

3.7 Hazards and Hazardous Materials

This section describes the existing conditions in the project area with respect to hazards and hazardous materials, and identifies means by which hazardous materials associated with the proposed project could be accidentally released into the environment. Resources used in preparing this chapter include the July 12, 2005, Environmental Data Resources (EDR) report, prepared at the request of the applicant as part of the site feasibility study, and consultation with the appropriate County agencies.

3.7.1 Existing Conditions

Environmental Setting

This section discusses the existing conditions in the project area. Federal, state, and local regulations related to hazards and hazardous materials that would apply to the proposed project are discussed in *Regulatory Setting* below.

Study Area

For the study of potential hazardous materials sites, a point in the approximate center of Hatchet Mountain was chosen by the applicant's consultant and EDR. A database search was conducted for a 3-mile radius around this point. The report met the government records search requirements of ASTM International's (ASTM's) (originally known as the American Society for Testing and Materials [ASTM]) Standard Practice for Environmental Site Assessments, E 1527-00 (CH2M HILL 2006). This inventory provides a reasonable assessment of recorded hazards in the area that may warrant further investigation. The study area for other hazards is the project area as shown in Figure 2-2 and a 0.25-mile radius around it.

Hazardous Materials

Methods

To help define the existing conditions of the project area and adjacent properties, and to assess the risk of exposure to hazards and hazardous materials, a database search report was compiled by EDR (2005). EDR conducted a search for properties in the study area that have been designated as hazardous in one or more state or federal databases. EDR conducted a search of federal and state environmental records for a 3-mile radius around the approximate center of the project area. The report meets the government records search requirements of ASTM's Standard Practice for Environmental Site Assessments, E 1527-00.

The objective of the assessment was to determine if the project area or surrounding lands are subject to the presence or likely presence of hazardous materials or wastes, including petroleum products, or if they exhibit conditions that indicate an existing release, a past release, or any material threat of a release of those materials or wastes into the ground, groundwater, or surface water of the properties.

Records Search Results

The records search indicates that no sites within the search radius are identified in the Federal ASTM Standard Records. The Historical Underground Storage Tank Registered Database identifies the Hatchet Mountain Store within the search radius at approximately 3 miles from the project area. However, the location of Hatchet Mountain Store is believed to be in error. The address is listed as Montgomery Creek, California, but a subsequent site visit revealed no evidence confirming the location of the store at this location. (CH2M HILL 2005). One hundred fourteen sites were identified as orphan sites within the 3-mile radius of the project site. An *orphan site* is a site that could be of concern because of environmental contamination; however, due to incomplete address or location information, EDR was unable to map these sites.

Nearby Schools

Exposure to hazardous materials and wastes can be particularly detrimental to children because of their stage in the developmental process. Accordingly, more stringent maximum limits for particular hazardous materials (e.g., lead, mercury) are imposed for the siting of facilities where children will be spending extended amounts of time. The nearest schools are Montgomery Creek Union School and Mount Burney Elementary School, approximately 6–8 miles from the project area.

Emergency Routes

The project area is in an undeveloped area. SR 299, the main east-west highway through northeastern Shasta County, runs along the southern edge of the proposed project area. The project area is accessed from SR 299 by an existing private road known as Bunchgrass Lookout Road, which extends north from SR 299 along Hatchet Ridge (Figure 2-2). Bunchgrass Lookout Road would be the primary access to the project facilities and would provide emergency access and evacuation routes to and from the southeastern end of the project area.

Airports and Air Hazards

Existing development that could be considered hazardous to air navigation on Hatchet Ridge includes the Bunchgrass and Bear Springs radio facilities, whose communication towers range in height from 50 to 140 feet. Additionally, a pair of parallel 230- kV transmission lines owned by PG&E, and overhead lower voltage electrical distribution lines are located on Hatchet Ridge.

There are four publicly operated airports in Shasta County.

- Fall River Mills Airport, approximately 20 miles from the project area.
- Shingletown Airport, approximately 27 miles from the project area.
- Redding Municipal Airport, approximately 39 miles from the project area.
- Benton Field, approximately 39 miles from the project area.

Because of the distance of these airports from the project area, the project area is not within an airport protection area, nor is it within any clear zones for an airport or in any documented flight path for Shasta County airports (Walker pers. comm.).

However, a review of geographic information systems (GIS) data identified a military training route (MTR) within 0.25 mile of the northern boundary of the project area (see Figure 3.7-1 in *Initial Fatal Flaw Analysis and Permitting Evaluation for the Hatchet Ridge Wind Farm Project* [CH2M HILL 2005]). Although data on lowest flight elevation in MTRs are not currently available, other routes in the area have a 200-foot floor.

Fire Safety

In August 1992, the Fountain Fire burned 64,000 acres, including the proposed project area, in eastern Shasta County. SPI replanted the burned areas along Hatchet Ridge in 1996 with ponderosa pine. However, the vegetation in the area is still recovering. Figure FS-1 in the Shasta County General Plan indicates that the proposed project is located in a “Very High Fire Hazard Severity Zone” (Shasta County 2004).

The U.S. Forest Service, National Park Service, Cal Fire, and Shasta County Fire Department (SCFD) provide fire and emergency response services to the project vicinity. SCFD contracts with Cal Fire to manage and oversee the operation of the SCFD, and many of the local fire agencies overlap with Cal Fire and Forest Service jurisdictions. Local agencies are responsible primarily for non-wildland fires, federal agencies respond primarily to wildland fires, and Cal Fire responds to all incidents within its jurisdiction year-round. In practice, however, all agencies work together, and duties overlap when necessary.

The Forest Service is responsible for wildland fire control on Forest Service-administered lands, as well as some private lands adjacent to or within Forest Service boundaries through an agreement with Cal Fire. The National Park Service provides protection for national parks. In the project area, the National Park Service provides protection for Lassen National Park.

Cal Fire is responsible for wildfire protection of undeveloped forested areas of the southern Cascades outside National Forest or city boundaries (state responsibility areas [SRAs]). Cal Fire protects additional Forest Service and BLM lands through an agreement with those agencies. Cal Fire is largely concerned with the prevention and control of wildland fires and deterring the spread of fires into developed areas. Cal Fire normally responds to structure fires and provides protection to structures threatened by forest fire. The nearest Cal Fire station to the project area is Hillcrest, approximately 6 miles from the southern end of the project area. Cal Fire staff indicates that the Hillcrest fire station is staffed on a seasonal basis during the fire season (typically from June to October) (Cooley pers. comm.). An official with Cal Fire estimates that it would take approximately 8 minutes to respond to calls at the top of Hatchet Ridge, with additional time to reach areas beyond the southern end of the project area (Young pers. comm.).

The project area is located within the boundaries of the SCFD-affiliated Montgomery Creek Volunteer Fire Company, which has two fire stations: one in Montgomery Creek approximately 13 miles from the project area, and one in Round Mountain approximately 17 miles from the project area. The Montgomery Creek fire station would be the first station called to the project area for structure fires on a year-round basis and for wildland fires outside the fire season, with an anticipated response time of approximately 15 minutes (Carroll pers. comm.). However, the Burney Fire Protection District (Burney FPD) is closer to the project area than the Montgomery Creek Volunteer Fire Company’s stations and would typically be an additional responder on calls (Carroll pers. comm.). The Burney FPD has stated that its response time to the proposed project area would be approximately 10 minutes (May pers. comm.).

Law Enforcement

General public safety and law enforcement services for the unincorporated areas of Shasta County, which includes the project area, are provided by the Shasta County Sheriff's Office. The closest station to the project area is in Burney. The station currently has eight 4-wheel drive vehicles and one 2-wheel drive vehicle. There is one canine unit. The Burney sheriff station estimates that response time to Hatchet Ridge could be anywhere from 15 minutes to 1 hour, depending on the weather and the location of officers at the time of dispatch (Turner pers. comm.).

Electromagnetic Fields

Electromagnetic field (EMF) is a term used to describe electric and magnetic fields that are created by electric voltage (electric field) and electric current (magnetic field). Power frequency EMF is a natural consequence of electrical circuits, and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information. Possible health effects associated with exposure to EMFs have been the subject of scientific investigation since the 1970s. Concern about EMF exposure originally focused on electric fields; however, much of the recent research has focused on magnetic fields. Uncertainty exists as to what characteristics of magnetic field exposure should be considered in assessing human exposure effects. Among the characteristics considered are field intensity, transients, harmonics, and changes in intensity over time. These characteristics may vary from power lines to appliances to home wiring, and this variance may create different types of exposures. The exposure most often considered is intensity or magnitude of the field.

Reviews of the scientific literature conducted by the National Institute of Environmental Health Sciences (NIEHS), the National Research Council/National Academy of Sciences (NRC/NAS), the International Agency for Research on Cancer (a division of the World Health Organization [WHO]), and the American Cancer Society (ACS) from the 1990s through 2001 have consistently indicated insufficient evidence to assert an association between EMF exposure and adverse health effects in humans.

On January 15, 1991, the California Public Utilities Commission (CPUC) initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, called the California EMF Consensus Group, was created by CPUC to advise it on this issue. The Consensus Group's fact-finding process was open to the public, and its report incorporated concerns expressed by the public. Its recommendations were filed with the Commission in March 1992. Based on the work of the Consensus Group, written testimony, and evidentiary hearings, the CPUC issued its decision (93-11-013) on November 2, 1993, to address public concern about possible EMF health effects from electric utility facilities. The conclusions and findings included the following:

We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure.

We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value.

The CPUC decision also required several interim policies until further determination can be made. These policies include but are not limited to implementing no-cost/low-cost steps to

reduce impacts; establishing workshops to develop EMF design guidelines for incorporating EMF mitigation options and to share information; requesting utilities to compare their EMF measurement policies and establish a standard policy; and other actions, such as stakeholder outreach and research. CPUC will continue to monitor these issues. If new information develops in the future, CPUC may amend its decision to reflect new scientific evidence.

Regulatory Setting

A *hazardous material* is defined by the California Department of Toxic Substances Control (DTSC) as a material that poses a significant present or potential hazard to human health and safety or the environment if released because of its quantity, concentration, or physical or chemical characteristics (26 CCR 25501). Common hazardous materials include petroleum hydrocarbons, pesticides, volatile organic chemicals, and certain metals.

Various federal and state agencies exercise regulatory authority over the use, generation, transport, and disposal of hazardous substances. The primary federal regulatory agency is the EPA. The primary California state agency with similar authority and responsibility is the California Environmental Protection Agency (Cal-EPA), which may delegate enforcement authority to other local agencies with which it has agreements. Federal regulations applicable to hazardous substances are contained primarily in the CFR Titles 29 (Labor), 40 (Protection of Environment), and 49 (Transportation). State regulations are contained in CCR Titles 13 (Motor Vehicles), 19 (Public Safety), 22 (Social Security), and 26 (Toxics).

Specific legislation and policies related to hazards and hazardous materials are summarized below.

Federal Regulations

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also called the Superfund Act (42 USC 9601 et seq.), is intended to protect the public and the environment from the effects of prior hazardous waste disposal and new hazardous material spills. Under CERCLA, EPA has the authority to seek the parties responsible for hazardous materials releases and to ensure their cooperation in site remediation. CERCLA also provides federal funding (the *Superfund*) for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act of 1986 amends some provisions of CERCLA and provides for a Community Right-to-Know program.

EPA has the authority to implement CERCLA in all 50 states and all U.S. territories using a variety of enforcement tools, including orders, consent decrees, and other small-party settlements. Identification, monitoring, and remediation of Superfund sites are usually coordinated by state environmental protection or waste management agencies. When potentially responsible parties cannot be identified or located, or when responsible parties fail to act, EPA has the authority to remediate abandoned or historical sites where hazardous materials contamination is known to exist and to pose a human health hazard.

Pursuant to CERCLA, EPA maintains a National Priorities List (NPL) of uncontrolled or abandoned hazardous waste sites identified for priority remediation under the Superfund

program. Sites are identified for listing on the basis of EPA's hazard ranking system. Sites also may be placed on the NPL if they meet the following requirements.

- The Agency for Toxic Substances and Disease Registry of the U.S. Public Health Service has issued a health advisory that recommends removing people from the site.
- EPA has determined that the site poses a significant threat to public health.
- It will be more cost-effective for EPA to use its remedial authority than its emergency removal authority to respond to the hazard posed by the site.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (42 USC 6901 et seq.) was enacted in 1976 as an amendment to the Solid Waste Disposal Act to address the nationwide generation of municipal and industrial solid waste. RCRA gives EPA authority to control the generation, transport, treatment, storage, and disposal of hazardous waste, including underground storage tanks storing hazardous substances. RCRA also establishes a framework for the management of nonhazardous wastes. RCRA addresses only active and future facilities; it does not address abandoned or historical sites, which are covered by CERCLA (see preceding section).

RCRA was updated in 1984 by the passage of the federal Hazardous and Solid Waste Amendments, which required land disposal of wastes to be gradually phased out. The amendments also increased EPA's enforcement authority and established more stringent hazardous waste management standards, including a comprehensive underground storage tank program.

Federal Aviation Administration Regulations Part 77—Objections Affecting Navigable Airspace

The FAA has established standards for determining what constitutes an obstruction for navigable airspace as reproduced below.

77.23 Standards for determining obstructions.

(a) An existing object, including a mobile object, is, and a future object would be, an obstruction to air navigation if it is of greater height than any of the following heights or surfaces:

- (1) A height of 500 feet above ground level at the site of the object.
- (2) A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet.
- (3) A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required obstacle clearance.

(4) A height within an en route obstacle clearance area, including turn and termination areas, of a Federal airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

(5) The surface of a takeoff and landing area of an airport or any imaginary surface established under §77.25, §77.28, or §77.29. However, no part of the take-off or landing area itself will be considered an obstruction.

State Regulations

EPA granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. In addition, state regulations, which are of equal or greater stringency than federal regulations, require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a hazardous materials business plan that describes their facilities, inventories, emergency response plans, and training programs. Under the Business Plan Act, *hazardous materials* are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste, although the health concerns pertaining to the release or inappropriate disposal of these materials are similar to those relating to hazardous waste. Business plans must also disclose hazardous waste storage at the site.

Hazardous Waste Control Act

The Hazardous Waste Control Act (HWCA) created the state hazardous waste management program, which is similar to, but more stringent than, the federal program under RCRA. The HWCA is implemented by regulations contained in 26 CCR, which describe the following aspects of hazardous waste management.

- Identification and classification.
- Sources.
- Transport.
- Design and permitting of recycling, treatment, storage, and disposal facilities.
- Treatment standards.
- Operation of facilities, including staff training.
- Closure of facilities.
- Liability issues.

Regulations in 26 CCR list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of them. Under the HWCA and 26 CCR, hazardous waste generators must complete a manifest that accompanies the waste from the generator to the

transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. This office coordinates the responses of other agencies, including Cal-EPA, the California Highway Patrol, the nine Regional Water Quality Control Boards, the various air quality management districts, and county disaster response offices.

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils, vapors that could be inhaled, or possibly groundwater containing hazardous levels of constituents would be subject to monitoring and personal safety equipment requirements that are established in California Occupational Safety and Health Administration (Cal-OSHA) regulations (Title 8) and specifically address airborne contaminants. The primary intent of the Title 8 requirements is to protect workers, but compliance with some of these regulations also would reduce potential hazards to nonconstruction workers and project vicinity residents because required site monitoring, reporting, and other controls would be in place.

Workers who are in direct contact with soil or groundwater containing hazardous levels of constituents would perform all activities in accordance with a hazardous operations site-specific health and safety plan (HSP) as outlined in Cal-OSHA standards. An HSP is not required for workers such as heavy equipment operators, carpenters, painters, or other construction workers who would not be performing investigation or remediation activities where direct contact with materials containing hazardous levels of constituents could occur. However, elements of an HSP protect those workers who may be adjacent to cleanup activities by establishing engineering controls, monitoring, and security measures to prevent unauthorized entry to cleanup sites and to reduce hazards outside the investigation/cleanup area.

Public Resources Code 4290

PRC 4290 was adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction, and development in SRAs. Under PRC 4290, the future design and construction of structures, subdivisions, and developments in SRAs must provide for basic emergency access and perimeter wildfire protection measures as specified in PRC 4290. These measures provide for road standards for emergency access; signing and building numbering; water supply reserves; and fuel breaks and greenbelts. Local standards that exceed those of PRC 4290 supersede PRC 4290.

SRAs are those lands that meet the conditions listed below.

- Are covered wholly or in part by forests or by trees producing or capable of producing forest products.
- Are covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not, that protect the soil from excessive erosion, retard runoff of water,

or accelerate water percolation, if such lands are sources of water that is available for irrigation or for domestic or industrial use.

- Are in areas principally used or useful for range or forage purposes and are contiguous to the lands described above.

Other State Laws, Regulations, and Programs

Additional state regulations that affect hazardous waste management are listed below.

- The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) requires the labeling of substances known or suspected by the state to cause cancer.
- California Government Code 65962.5 requires the Office of Permit Assistance to compile a list of potentially contaminated sites in the state.

Local Regulations

Shasta County General Plan

Section 5.4 Fire Safety and Sheriff Protection

5.4.3 Objectives

FS-1 Protect development from wildland and non-wildland fires by requiring new development projects to incorporate effective site and building design measures commensurate with level of potential risk presented by such a hazard and by discouraging and/or preventing development from locating in high risk fire hazard areas.

FS-2 Protection of life and property from crime by encouraging new development projects to incorporate effective defensible space design techniques.

5.4.4 Policies

FS-a All new land use projects shall conform to the County Fire Safety Standards.

FS-b Known fire hazard information should be reported as part of every General Plan amendment, zone change, use permit, variance, building site approval, and all other land development applications subject to the requirements of the California Environmental Quality Act (CEQA).

FS-c Fire Hazard Maps shall be kept on file by the County and used in conjunction with the adopted County Fire Safety Standards and other County development standards.

FS-e Development in areas requiring expanded levels of police and fire services shall participate in adopted County programs designed to offset the added costs for providing the expanded level of services.

FS-f The Sheriff's Office and Shasta County Fire Department should annually review the County's standard development conditions as they relate to the provision of police and fire services created as a result of new land use projects and recommend to the Planning Commission appropriate changes including the need to implement equitable property tax assessments to help defray the costs of providing new and/or expanded services.

Section 5.6 Hazardous Materials

5.6.3 Objectives

HM-1 Protection of life and property from contact with hazardous materials through site design and land use regulations and storage and transportation standards.

HM-2 Protection of life and property in the event of the accidental release of hazardous materials through emergency preparedness planning.

5.6.4 Policies

HM-a The County shall make every effort to inform applicants for discretionary and nondiscretionary projects which are located within potential border zone property of known hazardous waste facilities that they must comply with State requirements regarding hazardous waste facilities. A map shall be prepared and maintained which identifies these areas.

HM-b Shasta County shall maintain an emergency preparedness plan for hazardous materials.

HM-c Shasta County shall adopt policies for hazardous materials use, transportation, storage and disposal as required by State laws.

HM-d Shasta County shall adopt policies for the protection of life and property from contact with hazardous materials through site design and land use regulations.

HM-e Any proposal for development of a disposal site for hazardous wastes in Shasta County shall be reviewed closely to ensure that no significant environmental impacts will result from the project. Review of such project may include a determination of what type of hazardous wastes may be disposed of at the site.

Section 7.4 Circulation—Airports

Objectives

C-10 Shasta County, in conjunction with the RTPA; the Cities of Redding, Anderson, and Shasta Lake; and the Airport Land Use Commission, shall work cooperatively to ensure that (1) airport service is recognized as a vital part of the region's economy; (2) the goals, objectives, policies, and development standards adopted in any Specific Plan or Comprehensive Land Use Plan for any County airport are implemented and enforced; and (3) incompatible uses that could limit expansion of potential air service to Shasta County are prevented.

Policies

C-10b Shasta County shall ensure that all development projects comply with the intent of development policies and standards contained in adopted airport specific plans, facilities plans, or comprehensive land use plans for any airport in the County by restricting those land uses from the vicinity of airports which are deemed incompatible with customary airport operations.

3.7.2 Impact Analysis

Methodology

The evaluation of impacts on the public and environment that could result from hazardous materials and other hazards was based on the results of the EDR report, which includes a list of all known hazardous sites in the study area and is assumed to be a preliminary inventory of all

existing hazardous sites (Environmental Data Resources 2006). The analysis is also based on the known presence of other health-threatening factors in the project vicinity.

Evaluation of air navigation hazards, safety, fire, and emergency response impacts was conducted in consideration of the proposed project's location, the types of hazards typically associated with a wind energy project, and the proximity to emergency response services.

Thresholds of Significance

The proposed project would have a significant effect on public health and safety if it would result in any of the conditions listed below.

- Create a significant hazard to the public or the environment as a result of routine transport, use, production, upset, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.
- Bring people into direct contact with hazardous materials on a listed hazardous materials site compiled pursuant to Government Code 65962.5.
- Result in a safety hazard to people residing or working within an airport land use plan area.
- Result in general aviation or military aircraft navigational hazards or interfere with navigation of aircraft.
- Impair the implementation of or interfere with an emergency response or evacuation plan.

Impacts and Mitigation Measures

There is no currently adopted emergency response plan for the project area, and the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan for a neighboring populated area (e.g., Burney, Moose Camp, Montgomery Creek). There would be no impact.

Impact HAZ-1: Creation of a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (less than significant with mitigation)

The project area is not within 0.25 mile of an existing or proposed school. Operation of the Hatchet Ridge Wind Project would not require treatment, disposal, or transport of significant quantities of hazardous materials. However, transformer oil would be stored over the long term and would be used and handled during turbine maintenance. In addition, fuel and carburetor fluid would be used for equipment and motor vehicles during installation, and oil would be held in the substation transformers. If these materials were handled improperly or if containers leaked, workers or the public could be exposed to hazardous materials.

Construction of the proposed project would require the use of vehicles and other construction equipment that use hazardous materials such as fuels, lubricants, and solvents. The accidental releases of small quantities of these substances during construction could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. However, the project owner/applicant and its designated contractors are required to comply with Cal-OSHA and federal standards for the storage and handling of fuels, flammable materials, and common construction-related hazardous materials and for fire prevention. Cal-OSHA requirements can be found in the California Labor Code, Division 5, Chapter 2.5. Federal standards can be found in Occupational Safety and Health Administration Regulations, Standards (29 CFR).

This impact is considered potentially significant. However, implementation of Mitigation Measures HAZ-1 would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-1: Prepare a Hazardous Materials Business Plan/Spill Prevention Control and Countermeasures Plan

In accordance with the California Health and Safety Code and California Code of Regulations and as part of compliance with the NPDES General Construction Permit, the project applicant will prepare a Hazardous Materials Business Plan/Spill Prevention Control and Countermeasures Plan (Plan) to avoid spills and minimize impacts in the event of a spill. A Plan will be required from the contractor during construction and from the operator during operations. The purpose of the Plan is to ensure that adequate containment would be provided to control accidental spills, that adequate spill response equipment and absorbents would be readily available, and that personnel would be properly trained in how to control and clean up any spills. The County will review and approve the Plan prior to approval of a grading permit. The County will routinely inspect active portions of the project area to verify that the BMPs specified in the Plan are properly implemented and maintained, will immediately notify the contractor if there is a noncompliance issue, and will require compliance. The federal reportable spill quantity for petroleum products, as defined in EPA's guidelines (40 CFR 110) is any oil spill that: (1) violates applicable water quality standards; (2) causes a film or sheen upon or discoloration of the water surface or adjoining shoreline; or (3) causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines. The Plan will include the components listed below.

- a. The Plan must include a discussion of hazardous materials management, including delineation of hazardous material and hazardous waste storage areas, prevention and response procedures, access and egress routes, and notification procedures.
- b. The Plan will be provided to all contractors working on the proposed project, and one copy will be available on site at all times.
- c. The applicant and the applicant's contractors will store all paint, solvents, and any other hazardous materials in the manner specified by the manufacturer and in accordance with federal regulations and nationally and internationally recognized codes and standards. Small spray cans of carburetor fluid and other hazardous materials will be stored in an enclosed area in the O&M building. A material safety data sheet will be stored with each material.
- d. All employees must be properly trained in the use and handling of these materials.

- e. Should a spill of hazardous material occur, EHD and DTSC, which have spill response and cleanup ordinances to govern emergency spill response, will be notified immediately. A written description of reportable releases will be submitted to the Central Valley Water Board. This submittal will include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases will be documented on a spill report form.

If a reportable spill has occurred and it is determined that project activities have adversely affected surface or groundwater quality in excess of water quality standards, a detailed analysis will be performed by a Registered Environmental Assessor to identify the likely cause of contamination. This analysis will conform to ASTM standards and will include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the County and its contractors will select and implement measures to control contamination, with a performance standard that water quality will be returned to baseline conditions. These measures will be subject to approval by EHD and DTSC.

Mitigation Measure GEO-1: Implement recommendations of site-specific geotechnical investigation prepared by state-licensed personnel

This mitigation measure is described in detail in Section 3.6, *Geological Resources*.

Impact HAZ-2: Encountering hazardous materials during construction (less than significant with mitigation)

Construction of the project on sites listed as hazardous by government agencies could expose employees and the public to hazardous materials. As noted in the setting of this section, the records search conducted by EDR indicates that the project area is not included on the list of hazardous materials sites compiled by the California DTSC. The project area is undeveloped and at a higher elevation than surrounding land, largely precluding the possibility of migration of toxic substances from surrounding land. However, naturally occurring hazardous materials such as asbestos could be encountered during construction, causing a potentially significant impact. Implementation of Mitigation Measures HAZ-2 and HAZ-3 would reduce this impact to a less-than-significant level. A business plan for emergency response will be required, as stated below.

Mitigation Measure HAZ-2: Conduct a Phase I investigation

The applicant will prepare a Phase I site assessment prior to approval of a grading permit. The Phase I site assessment will conform to standards of the ASTM and will include recommendations for reducing or eliminating the source or mechanisms of contamination (or pathways of exposure to such contamination) if contamination is found and remediation/control measures are determined to be necessary concerning construction-period exposure and the handling of contaminated material. The applicant will implement the recommendations of the Phase I site assessment relative to construction. This mitigation measure may be conducted in coordination with Mitigation Measure HAZ-3 as appropriate.

Mitigation Measure HAZ-3: Plan for encountering hazardous materials

The project applicant will prepare a business plan prior to approval of a grading permit, specifying the proper handling, reporting, and disposal procedures for hazardous materials used during construction. If hazardous contaminants are unexpectedly encountered during construction, construction crews will cease work in the vicinity and notify DRM. A licensed

waste disposal contractor will be used to remove the hazardous materials, once identified, from the site in accordance with federal, state, and local requirements.

Impact HAZ-3: Interference with air navigation (less than significant with mitigation)

The proposed project includes two components that could potentially interfere with both general and military air navigation: wind turbines and meteorological towers.

Up to 68 three-bladed wind turbines would be constructed as part of the project along a 6.5-mile turbine string corridor on Hatchet Ridge. Each turbine/tower combination would have a maximum height of approximately 420 feet, measured from the ground to the turbine blade tip at its highest point. The exact height and placement of the turbines and associated facilities within the development corridor would be determined by such factors as equipment manufacturer and environmental constraints.

One or two permanent meteorological towers would also be constructed in the project area, as well as up to five temporary meteorological towers. The permanent meteorological towers would be freestanding structures up to approximately 220 feet tall without guy wires. The temporary meteorological towers of the same height would be installed immediately after the wind turbines are erected and would be in place no more than 1 month.

A review of topographic maps indicates that the project area is not within 5 miles of a private airstrip. There are four general aviation airports in the project region: Fall River Mills Airport, Shingletown Airport, Redding Municipal Airport, and Benton Field. At distances of 20–40 miles from these airports, the project is not within an airport land use plan area, any clear zones for the airport, or any documented flight path for Shasta County airports. Consequently, the proposed project would not result in a change in air traffic patterns for general aviation aircraft and would not result in a safety hazard for people residing or working in the project area. Nonetheless, the project has the potential to present a hazard to air traffic and must meet federal and state safety standards, including requirements for being visible to airplanes during both daytime and nighttime.

In addition, the project area is located approximately 0.25 mile from a designated MTR (see Figure 3.7-1 in *Initial Fatal Flaw Analysis and Permitting Evaluation for the Hatchet Ridge Wind Farm Project* [CH2M HILL 2005]). Although data on lowest flight elevation in MTRs are not currently available, other routes in the area have a 200-foot floor, which precludes wind turbine development.

FAA requires that wind energy projects be illuminated so that aircraft can easily identify and avoid the wind turbines (see FAA Technical Note *Development of Obstruction Lighting Standards for Wind Turbine Farms*, DOT/FAA/AR-TN05/50). Wind turbine obstruction lighting schemes recommended by FAA primarily address nighttime lighting, as the off-white to light grey paint most often used on wind turbine units is the most effective daytime early warning device for aircraft. FAA suggests a single incandescent or rapid discharge flashing red light; studies have suggested that use of a flashing red light reduces the visual impacts on neighboring communities. For wind projects arranged in a linear configuration along a ridgeline (such as the proposed project), FAA recommends that a single light be placed on the turbines at either end of the turbine string and that additional turbines be equipped with a single light such that any lit turbine is no more than 0.5 mile from the nearest lit turbine.

FAA evaluation of the proposed project will include an analysis of the lighting and marking requirements in accordance with the Advisory Circular 70/7460-1K, *Obstruction Marking and Lighting*, and any meteorological towers would comply with FAA lighting regulations. According to a comment letter from FAA regarding the proposed project (Rodriguez pers. comm.), the Hatchet Ridge Wind Project is presumed to be hazardous to air navigation and further analysis of the project will be necessary when the applicant files an FAA Notice of Proposed Construction or Alteration (FAA Form 7460-1). CFR Title 14 Part §77.13 states that any person/organization who intends to propose any construction or alteration exceeding 200 feet above ground level, or when requested by FAA, must notify the FAA Administrator. Implementation of Mitigation Measures HAZ-4a and HAZ-4b, which require compliance with FAA and Caltrans Division of Aeronautics regulations, would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-4a: Comply with FAA regulations

Prior to approval of construction permits, the project applicant will file an FAA form 7460-01 for each wind turbine site, and submit site coordinates based on the 1983 North American Datum (NAD) to the FAA. The applicant will then implement measures to reduce impacts on aircraft and air navigation in accordance with FAA's response and the requirements of FAA's analysis of the Form 7460-01 and Advisory Circular 70/7460-1K, *Obstruction Marking and Lighting*.

Mitigation Measure HAZ-4b: Comply with Caltrans Division of Aeronautics regulations

In accordance with Public Utilities Code (PUC) Section 21656, *Permit for Extension of Structure More Than 500 Feet Above the Ground*, and Section 21659, *Hazards Near Airports Prohibited*, the applicant will obtain a permit from the Caltrans Division of Aeronautics prior to approval of construction permits (unless FAA has determined that the construction does not constitute a hazard to air navigation or would not create an unsafe condition for navigation).

Impact HAZ-4: Impacts related to increased risk of wildland fires (less than significant with mitigation)

According to the Shasta County General Plan, most wildland fires in Shasta County occur in upland areas, where fire hazards are extreme due to an abundance of highly flammable vegetation and long, dry summers. Human activities such as smoking, debris burning, and equipment operation are the major causes (90%) of the 333 wildland fires that occur on average each year in Shasta County. (Shasta County 2004).

Most wind farm development is undertaken on remote, grassy or brush-covered hills where high winds occur on a regular basis. These conditions create a high fire hazard potential. Figure FS-1 in the Shasta County General Plan indicates that the project area is in a Very High Fire Hazard Severity Zone (Shasta County 2004). As noted in the Section 3.7.1, *Existing Conditions*, the Fountain Fire burned 64,000 acres in eastern Shasta County in August 1992, including the proposed project area, which has since been replanted with ponderosa pine.

Increased fire risks associated with wind generators derive from several sources: construction-related accidents, hardware and conductor failures of power collection lines, dropping of collection lines, turbine malfunction or mechanical failure, avian related incidents, and lightning incidents.

During the construction phase, heavy equipment and passenger vehicles driving on vegetated areas prior to clearing and grading could increase the danger of fire. Heated mufflers could potentially set surrounding vegetation on fire. Construction-related activities such as steel cutting and welding are also potential sources of ignition. A set of standard conditions of approval, inspections, and operating procedures reduce the incidence of construction- and maintenance-related fires.

Problems relating to power collection lines and malfunction or mechanical failure of turbines have been a common source of wildfires. These incidents may include turbine overload, bearing overheating, or pendant cable failure, and occur primarily on older units. (A pendant cable is a collection of low voltage and communication cables, which drop through the top of the turbine support structure and connect to a weather head or junction box at a lower level on the tower.) These pendant cables may twist and bind or rub and cause an electrical short, emitting sparks or flames, if not properly maintained. Overheating of the moving parts—such as bearings, generators, gears, and brakes—can also lead to the release of sparks and internal fires within the nacelle. On unenclosed towers, sparks can escape the wind towers more easily. If a fire should break out as the result of overheating of components, electrical faults, or a lightning strike, the fire could be exacerbated by combustible material in the form of mineral oils, lubricants, plastics, and electronic components within the turbine. The restricted location of the nacelle inhibits fire departments' attempts to fight the fire (Jakobsen et al. 1999; Reynolds 2004; Minimax & Co. 2006). Although newer wind turbines typically have lightning protection systems engineered to direct lightning safely to the ground, it is still possible that lightning strikes on wind turbines could create power surges, which could result in fire ignition.

Another potential source of increased fire risk is avian-related incidents. Although the actual number of avian-related incidents cannot be verified, the occurrence of electrocuted birds catching fire and falling to the ground has been cited as a primary cause of wind generator-related wildfires (Lamphier-Gregory 2004).

During construction, the contractor would arrange for delivery of water to the site by water trucks from a source with an existing water right. Project operation plans include water for the O&M facility either from a domestic well or a water storage tank.

As noted in the Section 3.7.1, *Existing Conditions*, Bunchgrass Lookout Road would be the only roadway into the completed facility and would provide both emergency access and evacuation routes to and from the southeastern end of the project area. Because the project area does not include residential dwellings, the Montgomery Creek Volunteer Fire Company anticipates that Bunchgrass Lookout Road would adequately meet the access needs of the local fire departments provided that it is plowed in winter (Carroll pers. comm.). The access road will be kept open in winter in order to allow the 6–10 project personnel access the site. This impact is considered less than significant. The project's single access point is considered adequate for any medical emergencies arising for personnel because a medical helicopter (based in Redding) could be used in the event of a medical emergency (Young pers. comm.). Additionally, the applicant would be required to comply with the provisions of PRC 4290 as described in Section 3.7.1, *Existing Conditions*.

Although access roads throughout the project area would reduce fire hazards because they act as firebreaks and would enable firefighting equipment access to the property that would not otherwise be available, this impact is considered potentially significant. Implementation of Mitigation Measures HAZ-5 through HAZ-7 would reduce these impacts to a less-than-significant level.

Mitigation Measure HAZ-5: Comply with legal requirements for fire prevention during construction activities

In accordance with the Public Resources Code, the construction contractor will comply with the following legal requirements during construction activities.

- Earthmoving and portable equipment with internal combustion engines will be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442).
- Appropriate fire suppression equipment will be maintained during the highest fire danger period: from April 1 to December 1 (PRC Section 4428).
- On days when a burning permit is required, flammable materials will be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor will maintain the appropriate fire suppression equipment (PRC Section 4427).
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines will not be used within 25 feet of any flammable materials (PRC Section 4431).

Mitigation Measure HAZ-6: Create and maintain adequate firebreaks and practice fire prevention

The applicant will be required to comply with the following measures for the duration of project operations.

- Maintain around and adjacent to buildings and structures a firebreak made by removing and clearing away, for a distance of 100 feet as required by PRC 4290, all flammable vegetation or other combustible growth.
- Maintain around and adjacent to the project facilities additional fire protection or firebreak made by removing all brush, flammable vegetation, or combustible growth that is located within 100 feet of the structures or to the property line, whichever is nearer. Grass and other vegetation located more than 30 feet from the structures and less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion.
- Provide prior to project operations and maintain at all times a screen over the outlet of every chimney or stack that is attached to any device that burns any solid or liquid fuel. The screen will be constructed of nonflammable material with openings not larger than 0.5 inch.
- Prior to occupancy, install fire extinguishers at the O&M building.
- Employees will be trained in using extinguishers and communicating with the SCFD.
- The SCFD and/or Cal Fire will periodically inspect the project area.
- Provide the SCFD and/or Cal Fire access to onsite water storage tanks, if such access is needed.

Mitigation Measure HAZ-7: Prepare an Emergency Response Plan

Prior to approval of construction permits, an Emergency Response Plan will be prepared for the review and approval by Shasta County. This plan will address potential accidents or emergencies involving fires or explosions at the wind energy facility. The Emergency Response Plan will be prepared in accordance with the Integrated Contingency Planning Guidelines (sometimes referred to as the “One Plan” guidelines) issued by the National Response Team. The Plan will consist of three sections: an Introduction, a Core Plan, and Annexes. The Introduction and Core Plan should be brief and contain only essential (“high level”) information. The Introduction will describe the scope of the Emergency Response Plan, key names and addresses of contacts for an emergency, a description of processes, and the general facility hazards information. The Core Plan will describe how to identify an emergency, how and who to alert if an emergency occurs, roles during an emergency, how the emergency will be controlled, and how to terminate the incident.

Impact HAZ-5: Accidents involving the general public (other than turbine failure) (less than significant)

As described in Chapter 2, *Project Description*, public access to the wind turbines would be restricted to avoid potential safety hazards. All turbine towers would be locked, and the substation and switching station would be fenced and locked to prevent unauthorized entry. Because these features would reduce the potential for incidental or intentional entry onto the project area and subsequent risk to human health, this impact is considered less than significant.

Impact HAZ-6: Turbine or meteorological tower failure and blade or ice throw (less than significant with mitigation)

Rotor failure is also known as *blade throw*, meaning that a wind turbine blade may disconnect from the tower and be thrown to the ground. Ice and fragments of blade may also be thrown from the wind turbine tower. *Tower failure* is the collapse of a wind turbine tower. Although it is unlikely, wind turbines have the potential for rotor and tower failure as a result of conditions such as excess rotor speed or electrical system failure.

Blade throw (either full blade or fragments of blade) and ice throw from wind turbines occur with a probability of 1 in 1,000 turbines per year. Blade and ice fragments are known to fly farther than full blades because the initial velocity at failure tends to be higher for a fragment than for an entire blade (Larwood and van Dam 2006).

Many California counties with wind farms have adopted setbacks for wind turbines, primarily to account for the risk of blade throw or ice throw from the rotor. These setbacks are typically three times the overall turbine height from a property line, although setback requirements are provided in both multiples of overall turbine height and fixed distances. If a fixed distance is included with the multiple, then the maximum of the two values must be used for the setback (Larwood and van Dam 2006). Kern County has the most stringent requirements of all county zoning codes for wind turbine setbacks using multiples of overall height, with a requirement that setbacks be four times the overall turbine height (Title 19 Zoning, Chapter 19.64). The maximum setback for fixed distance cited in county zoning codes is 1,000 feet in Solano County (Larwood and van Dam 2006).

A hazard zone analysis (KPF Consulting Engineers pers. comm.) was prepared for the Shiloh II Wind Project in Solano County to determine the worst-case scenario throw distances for several turbines. The tallest tower assessed in the hazard zone analysis for the proposed Shiloh II Wind Project was 414 feet (126 meters), and the greatest throw distance was 542 feet (165 meters),

assuming a base-to-road elevation difference greater than 80 feet (24.4 meters) but less than 100 feet (30 meters). To be prudent, the hazard zone analysis recommended adding a multiplier of 1.25 to the maximum throw distances for setbacks from structures. This calculation resulted in a 677-foot (207-meter) setback for the 414-foot (126-meter) tower.

Although the turbine models for the Hatchet Ridge Wind Project are unknown, the tallest tower proposed is 420 feet (128 meters), which is 6 feet taller than the tallest turbine analyzed for the Shiloh II Wind Project (414 feet [126 meters]). Therefore, it is reasonable to assume that the maximum throw distance for a blade from a 2.4-MW turbine would be slightly more than 542 feet (165 meters) but considerably less than 1,000 feet (305 meters).

The hazard zone analysis determined that a blade throw would have the largest area of potential impact on the public and that other turbine failure hazards, including tower failure, rotor delamination, ice throw, or a blade-tower strike, would not be as far reaching as a blade throw. Consequently, other potential tower failure hazards would occur within the setback distance established for a blade throw.

Because the project is approximately 0.5 mile (2,640 feet) from SR 299, it would not be expected to cause a safety hazard to the public. This distance is 4 times the setback required for the comparable Shiloh II Wind Project, 2.5 times the fixed setback distance of 1,000 feet required by Solano County (the most stringent fixed setback distance of any California county), and more than 1.5 times the maximum setback distance required by Kern County (the most stringent setback distance based on a multiple of overall turbine height). Therefore, impacts on the public traveling on SR 299 are considered less than significant.

Although this setback will minimize the potential for impacts on the public resulting from turbine or meteorological tower failure and blade and ice throw hazards, there is nevertheless the potential for such hazards to result in injury of personnel in the project area. Implementation of Mitigation Measure HAZ-8 would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-8: Wind turbine design and safety mechanisms

To prevent turbine or meteorological tower failure and blade and ice throw and avoid potential impacts, the project applicant will incorporate the following measures into the project design.

- a. Turbines will conform to international standards for wind turbine generating systems, including those set forth in International Electro technical Commission (IEC) 61400-1: *Wind Turbine Generator Systems – Part I: Safety Requirements* (1999), and will be certified according to these requirements to help ensure that the static, dynamic, and defined life fatigue stresses of the blade would not be exceeded under the combined load expected at the Project Area.
- b. The project applicant will adhere to state and local building codes during turbine installation on the foundations; such adherence will also minimize the risk of rotor and tower failure.
- c. To prevent safety hazards caused by over-speed, the project applicant will install a comprehensive protection system on each turbine to prevent excess rotor speed and turbine and tower failures, such as having rotor speed controlled by a redundant pitch-control system and a backup disk-brake system. During normal operations, the rotor speed is controlled by the generator torque microprocessors and blade pitch. When

wind speeds increase to excessive levels, the rotor pitch would turn, or feather, the blades. Power control automated systems are used to constantly monitor rotor speed to ensure that it is maintained within the desired operating range. If an over-speed is detected, the control system immediately initiates a procedure to shut down the machine. The shutdown procedure will utilize a combination of generator torque applied by the power electronics unit and rapid pitching of the blades to the feather position, which is accomplished by the hydraulic pitch actuator and the hydraulic power unit. In the event of hydraulic power unit failure or loss of electrical power, the turbines will be shut down using stored pressure that will power the hydraulic actuator to the feather position and bring them to a complete stop. Additionally, critical components have multiple temperature sensors and a control system to shut the system down and take it off line if an overheat condition is detected.

- d. To prevent safety hazards caused by tower failure, the project applicant will fulfill the requirements below.
 - i. Design the turbine towers and foundation to withstand wind speed of 100 miles per hour to ensure stability even under extreme wind conditions at the standard height.
 - ii. Engineer the turbines according to Zone 4 Uniform Building Code Earthquake Standards.
 - iii. Ensure that all installed equipment meets the standards of National Electrical Manufacturers Association (NEMA), the American National Standards Institute (ANSI), and Cal-OSHA.
- e. To prevent safety hazards caused by electrical failure, electrical systems and the substation will fulfill the requirements listed below.
 - i. Be designed by California-registered electrical engineers.
 - ii. Meet national electrical safety codes and other national standards, including NEMA, ANSI, and Cal-OSHA standards.
- f. The project applicant will provide the County with manufacturers' specifications for the wind turbines, specifying that all turbines are equipped with a braking system, blade pitch control, and/or other mechanism for rotor control and have both manual and automatic over-speed controls.

Impact HAZ-7: Electrical shock and accidents (less than significant with mitigation)

Impacts on non-project-related individuals associated with electrical transmission lines and electrical disconnect mechanisms would be reduced by limiting access to the project facilities. As noted previously, public access to the wind turbines would be restricted to avoid potential safety hazards. Personnel working on the proposed project during construction and operations would be at risk of electrical shock from energized facilities and injury from work-related accidents that may occur during construction and operation. This impact is considered potentially significant and mitigation is required. Implementation of Mitigation Measures HAZ-9 and HAZ-10 would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-9: Install grounding and equipment shutoff mechanisms on project facilities

To protect workers from electrical shock and other work-related accidents during the Hatchet Ridge Wind Project, the following measures will be implemented.

- a. Grounding will be designed and implemented to the standards of the Institute of Electrical and Electronics Engineers.
- b. All turbines and utility lines will be equipped with automatic and manual disconnect mechanisms.
- c. Three circuit breakers that can be both manually and automatically operated will be provided between each turbine and the connection to the electrical grid.
- d. The electrical systems and substations will be designed by California-registered electrical engineers and will meet national electrical safety codes and other national standards, including NEMA, ANSI, and Cal-OSHA standards.
- e. The above mechanisms will be installed and tested before interconnection.

Impact HAZ-8: EMF risk associated with transmission lines (less than significant with mitigation)

As with the risk of electrical shocks and accidents, EMF impacts on the public would be reduced by limiting access to the Hatchet Ridge Wind Project facilities. However, personnel working on the proposed project during construction or operations could be at risk of EMF exposure from existing and proposed transmission lines. This impact would be reduced to a less-than-significant level with implementation of Mitigation Measure HAZ-11.

Mitigation Measure HAZ-10: Field Management Plan to Reduce EMF Risk

In accordance with CPUC Decision 93-11-013, PG&E and/or the project applicant will prepare a field management plan that incorporates “no-cost” and “low-cost” magnetic field reduction steps to reduce EMF risks to personnel on the project site. The field management plan will be submitted to CPUC for review and approval prior to occupancy of the site. Consistent with PG&E’s Transmission and Substation EMF Design Guidelines, the field management plan will include the following project information:

- A description of the project (e.g., cost, design, length, location).
- A description of the surrounding land uses using priority criteria classifications.
- No-cost options to be implemented.
- Priority areas where low-cost measures are to be applied.
- Measures considered for magnetic field reduction, percent reduction, and cost. These measures may include but not be limited to the following:
 - Increased distance from conductors and equipment.
 - Reduced conductor spacing.

- ❑ Minimized current.
- ❑ Optimized phase configuration.
- Which options were selected and how areas were treated equivalently or why low-cost measures cannot be applied to this project because of cost, percent reduction, equivalence, or some other reason.