne Point, which is a small peninsula along Humboldt Bay. The proposed project would be built on 5.4 acres within a 143-acre parcel currently occupied by a 50-year old power plant. The existing power plant consists of two natural gas and fuel oil-burning steam turbine generating units built between 1956 and 1958, an inoperable nuclear-powered boiling water reactor generating unit, and two diesel-fired Mobile Emergency Power Plant backup and peaking units consisting of combustion turbine technology (PG&E 2006a, Section 2.0).

SOIL

Soils of Hookton silty clay loam comprise the majority of the proposed HBRP site. Some areas of the Hookton silty clay loam are overlain by Bayside silty clay loam deposits. Approximately 35% of the water pipeline is overlain by Bayside silty clay loam deposits (PG&E 2006a Figure 8.11-1). This soil occurs on the gently sloping dissections of the Hookton formation. The Hookton formation consists of interbedded shallow-water marine, estuarine, and fluvial deposits of sand, silty sand, chert-rich gravel, and clay that is about 1,100 feet thick below the site. Bayside soils are imperfectly to poorly drained, fine-textured basin soils, developed in sedimentary alluvium from the Franciscan and Wildcat formations in the North Coast Mountain Range. They occur at elevations from sea level to above 50 feet within about a 10-mile perimeter of Humboldt Bay. Silty clay loam has a slight to moderate potential for water erosion. The HBRP is not located on prime farmland. (PG&E 2006a, Section 8.11 & Figure 8.11-2).

SURFACE HYDROLOGY AND FLOODING

The HBRP site is located within the Humboldt Bay Watershed, encompassing a drainage area of approximately 223 square miles in area. (HBWAC 2005, Figure 8.15-1). Annual precipitation in Humboldt County averages about 39 inches, and can vary significantly depending on local conditions. Within the basin are the ancient redwoods of the Headwaters Forest, highly productive industrial timberlands, prime agricultural lands and functioning streams and wetlands, all of which are connected to the bay and tidal marshlands (HBWAC 2005).

The HBRP site is currently located in a 100-year flood zone (Zone A) area per the Federal Emergency Management Agency (FEMA) (PG&E 2006a, Figure 8.15-3). The site would be built up to an elevation of 11 feet – 12 feet, with foundations for power plant equipment built to an elevation of 13 feet.

The HBRP site lays within the potential tsunami inundation zone and tsunami are a recognized hazard. A tsunami is an ocean wave produced by a sub-marine earthquake, landslide, or volcanic eruption. Tsunami have been recorded at the south end of Humboldt Bay, and have inundated the lower areas around Buhne Hill including the HBRP site (PG&E 2006a Section 8.4.1.1.1).

GROUNDWATER

HBRP would be located in the Eureka Plain Groundwater Basin. This aquifer is contained in a basin that extends over an area of approximately 37,400 acres (PG&E 2006a, Figure 8.15-2). The Eureka Plain Groundwater Basin is bounded by the Little Salmon Fault to the south, Humboldt Bay and Arcata Bay to the west and northwest, and by Wildcat series deposits to the east. The Wildcat series is a group of five formations ranging in age from the Miocene to Pleistocene eras consisting of sandstone, marine siltstone, and claystone deposits. Humboldt Bay separates the primary basin deposits from dune sand deposits to the west. (PG&E 2006a, Section 8.15.1.2).

Estimates of groundwater extraction from the basin for agricultural and municipal/industrial uses are 4,800 and 1,300 acre-feet per year respectively. Deep percolation from applied water is estimated to be 1,700 acre-feet per year. Groundwater in the basin is rich in calcium and magnesium. Total dissolved solids range from 97 to 480 milligrams per liter (mg/L), averaging 177 mg/L. Groundwater impairments include localized high boron, iron, manganese, and phosphorus (PG&E 2006a, Section 8.15.1.2). Groundwater is encountered at depths of five to six feet during relatively dry times of the year. Seasonal groundwater may rise close to the existing site surface during periods of wet weather and high tides. (CH2MHILL 2007a, Data Response 28).

PROJECT WATER SUPPLY

Raw water for HBRP process needs would be supplied from Pacific Gas and Electric Company's (PG&E's) Well No. 2 via an existing 6-inch raw water supply pipeline located within the project site. The HBRP facility operations would require plant process water for maintenance of the engine cooling systems (air radiators), closed cooling water system for auxiliary equipment, preheating for jacket water and engine turbocharger washing (PG&E 2006a Section 7.1). Two shop-fabricated 2,600-gallon maintenance water tanks will be used to store engine coolant, consisting of a solution of water and propylene glycol The engine coolant systems are filled from the isolated maintenance water tanks. The project's annual demand for process water would average a volume of 2.7 acre-feet/year (AFY) based on an annual operation of 8,760 hours per year at full plant output.

Potable water supplied from the Humboldt Community Services District (HCSD) will service sinks, toilets, showers, fountains, eye-washes and safety showers. The estimated domestic use for the project is 0.182 acre-feet per year. The firewater tank

will be filled both the raw water and potable water sources. The potable water will be supplied by a new 1,200-foot-long, 4-to 6 inch water supply pipeline. The new potable water pipeline will connect to an existing HCSD pipeline near the entrance to HBRP at King Salmon Avenue (PG&E 2006a Section 7.1).

The HBRP water demands are as shown in **Soil & Water Table 2**. The quality of the process water, as would be supplied to HBRP from PG&E's Well No. 2 is characterized in **Soil & Water Table 3**.

SOIL & WATER RESOURCES TABLE 2
HBRP Water Demands (average and peak are equivalent)

Description	Instantaneous Rate Gallons per Minute (gpm)	Annual Volume AFY
Construction – Compaction & Dust Suppression	50 – 200 gpm	6 AFY
Operations - Process Water	1.66 gpm	2.7 AFY
Operations - Potable Water	0.11 gpm	0.182 AFY

(PG&E 2006a, Sections 7 and 8.15)

SOIL & WATER RESOURCES TABLE 3
PG&E Well No. 2 Water Quality

PARAMETER	CONCENTRATION (milligrams/liter, mg/L)
Alkalinity (as$CACO_3$)	56
Total Dissolved Solids	130
Turbidity	0.15
Arsenic	2.2
Boron	ND
Cadmium	ND
Calcium	5.7
Chloride	32
Chromium	1.7
Copper	ND
Fluoride	0.12
Iron	27
Lead (at tap)	ND
Magnesium	8.6
Manganese	13
Mercury (inorganic)	ND
Silver	ND
Sodium	14
Sulfate	8.4
Zinc	ND

Source: (PG&E 2006a, TABLE 7.2-1)

WASTEWATER

Wastewater leaving the HBRP would be comprised of waste process water and waste domestic water. Leaks from process water uses in engine cooling and seals, condensate from compressors, and area wash downs will be collected in a system of floor drains, hub drains, and piping routed to two water collection sumps located outside of the engine house. The sumps would drain to the oil water separator. The clean water will be discharged to the sanitary sewer system. Sanitary wastewater will be collected by gravity and discharged to an existing sewer via a 4-inch diameter piping system that serves the project site (PG&E 2006a 7.4).

SOIL & WATER RESOURCES TABLE 4
Annual Wastewater Discharge Rates

Waste Discharge Stream	Discharge Location	Average Annual Discharge (gpm)
Engine closed loop cooling system	Oily Water Collection Pit	0.17
Service Use (Power House and Plant Uses including general plant drains)	Oily Water Collection Pit	0.32
Domestic wastewater	Sanitary sewer system	0.11
Total		0.60

(Source PG&E 2006a Table 8.15-3)

The sewer system is subject to the regulations of, and permitted under, the National Pollutant Discharge Elimination System (NPDES) program of the Clean Water Act for the treatment and disposal of wastewater. The applicable wastewater quality requirements for the project are based on the City of Eureka's requirements adopted by HCSD. HBRP's waste stream would generally be the same composition as the well water for most constituents. (CH2MHILL Data Responses 40 and 41)

STORMWATER

Stormwater runoff from the 5.4 acre portion of the HBPP property proposed for siting HBRP currently drains overland into Buhne Slough. During construction and operation of HBRP, stormwater would continue to drain into Buhne Slough. Stormwater runoff from most of the remaining HBPP site drains into the cooling water intake and discharge channel.

There are two types of stormwater surface runoff associated with HBRP: (1) contact areas where stormwater from project tanks, equipment or hazardous materials handling activities could potentially have oil or chemical contamination, requiring treatment prior to discharge; and (2) non-contact areas where stormwater from plant areas are not subject to contamination. Stormwater discharges from existing Humboldt Bay Power Plant will continue to discharge at current locations.

The proposed system for contact area has four water collection sumps that receive stormwater from the lubricating oil and diesel tank areas. The sump water will be checked for level and contamination and pumped to the oil water separator when the

water is contaminated. Sludge will be removed by a licensed hazardous waste transporter and taken to a permitted recycling facility of hazardous waste disposal site. Noncontaminated sump water will be discharged to the plant stormwater drainage system. Clean water from the oil water separator will be discharged to the sanitary sewer system.

Stormwater from non-contact areas will drain into a separate stormwater collection and treatment system from the contact areas. The non-contact drainage system will collect stormwater in areas on the HBRP sites, which do not have equipment, tanks, or loading areas for oil or chemicals (CH2MHILL 2006a Data Responses 42). The storm drainage system will have catch basins for collecting stormwater and an underground piping system with manholes at all junction points and turns. An in-ground separator will treat stormwater runoff prior to discharge. The new stormwater drainage system's point of discharge will be southeast of the project into Buhne Slough.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

This project was analyzed to determine if it complies with LORS, meets CEQA standards, and will not result in a significant adverse impact. The threshold of significance is based upon the ability of the project to be built and operated without violating erosion, sedimentation, flood, surface or groundwater quality, water supply, or wastewater discharge standards. The LORS and Policies presented in **Soil & Water Table 1** were used to determine the threshold of significance for this proceeding. The following LORS and Policies are of particular relevance for determining the significance of a potential impact. For those impacts that exceed the published standards, or do not conform to the established practices, mitigation will be proposed by staff to reduce or eliminate the impact.

- The Clean Water Act requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water.
- The Resource Conservation Recovery Act of 1976 seeks to prevent surface and groundwater contamination.
- Humboldt County Flood Ordinance Section 335-4.

IMPACTS AND MITIGATION

Impact and mitigation discussion presented below is divided into a discussion of impacts related to construction and operation. For each potential impact discussed, the applicant's proposed mitigation is presented and staff's determination of the adequacy of the proposed mitigation is analyzed. Staff refers to specific Conditions of Certification related to a potential impact and the required mitigation measure(s). Staff may refer to Compliance with LOR's as a mitigation measure.

Construction Impacts and Mitigation

Construction of the HBRP facility will include soil excavation, grading, and installation of necessary connections to linear facilities for the HBRP site. Potential impacts evaluated include the potential for increased runoff flow rates and volumes discharged from HBRP; and if this could increase flooding downstream of the HBRP site. Potential construction related impacts to soil, stormwater, groundwater, wastewater and water quality, including proposed mitigation measures, are discussed below.

Soils

Construction activities can lead to adverse impacts to soil resources including increased soil erosion, soil compaction, loss of soil productivity, and disturbance of saturated soils if proper best management practices (BMPs) are not implemented. Activities that expose and disturb the soil leave soil particles vulnerable to detachment by wind and water. Soil erosion would result in the loss of topsoil and increased sedimentation of surface waters downstream of the HBRP. The magnitude, extent and duration of these impacts would depend on several factors, including the proximity of the HBRP site to surface water, the soils affected, and the method, duration, and time of year of activities. Prolonged periods of precipitation, or high intensity and short duration runoff events coupled with earth disturbance activities can result in on-site erosion, eventually increasing the sediment load within nearby receiving waters. In addition, high winds during grading and excavation activities can result in wind borne erosion leading to increased particulate emissions that adversely impact air quality. Implementing appropriate erosion control measures will help conserve soil resources, maintain water quality, protect property from erosion damage, prevent accelerated soil loss, and protect air quality.

The HBRP site construction could disturb about 12.4 acres including 5.4 acres for the HBRP footprint, two acres of construction laydown area, three acres of access road and two acres of construction worker parking (PG&E 2006a Section 8.11.2.3). The relatively flat site and surrounding developed areas, and the use of construction BMPs reduce the potential for soil loss and erosion to a negligible level. Construction BMPs for HBRP identified by the applicant could include revegetation, mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers. Without the implementation of BMPs, the applicant estimated that from water erosion, approximately 56.4 tons of soil could be eroded during construction including grading and excavation. The potential for greatest soil loss is from the Silty Loam, because it is more susceptible to erosion than clayey soils, and is the predominant soil type for both the site and linear areas. With the implementation of BMPs to limit erosion and trap eroded sediments, the applicant estimated that the soil loss from the HBRP site due to water erosion would be reduced to approximately 1.1 tons (PG&E 2006a, Section 8.11.2.4.1, and Table 8.11-2).

The Draft Construction Drainage Erosion and Sediment Control Plan/Stormwater Pollution Prevention Plan (DESCP/SWPPP) submitted by the applicant provides erosion control BMPs to address soil erosion during construction and operation (CH2MHILL 2007a). Staff believes that implementation of an approved DESCP will limit erosion in conformance with Condition of Certification **SOIL & WATER-1**. The applicant will also prepare a SWPPP for Construction Activity for control of erosion from runoff at the HBRP site in conformance with Condition of Certification **SOIL & WATER-2**. Staff

believes adequate sedimentation control measures would be installed at locations where offsite drainage is possible, as well as controls within the project area for various stages of construction. Primary earth-disturbing activities during construction would be scheduled during spring through fall, when rain and erosion potential from stormwater runoff conditions are the least. The construction BMPs would include implementing silt fences, sand bags, hay bales, geotextiles, fiber rolls, dust control, and stockpile management. The laydown area would be covered with gravel to accommodate all-weather use and to protect the ground surface, and would be left in this condition during the operation phase of the project until Humboldt Bay Repowering Project elects to otherwise develop this area.

Wind erosion can lead to adverse soil impacts through the loss of topsoil, and fugitive dust, degrading air quality. The applicant proposes to employ BMPs including watering the HBRP site daily and to enclose, cover, water, or treat soil stock piles to limit soil loss due to wind erosion; consistent with Condition of Certification **SOIL & WATER-1**. Staff believes that these recommendations are sufficient to mitigate soil loss due to wind erosion.

Staff believes the proposed construction scheduling and methods for erosion and drainage control, including the development of a Final DESCP consistent with Condition of Certification **SOIL & WATER-1** and a SWPPP for Construction Activity in accordance with Condition of Certification **SOIL & WATER-2**, will avoid significant adverse impacts from soil loss and erosion during HBRP construction.

Surface Hydrology and Flooding

The HBRP is within Zone A (100-year flood zone), an area of special flood hazard and requires procurement of a Flood Plain Development Permit from Humboldt County before construction begins. During site grading and preparation, the site will be built up to an elevation ranging from 11-12 feet with equipment foundations set at 13 , thereby removing the site of the 100-year flood zone (PG&E 2006a Section 8.15.1.3). To obtain the permit, PG&E must secure a Flood Elevation Certificate (FEMA Form 81-31) based on construction drawings. A final Flood Elevation Certificate based on finished construction is also required to demonstrate compliance with Section 335-5 of the Humboldt County Flood Ordinance (CH2MHILL 2007a Data Response 43 and 44).

A County Building Official confirmed that six feet above sea level is the base elevation for Zone A. The HBRP plant grade is 11 to 12 feet. The finished floor elevations will be at 13 feet. Therefore, the HBRP will be above the 100-year Flood level.

The FEMA Elevation Certificate is used to rate post Flood Insurance Rate Map buildings located in Zone A. The certificate is also used to provide elevation information necessary to ensure compliance with community floodplain management ordinances and support a request for a Letter of Map Amendment. The final Elevation Certificate will be based on Finished Construction and certified by a registered professional surveyor, engineer or architect. Condition of Certification **SOIL & WATER-4** would require PG&E to obtain a Floodplain Development Permit from Humboldt County before construction begins.

HBRP site construction would not alter the existing drainage patterns and not result in increased runoff volumes. Because the HBRP site would discharge stormwater runoff during construction, the project must comply with the General NPDES Permit for Construction Activity. The NPDES Permit regulates stormwater effluent limitations, specifies monitoring and reporting requirements, and requires preparation and implementation of a SWPPP for construction activities. Staff does not believe that construction will have an adverse impact on surface water hydrology or exacerbate flooding, if a DESCP consistent with Condition of Certification **SOIL & WATER-1** and a SWPPP for Construction Activity in accordance with Condition of Certification **SOIL & WATER-2** are implemented.

Groundwater

The construction phase of HBRP will likely require groundwater removal (dewatering) within excavated areas (PG&E 2006a Section 8.15.2.4). Geotechnical investigations for HBRP have encountered groundwater at depths of five to six feet, and seasonally near the ground surface (CH2MHILL 2006a Data Response 28). Previous trenching has shown that groundwater will emerge at the time of trenching, but will recede in 24 hours. The subsurface drainage would be discharged into the HCSD sanitary sewer system or discharged over land into Buhne Slough under a Low Threat Discharge Permit that would be obtained from the North Coast Regional Water Quality Control Board (CH2MHILL 2007a Data Response 42). Condition of Certification **SOIL & WATER-6** would require the project owner to file an Application/Report of Waste Discharge and obtain an NPDES Permit from the North Coast Regional Water Quality Control Board to assure the discharge of groundwater associated with dewatering site excavations would not impair the quality of surface water in Buhne Slough. Staff believes that there will not be a significant adverse impact on groundwater associated with construction of the HBRP if dewatering is conducted in compliance with the NPDES Permit.

Water Supply

During construction, HBRP proposes to use about 6 acre-feet of potable water supplied by the HCSD, primarily for dust control (PG&E 2006a Section 8.15.2.1.4). Although the use of 6 AF of potable water during construction is not expected to cause a significant impact on HCSD's water supply, staff is recommending that the applicant use raw water from PG&E's Well no. 2 in order to conform with state water policies aimed at conserving the highest quality water whenever possible. Condition of Certification Soil & Water-5 specifies that the applicant is to use raw water from PG&E's well no. 2 during construction for all non-potable purposes including compaction and dust suppression.

Wastewater

Construction wastewater generated onsite may include stormwater runoff, groundwater from dewatering, vehicle and equipment washdown water, and water from pressure testing the service utilities. Improper handling or lack of containment of construction wastewater could cause a broader dispersion of contaminants to soil, groundwater or surface water.

During construction, construction wastewater and stormwater runoff will be managed to maintain compliance with the required Drainage, Erosion and Sediment Control Plan and Construction SWPPP, consistent with Conditions of Certification **SOIL & WATER-1**

and **SOIL & WATER-2**. The discharge of any non-hazardous or hazardous wastewater during construction other than stormwater must comply with regulations for discharge. Staff believes that no significant impact to soil, groundwater, or surface would occur if the above mentioned mitigation measures are implemented.

Stormwater

The HBRP site construction could disturb about 12.4 acres including 5.4 acres for the HBRP footprint, two acres of construction laydown area, three acres of access road and two acres of construction worker parking (PG&E 2006a Section 8.11.2.3). Stormwater drainage of these relatively flat areas disturbed during construction would be directed to separate sedimentation basins. Grading of the HBRP power plant and construction laydown areas and the temporary access road will result in stormwater draining in an overall west to east direction. The perimeter swales will collect and convey the stormwater surface drainage into the sedimentation basins. The sedimentation basins will serve to clarify the stormwater before it is discharged into Buhne Slough. The sedimentation basins for serving construction needs would be sized according to the General NPDES permit requirements requiring 3,600 cubic feet of storage per acre draining into the basin (PG&E 2006a Section 8.15.2.4).

Primary earth-disturbing construction activities coinciding to when erosion potential is highest, would be scheduled during summer and through fall, when precipitation and stormwater runoff is lowest, and the need for erosion and drainage control BMPs is minimized. In addition to perimeter swales and the sedimentation basins, construction BMPs would include installing silt fences, crushed stone surfacing over geotextile fabric, fiber rolls, and dust control, covering and containing construction materials and waste, and stockpile management. The laydown area would be covered with gravel to accommodate all-weather use and to protect the ground surface. Hazardous materials used during construction would be properly stored and contained, and any spills occurring during handling, would be promptly cleaned-up to avoid spread of contamination from stormwater runoff.

Condition of Certification **SOIL & WATER-6** would require the project owner to file an Application/Report of Waste Discharge and obtain an NPDES Permit from the North Coast Regional Water Quality Control Board to assure the discharge of groundwater associated with dewatering HBRP site excavations during construction and for discharge of stormwater during both construction and operation, would not impair the quality of either groundwater or surface water in Buhne Slough. As an alternative and if applicable, the project owner may provide documentation from the North Coast RWQCB that HBRP's discharge of groundwater and stormwater to Buhne Slough would be permitted under the General NPDES Permits that would be utilized in accordance with Conditions of Certification **SOIL & WATER-2 and -3**. Staff believes that there will not be a significant adverse impact on either groundwater or surface water associated with construction of the HBRP if dewatering and stormwater management is conducted in compliance with the NPDES Permit. Staff also believes the proposed construction scheduling and methods for erosion and drainage control, including the development of a Final DESCP consistent with Condition of Certification **SOIL & WATER-1** and a SWPPP for Construction Activity in accordance with Condition of Certification **SOIL &**

WATER-2, will avoid significant adverse impacts from stormwater during HBRP construction.

Operation Impacts and Mitigation

Operation of the HBRP should not significantly impact soil, stormwater runoff, water quality, water supply, and wastewater, if conditions of certification are implemented. Water quality and soils would not be impacted by the discharge of hazardous materials released during operation because secondary containment structures associated with hazardous materials located at the site would preclude contact with soils, groundwater, and surface water. Water supply for plant processes and cooling would not lead to impacts to existing water sources. Wastewater discharge would not lead to potential impacts since HBRP would discharge wastewater with constituent concentrations below discharge limits. Potential impacts related to the operation of the HBRP including the applicant's proposed mitigation measures and staff's proposed mitigation measures are discussed below.

Soils

During operation of the HBRP, the HBRP site would be primarily covered with paving and gravel, or landscaped so that soil exposure to wind and water is minimized. Further protecting the limited exposure of soils would be the implementation of stormwater drainage BMPs, as the project owner would need to comply with the requirements of the DESCP as specified in Condition of Certification **SOIL & WATER-1** and the General NPDES Permit for Discharges of Stormwater Associated with Industrial Activity. Under the NPDES permit as specified in Condition of Certification **SOIL & WATER-3**, the project owner would develop and implement a SWPPP for the operation of the entire HBRP site (Operational SWPPP). Staff believes adverse impacts to soil, and the potential for soil erosion, would not be significant during HBRP operation

Surface Hydrology and Flooding

HBRP operation would not alter the existing drainage patterns and not result in increased runoff volumes. Because HBRP would discharge stormwater runoff, it must comply with the Humboldt County General NPDES Permit and Stormwater Management Plan. The NPDES Permit regulates stormwater effluent limitations, specifies monitoring and reporting requirements, and requires preparation and implementation of a SWPPP for industrial activities. Staff does not believe that HBRP operation will have an adverse impact on surface water hydrology or exacerbate flooding, if a SWPPP for Industrial Activity in accordance with Condition of Certification **SOIL & WATER-3** is implemented. Humboldt County has established the 100-year base flood elevation to be +6 feet in the vicinity of the project. The existing HBPR site varies in elevation from 8 to 12 feet. The HBRP site will be graded to an elevation of 11 to 12 feet, with major equipment foundations at elevations of approximately 13 feet. The HBRP site will not be within the 100-year flood hazard area once the site is built according to plans and thus, will not impede or redirect flood flows.

The site is in a moderate to high tsunami danger zone. The potential elevation of a tsunami was evaluated by PG&E in association with plans for the Independent Spent Fuel Storage Installation (ISFSI) project and was estimated as a worst case to be on the order of 43 feet. All major structures will be adequately anchored to prevent major

damage from wave action and displacement due to buoyancy as a result of the potential for tsunami hazard (PG&E 2006a Section 8.15.1.3). Staff does not believe operation of HBRP would cause any significant adverse impact to surface hydrology or exacerbate flooding. Please see the **Biological Resources** section of the PSA for discussion regarding project effects to wetlands and the status of agency determinations and required permits.

Groundwater

The project will use groundwater as process supply water for radiator makeup, equipment washdown, and other industrial uses. The groundwater will be supplied through an existing water supply pipeline from PG&E's Humboldt Bay Power Plant Well No. 2. Because the Wartsila 18 V50DF internal combustion engines are air radiator-cooled, they use very little water for cooling. The total annual process water demand, including makeup water for the closed loop air radiator cooling system is only 2.7 AFY. Therefore, staff believes that there will not be a significant adverse impact on groundwater, as a result of operation of the HBRP.

Water Supply

The HBRP facility operations would require raw process water from PG&E Well No. 2 from the existing 6-inch raw water supply pipeline located within the project site. The process water required for radiator makeup, equipment washdown, and other industrial uses. Domestic water required for sinks, toilets, showers, drinking fountains, and eye wash/safety showers will be provided from a new 1,200 foot 4- to 6-inch water supply pipeline from the Humboldt Community Services District (HCSD) main in King Salmon Avenue. This pipeline will be constructed under the temporary construction access road and will interconnect to the HCSD pipeline in King Salmon Avenue (PG&E 2006a Section 8.15.2.1). The project's annual volume of water use would average about 2.7 AFY based conservatively on an annual operation of 8,760 hours per year at full plant output. Domestic water demands for uses other than plant and industrial processes are estimated at average 0.11 gpm, less than 0.182 acre-feet per year (PG&E 2006a Figure 7.11-1). HCSD has issued a Will Serve Letter to HBRP dated July 18, 2006 (PG&E 2006a Appendix 7A).

HBRP would use potable water delivered from HCSD to supply domestic uses, and to serve, as a back-up water supply for the process needs. Historically, significant unscheduled outages have been infrequent. HCSD can support HBRP up to an additional estimated use of 3.0 gpm, which is substantially more than 0.11 gpm anticipated for HBRP domestic needs. The HCSD had never been shutdown of the domestic water system (CH2MHILL 2007a, DR37).

If the HBRP were approved by the Energy Commission, staff proposes that HBRP be required to verify actual water use consistent with the proposed project. Therefore, staff recommends the project owner be required to submit water use data in accordance with Condition of Certification **SOIL & WATER-5**. In order to complete this task, the HBRP project owner would install and maintain metering devices as part of the water supply and distribution system to separately monitor and record use of groundwater from the PG&E Well #2, and potable water supplied by HCSD. An annual summary of water use by the HBRP would be submitted to the CPM in the Annual Compliance Report.

Staff believes that if the recommended conditions of certification are implemented, HBRP's operational use of groundwater with potable water as an emergency backup supply will not result in a significant adverse impact.

Wastewater

During project operations, sanitary wastewater and effluent from the oil/water separator would be discharged into the sanitary sewer operated by Humboldt Community Services District. No significant adverse impacts are expected from any HBRP wastewater discharge after adoption and implementation of staff's recommended Condition of Certification **SOIL & WATER-8**, and if the project is operated in compliance with other applicable LORS. **SOIL & WATER-8** would require the project owner to obtain a Permit for Industrial Wastewater Discharge and comply with the wastewater discharge limitations, pretreatment requirements, peak flow restrictions, dewatering discharges, payment of fees, and monitoring and reporting requirements of Humboldt Community Services District.

Stormwater

During operation of HBRP, stormwater would continue to drain into Buhne Slough. Stormwater surface runoff associated with HBRP would be separated into systems for draining contact areas where stormwater be contaminated from hazardous materials, and from non-contact areas where stormwater from plant areas are not subject to contamination.

The proposed system for contact area has four water collection sumps that receive stormwater from the lubricating oil and diesel tank areas. The sump water will be checked for level and contamination and pumped to the oil water separator when the water is contaminated. Sludge will be removed by a licensed hazardous waste transporter and taken to a permitted recycling facility of hazardous waste disposal site. Noncontaminated sump water will be discharged to the plant stormwater drainage system. Clean water from the oil water separator will be discharged to the sanitary sewer system.

Stormwater from non-contact areas will drain into a separate stormwater collection and treatment system from the contact areas. The non-contact drainage system will collect stormwater in areas on the HBRP sites, which do not have equipment, tanks, or loading areas for oil or chemicals (CH2MHILL 2006a Data Responses 42). The storm drainage system will have catch basins for collecting stormwater and an underground piping system with manholes at all junction points and turns. An in-ground separator will treat stormwater runoff prior to discharge. The new stormwater drainage system discharge will be southeast of the project into Buhne Slough. The outfall structure will consist of a grass-lined swale that will serve to further remove potential contaminants before discharging into Buhne Slough.

The surface drainage system will be designed to discharge the 10-year 24-hour storm runoff without flooding roads and the 50-year 24-hour storm runoff without flooding plant facilities (CH2MHILL 2007a, Data Response 44) The 10 year storm has a rainfall intensity of 1.2 inches per hour, which would result in a discharge of 3.11 cubic feet per second (cfs) (PG&E 2006a, App. 7A). Typical design criteria for stormwater drainage

systems would require that the post-developed discharge of stormwater not exceed the pre-developed discharge rate, so as to avoid exacerbating flood conditions off site. In the case of the HBRP, the greater portion of the 143-acre HBPP parcel and surrounding properties in the King Salmon vicinity are already located within the 100-year flood plain and are so significantly affected by tidal influence, that this typical criteria does not apply (HCPW 2007). The HBRP would be protected from flooding within the 100-year flood plain by raising the elevation of the site to range from 11 to 12 feet with equipment foundations set at an elevation of 13 feet, compared to the 100-year flood elevation of about 6 feet.

The project owner would comply with the requirements of operational drainage plans and BMPs as specified in the DESCP in accordance with Condition of Certification **SOIL & WATER-1**, and the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Industrial Activity in accordance with Condition of Certification **SOIL & WATER-3**. Under **SOIL & WATER-3**, the project owner would develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the operation of the entire HBRP site (Operational SWPPP)**.** These BMPs would include the detention basin, containment of hazardous waster material storage areas, and roof covering of material storage areas. As a result of this mitigation, staff believes that there will be no significant adverse impacts associated with stormwater drainage during the operation of HBRP.

Condition of Certification **SOIL & WATER-6** would require the project owner to file an Application/Report of Waste Discharge and obtain an NPDES Permit from the North Coast Regional Water Quality Control Board to assure the discharge of groundwater associated with dewatering HBRP site excavations during construction and for discharge of stormwater during both construction and operation, would not impair the quality of surface water in Buhne Slough. Staff believes that there will not be a significant adverse impact on either groundwater or surface water associated with construction and operation of the HBRP if dewatering and stormwater management is conducted in compliance with the NPDES Permit.

Cumulative Impacts and Mitigation

Staff considered the following foreseeable activities at the HBPP in conjunction with the proposed construction and operation of the HBRP for the potential to cause a significant cumulative impact:

1. Independent Spent Fuel Storage Installation (ISFSI);

2. Decommissioning of the nuclear Unit 3 and associated environmental studies necessary to define decommissioning activities; and

3. Demolition of Humboldt Bay Power Plant's Units 1 and 2, the MEPPs and associated equipment.

Each of these projects is, and will be, conducted under a unique set of permit conditions and environmental review and permitting. The ISFSI initiated construction during spring 2007 and was reviewed and approved by the Coastal Commission and the Nuclear Regulatory Agency, as well as subject to permits and approvals of other federal, state

and local agencies. The other two projects will be conducted in a similar manner. The regulatory permits and approvals serve to assure that the projects alone as well as cumulatively will not cause a significant adverse impact or will cause non-conformance with LORS.

Activities related to the HBRP project would not result in cumulative impacts to water and soil resources. It does not appear that related projects are occurring in the area that would result in cumulative impacts to soil and water resources; or that there are any other reasonably foreseeable future projects that, together with the HBRP incremental impact to soil and water resources, would result in a significant adverse impact.

NOTEWORTHY PUBLIC BENEFITS

The HBRP will use little water for cooling or other purposes compared with traditional simple-cycle or combined-cycle turbine designs. The project will use an air radiator cooling system in which water circulates between the engines and the radiators in a closed-loop system. The water used in the cooling system is continually recycled and is not used for evaporative cooling, as in a cooling tower system. The HBRP will not discharge wastewater from the power plant cooling process.

Existing Units 1 and 2 units use 52,000 gallons per minute of ocean water from Humboldt Bay for their once-through cooling design. Once Unit 1 and 2 cease operation, only 12,900 gpm of water will be required for Unit 3 until the Independent Spent Fuel Storage Installation is in place (PG&E 2006a Section 1.6.5).

CONFORMANCE WITH LORS

The HBRP would comply with all applicable soil and water resources LORS, and avoid potentially significant adverse impacts through the preparation and implementation of various construction and operating plans. The proposed water use is consistent with state water conservation policies by utilizing a closed-loop air radiator system for cooling the reciprocating engine-generator units. HBRP would conform with water quality LORS by preparing and implementing the DESCP and SWPPPs as applicable for both the construction and operating phases of the project., and by securing all related permits. Wastewater, other than stormwater, would be discharged to the sanitary sewer system and would be subject to a Permit for Industrial Wastewater Discharge according to the requirements of Humboldt Community Services District.

COASTAL ACT

Section 30231 of the Coastal Act 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.

The biological productivity and quality of coastal and inland waters would not be affected by the proposed HBRP. Wastewater, other than stormwater, would be properly contained and treated by way of its discharge to the sanitary sewer system. Stormwater would be managed according to comprehensive DESCP and SWPPP plans during both the construction and operation phases of the project, and BMPs would be properly maintained for the life of the project. The proposed air-cooled engine-generators would not require any withdrawal of seawater, and thus would avoid entrainment of marine life. The 2.7 AFY quantity of groundwater needed to meet process needs is minimal, and would not deplete groundwater supplies. The HBRP would be constructed at an elevation above the flood plain, and would not interfere with surface water flow or cause significant alteration of a waterway. The proposed stormwater outfall to Buhne Slough would have minimal effect to its channel configuration and riparian habitat, Therefore, staff concludes that the proposed HBRP would conform to Section 30231 of the Coastal Act as it applies to soil and water resources.

CONCLUSIONS

With the information provided to date, staff has not identified any unmitigated significant impacts to soil and water resources provided that all of the Conditions of Certification are met. The HBRP would comply with all applicable soil and water resources LORS including Section 30231 of the Coastal Act, and avoid potentially significant adverse impacts through the preparation and implementation of various construction and operating plans. The construction and operation of HBRP would not affect surface water and groundwater supplies and quality, lead to accelerated erosion and sedimentation, exacerbate flooding by impairing drainage conditions, or allow wastewater to be discharged in a manner that would degrade surface or groundwater quality.

PROPOSED CONDITIONS OF CERTIFICATION

SOIL & WATER-1 Prior to site mobilization, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion and Sedimentation Control Plan (DESCP) that ensures protection of water quality and soil resources of the HBRP site and all linear facilities for both the construction and operational phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, meet local requirements, and identify all monitoring and maintenance activities. The plan shall be consistent with the grading and drainage plan as required by condition of certification **CIVIL-1** and may incorporate by reference any Storm Water Pollution Prevention Plan (SWPPP) developed in conjunction with any NPDES permit. The DESCP shall contain the following elements:

- Vicinity Map – A map shall be provided indicating the location of all project elements with depictions of all significant geographic features including swales, storm drains, and sensitive areas.

- Site Delineation – The Project, which includes the actual facility, lay down area, all linear facilities, and other project elements, shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.
- Watercourses and Critical Areas – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. Indicate the proximity of those features to the HBRP construction site; lay down area, and all pipeline and transmission line construction corridors.
- Drainage – The DESCP shall provide a topographic site map showing all existing, interim and proposed drainage systems; drainage area boundaries and water shed size(s) in acres; the hydraulic analysis to support the selection of Best Management Practices (BMPs) to divert off-site drainage around or through the HBRP site and laydown areas. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off-site for a minimum distance of 100 feet in flat terrain.
- Clearing and Grading – The plan shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extents of all proposed grading as shown by contours, cross sections or other means. The locations of any disposal areas, fills, or other special features will also be shown. Illustrate existing and proposed topography tying in proposed contours with existing topography. The DESCP shall include a statement of the quantities of material excavated or filled for each element of the HBRP (project site, lay down area, transmission corridors, and pipeline corridors), whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported.
- Project Schedule – The DESCP shall identify on the topographic site map the location of the site specific BMPs to be employed during each phase of construction (initial grading, project element excavation and construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each project element for each phase of construction.
- Best Management Practices – The DESCP shall show the location, timing, and maintenance schedule of all erosion and sediment control BMPs to be used prior to initial grading, during project element excavation and construction, final grading/stabilization, and following construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. BMPs shall include measures designed to prevent wind and water erosion in areas with existing soil contamination. The maintenance schedule should include post-construction maintenance of erosion control BMPs.
- Erosion Control Drawings – The erosion control drawings and narrative must be designed and sealed by a professional engineer/erosion control specialist.

Verification: No later than 90 days prior to start of site mobilization, the project owner shall submit a copy of the plan to the Humboldt Community Services Department for review and comment. No later than 60 days prior to start of site mobilization, the project owner shall submit the plan and comments to the CPM for review and approval. During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage, erosion and sediment control measures and the results of monitoring and maintenance activities. Once operational, the project owner shall provide in the annual compliance report information on the results of monitoring and maintenance activities.

SOIL & WATER-2 The project owner shall comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Construction Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the construction of the entire HBRP site, lay down area, and all linear facilities (Construction SWPPP).

Verification: The project owner shall submit copies to the CPM of all correspondence between the project owner, and the RWQCB about the General NPDES permit for the Discharge of Stormwater Associated with Construction Activities within 10 days of its receipt (when the project owner receives correspondence from the RWQCB) or within 10 days of its mailing (when the project owner sends correspondence to the RWQCB). This information shall include copies of the Notice of Intent and Notice of Termination for the project. The project owner will notify the CPM of any reported non-compliance with the Construction SWPPP.

SOIL & WATER-3 The project owner shall comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Industrial Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the operation of the entire HBRP site (Operational SWPPP).

Verification: At least 60 days prior to commercial operation, the project owner shall submit copies to the CPM of the Operational SWPPP for the entire HBRP site for review and approval. This information shall include a copy of the Notice of Intent. Following the commercial operation date, the project owner will notify the CPM of any reported non-compliance with the SWPPP, any associated corrective measures, and the results of implementing those measures.

SOIL & WATER-4 The project owner shall obtain a Flood Permit Plan Development for commercial connection of the HBRP's construction and operational stormwater system to the County's flood control system from Humboldt County Flood Control District/Department of Public Works. HBRP shall comply with all stormwater discharge requirements, including pretreatment, peak flow restrictions, payment of fees, and monitoring and reporting requirements as applicable.

Verification: At least 30 days prior to HBRP site mobilization, the project owner shall provide the CPM with a copy of its Flood Permit and Water Quality Agreement for commercial connection to the County's flood control system from Humboldt County Flood Control District/Department of Public Works. At least 30 days prior to commercial

operation, the project owner shall provide evidence of compliance with the Standard Urban Stormwater Mitigation Plan. The CPM shall be notified in writing within 10 days of any reported non-compliance with the Flood Permit, Water Quality Agreement, or Standard Urban Stormwater Mitigation Plan requirements, including corrective measures for non-compliance and the results of implementing those measures.

SOIL & WATER-5 The project owner shall use groundwater as its primary water supply for construction and operations, including cooling, process, and other approved non-potable uses. Prior to construction, the project owner shall install or obtain access to a service or hydrant as supplied by PG&E's well no. 2 for use during construction for compaction and dust suppression, hydrostatic testing and all other non-potable uses. Prior to commercial operation, the project owner shall install and maintain metering devices as part of the HBRP process water supply and distribution system to monitor and record in gallons per day the total volumes of water supplied to the HBRP from each water source. Those metering devices shall be operational for the life of the project. Potable water supply records can be as provided by HCSD.

The project owner shall prepare an annual Water Use Summary, which will include the monthly range and monthly average of daily potable and process water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. For subsequent years, the annual Water Use Summary shall also include the yearly range and yearly average water use by the project. The annual summary shall be submitted to the CPM as part of the annual compliance report.

Verification: At least 30 days prior to construction, the project owner shall submit proof to the CPM that it has installed or obtained access to a service or hydrant as supplied by PG&E's well no. 2 for use during construction for dust suppression, hydrostatic testing and all other non-potable uses. At least 60 days prior to commercial operation of the HBRP, the project owner shall submit to the CPM proof that metering devices have been installed and are operational on the reclaimed and potable water supply and distribution systems. Potable water use may be based on metering or billings from the supplier.

If there is a significant change in the water supply source(s), the new source(s) supply and distribution system shall also have metering devices. Any water used from the new source(s) shall be incorporated into the annual Water Use Summary within 30 days of hook-up.

The project owner shall submit a Water Use Summary to the CPM in the annual compliance report. The summary report shall distinguish between recorded water use of reclaimed and potable water. Included in the summary report of water use, the project owner shall submit copies of meter records documenting the quantities of water provided. The project owner shall provide a report on the servicing, testing and calibration of the metering devices in the annual compliance report.

SOIL & WATER-6 The project owner shall file an Application/Report of Waste Discharge and obtain an NPDES Permit from the North Coast Regional Water Quality Control Board to assure the discharge of groundwater associated with

dewatering HBRP site excavations during construction and for discharge of stormwater during both construction and operation, would not impair the quality of surface water in Buhne Slough. The NPDES Permit issued by the North Coast RWQCB shall be received prior to initiating any grading and/or excavation activities associated with HBRP construction. As an alternative and if applicable, the project owner may provide documentation from the North Coast RWQCB that HBRP's discharge of groundwater and stormwater to Buhne Slough would be permitted under the General NPDES Permits that would be utilized in accordance with Conditions of Certification **SOIL & WATER-2 and -3**.

Verification: No later than 180 days prior to start of site mobilization, the project owner shall submit an Application/Report of Waste Discharge to the North Coast RWQCB, with a copy to the CPM. Alternatively, the project owner may provide documentation from the North Coast RWQCB that HBRP's discharge of groundwater and stormwater to Buhne Slough would be permitted under the General NPDES Permits that would be utilized in accordance with Conditions of Certification **SOIL & WATER-2 and -3**. The NPDES Permit issued by the North Coast RWQCB, or documentation from the North Coast RWQCB indicating the sufficiency of the General NPDES Permits, shall be received and a copy provided to the CPM prior to initiating any grading and/or excavation activities associated with HBRP construction. , The project owner shall provide the CPM with copies of all correspondence between itself and the North Coast RWQCB within 10 days of mailing or of receipt as related to the application and permit.

SOIL & WATER-7 The project owner shall secure a Water Supply Service Agreement for potable water service from Humboldt Community Services District. The project owner shall report to the CPM any incidents of non-compliance, and remedies to avoid recurrence.

Verification: At least 30 days prior to HBRP commercial operation, the project owner shall provide the CPM with a copy of its Water Service Agreement with Humboldt Community Services District. The CPM shall be notified within 10 days of any incidents of non-compliance with the terms of the Water Service Agreement, including proposed remedies to avoid recurrence, and the results of implementing those remedies.

SOIL & WATER-8 The project owner shall obtain a Permit for Industrial Wastewater Discharge and comply with the wastewater discharge limitations, pretreatment requirements, peak flow restrictions, dewatering discharges, payment of fees, and monitoring and reporting requirements of Humboldt Community Services District.

Verification: At least 30 days prior to HBRP commercial operation, the project owner shall provide the CPM with a copy of its Permit for Industrial Wastewater Discharge from Humboldt Community Services District. The CPM shall be notified in writing within 10 days of any reported non-compliance with Humboldt County Sanitation District's discharge requirements, including corrective measures for non-compliance and the results of implementing those measures.

REFERENCES

CEC 2006b – California Energy Commission/J.Kessler (tn: 38581). Staff's Data Requests 1 - 57 dated 12/8/2006. Rec'd 12/8/2006.

CEC 2006c – California Energy Commission/J.Kessler (tn: 38893). Staff's Data Requests 58 - 78 dated 1/11/2007. Rec'd 1/11/2007.

CH2MHILL 2006a – CH2MHill/D.Crowe (tn: 38714). Draft Wetland Delineation Report with transmittal letters dated 12/1/2006 to U.S. Army Corps of Engineers and CA Coastal Commission and transmittal letter dated 12/07/2006 to CEC. Rec'd 12/19/2006.

CH2MHILL 2007a – CH2MHill/D. Davy (tn: 38912). Applicant's Responses to CEC Staff's Data Requests 1 - 57. 1/12/2007. Rec'd 1/12/2007.

CH2MHILL 2007b – CH2MHill/D. Davy (tn: 38914). Attachment DR42-1, Drainage, Erosion, and Sediment Control Plan associated with Applicant's Responses to CEC Staff's Data Request 42. 1/12/2007. Rec'd 1/12/2007.

HCPW 2007 – Humboldt County Public Works. Personal communication with Doug Jackson by John Kessler – Energy Commission on 11/28/2007.

PG&E 2006a – PG&E/R. Kuga (tn: 38050). Humboldt Bay Repowering Project AFC Vol. 1 & 2, 1 AFC CD and 1 Air Modeling CD. 9/29/2006. Rec'd 9/29/2006.

PG&E 2006c – PG&E/R. Kuga (tn: 38321). Data Adequacy Supplement. 11/01/2006. Rec'd 11/03/2006.