4.9 HAZARDS

Would the proposal involve:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) A risk of accidental explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals or radiation)?	☐	☐	☒	☐
b) Possible interference with an emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
c) The creation of any health hazard or potential health hazard?	☐	☐	☒	☐
d) Exposure of people to existing sources of potential health hazards?	☐	☐	☒	☐
e) Increased fire hazard in areas with flammable brush, grass, or trees?	☐	☐	☒	☐

SETTING

Regional Setting

A regulatory framework exists to reduce routine hazards, reduce risks of upset (accidents), and enhance response in the event of an upset or cleanup. The regulatory framework affecting the handling of hazardous materials and hazardous waste includes the Resource Conservation and Recovery Act; the California Hazardous Waste Control Law; Comprehensive Environmental Response, Compensation and Liability Act; the Superfund Amendments and Reauthorization Act; the California Hazardous Substances Account Act; the Clean Water Act; the Oil Pollution Act; the Hazardous Materials Release Response Plans and Inventory Act; the Occupational Safety and Health Act; the Asbestos Hazard Emergency Response Act; and the Toxic Substances Control Act. These laws are intended to control potential environmental and workplace hazards in industry. They apply, and would continue to apply, to all of the power plants.

Local Setting

A brief summary of conditions at each plant is given below. This information was obtained from existing reports and interested regulatory agencies (PG&E, 1996; PG&E, 1996b; PG&E, 1997).

Morro Bay

The Morro Bay plant is an old facility that has been fueled with natural gas for the past 9 years but still has the capability of burning oil. Health and safety-related procedures include a Spill Prevention Control and Countermeasure Plan, an Injury and Illness Prevention Program, a Hazard Communication Manual, and a Safety Equipment Guide.

Permits held by the Morro Bay Power Plant include a Department of Toxic Substances Control Hazardous Waste Facility Part B Permit for Surface Impoundments; permits from the Regional Water Quality Control Board (RWQCB) for Waste Discharge Requirement for Class I Waste Water Surface Impoundments, for Monitoring and Reporting Program No. 94-105, and for Exemptions to the Toxic Cleanup Act Order No. 94-105; permits from the Department of Toxic Substances Control for final decision and Notice of Final Decision Related to Hazardous Waste Facility Permit Modifications Nos. 2 and 3. The Morro Bay plant holds a full Resource Conservation and Recovery Act (RCRA) Part B permit as a hazardous waste Treatment, Storage, and Disposal Facility and as such, is required to report any needed site remediation. The Waste Discharge Permit from the RWQCB contains requirements for a Storm Water Pollution Prevention Plan.

The Morro Bay power plant generates contaminated sludge, polychlorinated biphenyl (PCB)-containing waste, acidic waste, metals-containing waste, waste petroleum products, paint and solvent wastes, and contaminated soil.

Because of the Morro Bay power plant's long history, the potential exists that some portion of the surface and subsurface soils and groundwater at the plant may have been contaminated with various wastes or otherwise adversely affected by past structures and operations. The Morro Bay power plant site has hazardous waste impoundments, metals cleaning waste ponds, and between 5 to 20 contaminated sites.

PG&E recently conducted both Phase I and Phase II Environmental Site Assessments at the plant to determine the nature and extent of contaminants. The Phase I report (Camp Dresser & McKee, 1997a) identified 26 "recognized environmental conditions" at the Morro Bay Power Plant; these conditions represent past or present incidents of release of hazardous substances or petroleum products to the ground, groundwater, or surface water of the property. The Phase I report went on to identify at least 11 impaired conditions at the Morro Bay plant as "material recognized environmental conditions," defined in the report as a situation of environmental contamination "requiring extensive investigation and/or remedial efforts to address." The Phase II work (Fluor Daniel GTI, 1997a) investigated among other things the specific Phase I identified environmental concerns and concluded, "The risk assessment showed the cumulative risk posed to human health and the environment by chemicals in soil and groundwater did not exceed the acceptable level established for this project throughout the risk assessment process and by regulatory policies." The Phase II report also indicated that remediation of two environmental

concerns (relating to contaminated soil and groundwater) would likely be required. PG&E will work with appropriate environmental agencies to develop specific remediation plans.

Moss Landing

The Moss Landing plant burns natural gas. The plant's facilities for burning oil are no longer intact. Health and safety-related documents include a Storm Water Pollution Prevention Plan, a Hazardous Waste Management Plan, a Monterey County Business Plan, an Injury and Illness Prevention Program, a Hazard Communication Manual, and a Safety Equipment Guide.

Permits held by the Moss Landing power plant include a RWQCB National Pollution Discharge Elimination System (NPDES) Permit for Waste Discharge Requirements and for Monitoring and Reporting Program No. 95-22; a permit from the Regional Water Quality Control Board for Waste Discharge Requirement for Class I Waste Water Surface Impoundments and for renewal of Exemptions to the Toxic Pits Cleanup Act Order No. 94-106; a Hazardous Waste Part B Permit for Surface Impoundments; and a permit from the Department of Toxic Substances Control for Notice of Final Decision related to Hazardous Waste Permit. The Moss Landing plant holds a full RCRA Part B permit as a hazardous waste Treatment, Storage and Disposal Facility and, as such, is required to report any needed site remediation.

According to Moss Landing's hazardous waste inventory, the plant generates asbestos-containing waste, PCB-containing waste, acidic waste, metals-containing waste, waste petroleum products, paint and solvent wastes, and contaminated soil.

Because of the Moss Landing power plant's long history, the potential exists that some portion of the surface and subsurface soils and groundwater at the plant may have been contaminated with various wastes or otherwise adversely affected by past structures and operations. The Moss Landing power plant site has hazardous waste impoundments, metals cleaning waste ponds, and between 5 to 20 contaminated sites.

PG&E recently conducted both Phase I and Phase II Environmental Site Assessments at the plant to determine the nature and extent of contaminants. The Phase I report (Camp Dresser & McKee, 1997b) identified 17 "recognized environmental conditions" at the Moss Landing Power Plant. The Phase I report went on to identify at least nine impaired conditions at the Moss Landing plant as "material recognized environmental conditions." The Phase II work (Fluor Daniel GTI, 1997b) investigated among other things the specific Phase I identified environmental concerns and found them to "pose no unacceptable risks to current site workers or future construction workers." The Phase II report also indicated that remediation of four environmental concerns (relating to contaminated soil and groundwater) would likely be required. PG&E will work with appropriate environmental agencies to develop specific remediation plans.

Oakland

The Oakland power plant has an NPDES stormwater permit from the RWQCB, and waste discharge requirements for Class I/II surface impoundments from the RWQCB. The plant is oil fueled and uses a gas turbine; it does not generate thermal discharge water.

Health and safety-related documents include a Storm Water Pollution Prevention Plan, a Spill preparedness and Emergency Response Plan, a Hazardous Waste Management Plan, a Spill Prevention Control and Countermeasure Plan, an Injury and Illness Prevention Program, a Hazard Communication Manual, and a Safety Equipment Guide.

The Hazardous Waste Management Plan contains procedures for handling asbestos-containing waste and PCB-containing waste.

Because the Oakland power plant site has a history of industrial use dating back to 1902, the potential exists that some portion of the surface and subsurface soils and groundwater at the plant may have been contaminated with various wastes or otherwise adversely affected by past structures and operations. In reviewing the *Cortese List* (State of California's Hazardous Waste and Substance Site List) as per Public Resources Code Section 21092.6, two references to the Oakland Power Plant have been identified. Both of these references (Mizera, 1997) were for leaking tanks containing diesel (Case Numbers 01-1075 and 01-1175). One of these cases (01-1175) incorrectly indicated that the address of the Oakland Power Plant was at 510 Martin Luther King, Jr. Way, when in reality its address is at 50 Martin Luther King, Jr. Way. Based on the data provided by the *Cortese List*, these two incidents occurred in the 1990 to 1991 time frame. The data show that in each case the tank leak was stopped and the tank was either closed or repaired. This information is included here for informational purposes only.

PG&E has recently conducted both a Phase I and Phase II Environmental Site Assessment at the plant and to determine the nature and extent of contaminants. The Phase I report (Camp Dresser & McKee, 1997c) identified 15 "recognized environmental conditions" at the Oakland Power Plant. The Phase I report went on to identify at least nine impaired conditions at the Oakland plant as "material recognized environmental conditions. The Phase II work (Fluor Daniel GTI, 1997c) investigated among other things the specified Phase I identified environmental concerns and found them to "pose no unacceptable risks to current site workers or future construction workers." The Phase II report also indicated that remediation of five (relating to contaminated soil and groundwater) environmental concerns would likely be required. PG&E will work with appropriate environmental agencies to develop specific remediation plans.

CHECKLIST ISSUES

a) Accident Risks

This checklist issue focuses on the risks due to potential accidents or upsets as a result of the project. Health hazards due to the routine use of hazardous substances are discussed under checklist item (c) in this section.

Power plants store and use hazardous materials. The power generating stations were designed and built to operate using either fuel oil or natural gas as the primary fuel. Natural gas, when used for fuel, is supplied on demand by a pipeline network. Adequate fuel oil supplies are maintained at all the plants that burn fuel oil, and some fuel is stored at the plants that burn natural gas. The electricity-generating equipment requires lubricating oils, and equipment maintenance requires use of various solvents and other hazardous materials. Hazardous materials commonly used at the generating stations include various oils and other petroleum products, solvents, acids, bases, flammables, and a variety of chemicals, including ammonia, used for routine maintenance and water treatment. Compressed gases are also handled at the plants.

Accidents can occur whenever hazardous materials are used. For example, fuel used to power the plants could spill or possibly ignite under upset conditions. Similarly, the ammonia handled at some of the generating stations could be released, and some plants that do not handle ammonia currently may install nitrogen oxide emission controls that require ammonia.

Risks of upset can be reduced through design, operations, maintenance, regulatory, and administrative controls. Design standards are developed through industry groups, various independent institutes, and government agencies. Operational controls include automatic devices to control and monitor process variables, and documented procedures for manual operations. Routine preventive maintenance and inspections of critical equipment help to prevent potential equipment failures. Administrative controls include operator training, documentation of equipment inspection and maintenance history, and procurement controls over contractors and vendors. These types of controls are required by law and regulation. Various requirements address accident risks through additional means. For example, the risk of accidentally releasing fuels and other hazardous materials to nearby waters must be addressed by Spill Prevention Control and Countermeasure Plans.

Similarly, accident risks posed to neighboring communities by hazardous materials found at the plants are addressed through Hazardous Materials Business Plans and, if required, Risk Management Plans. Injury and Illness Prevention Plans and, if required, process safety management plans minimize the risks potential accidents pose to workers.

Although new owners of divested plants would tend to operate the plants at higher levels than if they were retained by PG&E, the same laws and regulations would apply to accident risks as they

apply now. Increases in generation will not increase accident risk to any considerable degree due to all of the rules and precautions in place.

Mitigation Measures

4.9.a.1 For the plants subject to this proceeding, PG&E shall provide the new owner, for each respective plant, with all of PG&E's material, non-privileged informational materials and training documents (not including records relating to PG&E personnel) regarding worker health and safety, emergency plans and hazardous materials handling and storage. Although the new owners will be responsible for ensuring that their operations are in compliance with applicable laws, this informational material may assist new owners in understanding worker health and safety issues and procedures and in meeting all safety and legal obligations regarding hazardous materials handling, emergency plans and storage.

Monitoring Action:	PG&E will provide the CPUC mitigation monitor with a disclosure form signed by the new owner listing documents to accomplish this condition.
Responsibility:	CPUC
Timing:	At least 3 business days prior to transfer of title of the plant(s).

Conclusion

Under divestiture, any new owner would be required to comply with all worker and public safety laws and regulations, just as is the case for PG&E now. Furthermore, PG&E will continue to operate the divested plants for two years after the sale under an Operations & Maintenance (O&M) agreement, and PG&E has agreed to provide each new owner with information about PG&E's operating procedures and compliance plans. Because of these laws and circumstances, this potential impact of the project would be less than significant. Nonetheless, the above mitigation measure will assist new owners in complying with pertinent laws and regulations.

b) Emergency Response Plans

Each power plant currently maintains a variety of health and safety plans as described above under "Setting." Emergency response planning is an integral component of many of these plans. Emergency response procedures would have to be updated by the new plant owners as part of their regulatory compliance process. No specific changes in plant equipment or operational procedures are foreseeable as a result of the project. Possible equipment or procedural changes that could affect existing emergency response plans would be addressed as these plans are updated by any new owners.

Conclusion

Because the project is unlikely to affect emergency response plans or evacuation plans, the potential impact of the project would be less than significant.

c) Creation of Health Hazards

Hazardous Materials Exposure

Operation and maintenance of the generating units require using various hazardous materials including natural gas and fuel oil. Factors that influence the health effects of exposure to a hazardous substance include the dose to which the person is exposed, the frequency and duration of exposure, the exposure pathway, and individual susceptibility. Pathways of exposure to hazardous materials depend on the chemical and physical properties of the substance. The four common exposure pathways are inhalation, ingestion, absorption (direct contact with skin or eyes), and injection (skin puncture or cut).

The health effects of exposure to hazardous chemicals vary greatly and are specific to each chemical. Possible health effects may be acute (immediate, or of temporary severity) or chronic (long-term, recurring, or resulting from repeated exposure). Acute effects can include burns or injuries to body organs or systems, such as from exposure to corrosive, reactive, or ignitable materials. Chronic effects can include systemic or organ damage, birth defects, and cancer.

The following types of hazardous materials are representative of those found at the power plants to be divested.

- *Petroleum Products.* Power plants typically store petroleum products for fuel, lubricants, and other uses. The refined petroleum products used at the generating stations are made up of complex mixtures of compounds derived from crude oil. Potential health hazards from short-term exposure to these petroleum products can include respiratory tract irritation, and skin and eye irritation. Long-term exposure to high concentrations of some petroleum hydrocarbons (such as benzene or polyaromatic hydrocarbons) has shown the potential to cause more serious systemic effects in humans, including cancer. Potential routes of exposure to petroleum hydrocarbons include inhalation of volatile compounds, and incidental ingestion or direct contact with the oils.

- *Ammonia.* At plants that handle mixtures of water and ammonia, the mixtures are stored on site for use in emissions abatement equipment. Ammonia is a pungent liquid (when mixed with water) that can pose potential health hazards. It requires precautions during handling to protect skin and eyes from exposure, to prevent inhalation, and to prevent contact with incompatible chemicals, such as acids or oxidizing agents. Ammonia fumes have a very sharp, pungent odor characteristic of smelling salts. Potential health hazards include difficulty breathing or irritation of tissue or exposed membranes. Vapors of ammonia could irritate the nose and eyes, cause skin irritation, or damage clothing. Potential exposure to ammonia may occur through incidental ingestion, direct contact, or through inhalation of fumes.

- *Polychlorinated Biphenyls* are another potentially hazardous class of compounds. Several of the generating stations to be divested have used PCB. While the manufacture of PCBs

has been banned since 1977, some older pieces of electrical equipment still contain PCBs. Transformers and other ancillary equipment associated with generating stations contain oil, some of which contains PCBs. Potential human exposure to PCBs may occur through inhalation of contaminated air or through contact with contaminated soils, resulting in irritation. PCBs are also toxic and are probable human carcinogens.

- *Asbestos.* Insulation and other building materials may contain asbestos. Asbestos causes lung cancer and asbestosis in humans. Inhalation of airborne particulates is the primary mode of asbestos exposure. Asbestos can cause adverse health impacts if human exposure is permitted during demolition or renovation, whereupon asbestos fibers can be released unless proper precautions are taken. Government regulations limit emissions of asbestos from asbestos-related demolition or construction activities, and specify precautions and safe work practices that must be followed to minimize the potential release of asbestos fibers.

Routine exposure to hazardous materials used at the divested plants poses potential hazards to plant workers, the public, and the environment. These hazards are minimized by handling these materials properly, as promoted by employee training, formal procedures, and reasonable precautions. Operational hazards can be reduced through various controls. Design standards are developed through industry groups, various independent institutes, and government agencies.

Operational controls include automatic devices to control and monitor process variables and documented procedures for manual operations. Routine maintenance and inspections of critical equipment help to minimize routine exposure. Administrative controls include operator training, documentation of equipment inspection and maintenance histories, and procurement controls over contractors and vendors.

New owners of the divested plants would be required by regulations of Federal and State Occupational Safety and Health Administrations (OSHA), County Health Departments, and local Fire Departments to prepare and implement safety procedures similar to those that are currently in place. Among the regulatory requirements intended to minimize occupational exposure are those that require the preparation and implementation of Hazard Communication Plans to ensure that workers understand the hazards they encounter on the job and take appropriate actions.

Routine off-site exposure of individuals and the environment to hazardous materials used at the power plants occurs through limited routes: air emissions, water discharges, and hazardous waste disposal. Hazardous waste disposal is discussed below. Air emissions are discussed in Section 4.5, and water releases are discussed in Section 4.4.

Hazardous Waste

The principal hazardous materials handled at the plants -- ammonia, diesel oil, and natural gas -- are consumed during use and produce little residual waste. Nevertheless, all of the plants to be divested generate some hazardous waste (e.g., waste oil). The California Department of Toxic Substances Control regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the Resource Conservation and Recovery Act and the California

Hazardous Waste Control Law. Both laws impose "cradle to grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment. Hazardous waste generators are held liable for harm to individuals or the environment caused by their hazardous wastes, regardless of the disposal method selected. This liability provides an incentive to dispose of hazardous wastes in a manner that is as safe as possible.

Electromagnetic Fields

Electric power lines, generators, transformers, and other devices that handle electric currents produce electric and magnetic fields (electromagnetic fields or EMFs, as termed in the popular press). EMFs oscillate at a frequency of 60 hertz (i.e., 60 cycles per second). The strength of the EMF generated by an alternating current varies with voltage, wire type, spacing, and location, and other factors. Field strength decreases rapidly with distance from the source. EMFs are produced by power lines, house wiring, all electrical appliances, and wherever electrical currents are flowing.

A controversy exists whether there are any health effects from exposure to EMF's. Experiments have shown that magnetic fields can cause biological effects in living cells, but it is not known whether these biological effects have any relevance to human health. To address these questions, the Commission undertook an investigation in 1991, working with the California Department of Health Services (DHS), electric utilities and a "consensus group" made up of experts and consumers vitally interested in this subject. Due to the lack of scientific or medical conclusions about potential health effects from utility electric facilities and power lines, the Commission adopted, in 1993, interim measures that help to address public concern on this subject, including the deployment of no/low-cost steps to reduce EMF levels in new or upgraded facilities, residential and workplace EMF measurement programs available to utility customers, and an education and research program managed by DHS.

Pending conclusive scientific evidence of possible harm from utility facilities, the Commission has pursued a policy of avoiding any unnecessary new exposure if it can be avoided at a cost that is reasonable. The Commission is awaiting the results of the DHS-managed research program and, in the meantime, relies upon DHS to provide guidance about any future identified public health risk.

The incremental effects of the project stems from an unquantifiable tendency of new owners to operate plants at higher levels. As discussed in Section 3, it is not feasible to predict how this tendency might manifest itself at particular plants. Given this uncertainty, and the Commission's pending conclusion about the health risks posed by EMF, this project has no impacts associated with EMFs that can be considered significant.

Conclusion

The project would likely affect operations at the power plants to be divested, as well as the other plants in the Western Region. Particularly in the case of the divested plants, hazardous materials use and hazardous waste generation could increase. However, this increase is unlikely to be as great as the proportional increases in plant operations. The controls placed on the use of hazardous materials would be expected to be similar to those in place now, particularly because new owners would be subject to the same regulatory requirements applicable to hazardous materials handling as are presently enforced.

Although hazardous waste generation could increase as a result of the project, site-specific handling procedures equivalent to those currently in place are reasonably foreseeable. Therefore, as with increased hazardous material use, there would be no substantial change in the on-site hazards posed by any increased hazardous waste generated at the plants. The increase in hazardous waste generation would not be expected to be substantial because much of the hazardous material used on site is consumed through use and the additional quantities of waste would be relatively small when compared with the volume of hazardous waste already generated and disposed of by other entities throughout the State of California. Because the increase in hazardous waste generation would not be substantial, and because it would be handled in a manner similar to how it is handled now, this impact would be less than significant.

Because of the infeasibility to predict increased electrical generation at particular plants, and the Commission's pending conclusion on EMF health risks, there are no significant impacts associated with EMFs from the project.

d) Exposure to Existing Hazards

Because of the fuels, water treatment chemicals, and other hazardous materials historically used at the power generating stations and discussed above, the three stations to be divested could have contaminated soils, structures, or equipment. Phase I and Phase II environmental site assessments have identified potential surface or subsurface contamination at specific facilities. Known conditions are summarized above under "Setting." The transfer of plant ownership may advance the time at which existing hazards are remediated.

Primary categories of contaminants that are potential contributors to surface or subsurface contamination are petroleum hydrocarbons (primarily in oil storage tank and power block areas), PCBs (primarily in transformer areas), ammonia (primarily in chemical storage tank areas), and water treatment chemicals (primarily from chemical storage and mixing areas).

Although soil contaminants have been identified as recognized environmental conditions at some of the plants, the same chemicals could have been used at other plants in the past and could, therefore, present a risk to human health at other facilities. These existing conditions would likely be of concern to future owners of divested plants. Hazards related to soil or structural

contamination can be reduced by proper remediation under the oversight of regulatory authorities, such as the California Department of Toxic Substances Control or local county health departments. Worker safety related to remediation activities is promoted by Federal and State OSHA regulations.

Permits may need to be obtained prior to any remediation work, and a remediation plan is usually prepared before such work begins. Remediation plans, and sometimes permits themselves, require that specified precautions be taken during remediation in order to protect human health and the environment. Examples of such procedural and operational controls that typically are implemented during remediation activities include covering soil stockpiles to prevent erosion and reduce infiltration, installation of a leachate control system to capture any leachate generated, construction of a containment cell to prevent runoff, installing treatment systems for treating groundwater, surface water, or air containing hazardous substances, collecting and analyzing test samples, watering disturbed areas to reduce dust generation, and requiring workers to wear proper personal protective equipment to prevent worker contact with contaminated soil or groundwater. Many of these controls are contained in permits requirements that are issued by the regulatory agencies overseeing remediation activities.

Whatever entity owns each of these plants, whether they be PG&E or any future purchaser, it would be subject to the same environmental and worker safety laws, rules, and regulations. The plant owners would be expected in the future to conform to all pertinent environmental and safety requirements.

Conclusion

Worker safety and public health are potentially at risk whenever hazardous wastes are encountered. Heavy metals, such as chromium and copper, are bioaccumulative toxins. Soils contaminated with petroleum hydrocarbons pose threats to water quality and the environment, especially if removed and disposed of improperly. Health effects of known contaminants can be avoided.

Appropriate Phase I and Phase II Environmental Site Investigations have been conducted for each plant site. These reports document known site conditions, and would be provided to prospective new owners as part of the due diligence process and to appropriate regulatory agencies as part of the remediation process. Therefore, all likely areas of known and potential contamination have been identified and will be known to prospective buyers.

The manner in which sites are remediated would be an important issue locally when ownership is transferred. Required remediation necessary to protect human health and the environment would be conducted in accordance with applicable laws and regulations under the oversight of local agencies. Furthermore, under terms of the Purchase and Sale Agreement, PG&E has agreed to be responsible for any legally required remediation of existing contaminated soil and ground water at the divested plants and therefore will be responsible for remediation activities that are part of

the ownership transition. Therefore, this impact would be less than significant because of current agreements and the regulatory environment.

To the extent that the transfer of ownership and associated due diligence will identify site contamination and lead to its remediation, a beneficial impact on the environment might result.

e) Fire Hazards

Each power plant currently maintains its own Accident and Fire Prevention Manual. Such a manual would have to be prepared and maintained by any new plant owners as part of their regulatory compliance process with the Fire Marshall. Furthermore, the project would not affect fire hazards related to brush, trees, or grass because no changes to any facility footprints are currently foreseeable and distances between the facilities and any brush, trees, or grass would not likely change.

Conclusion

Because no substantial increase in fire hazard would be anticipated, this impact would be less than significant.