D.8 Hazards and Public Safety

This section evaluates how the Project would affect public health and safety issues, dedicating a considerable portion of the analysis to the release of hazardous materials into the environment. Section D.8.1 describes the project setting with attention to locally pertinent public safety and health issues including but not limited to underground natural gas lines, emergency response times and fire danger; Section D.8.2 lists the agencies with jurisdiction over the Project and the applicable laws, standards, and regulations. The Project Impacts and Mitigation section states the Applicant Proposed Measures (APMs) to mitigate any impacts to public health and safety and provides an analysis of specific impacts as outlined by CEQA (Section D.8.3). Additionally, in response to public concern, Section D.8.3.4 presents an overview of the effects of exposure to electric and magnetic fields (EMFs), an informational analysis for the consideration of both lawmakers and the public.

CEQA requires an in-depth and specific analysis of the threat of hazardous materials to public health and safety. Hazardous materials are chemical and non-chemical substances, which if released or misused, can pose a threat to the environment or human health. Hazardous materials in various forms can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. Hazardous materials are used in industry, agriculture, medicine, research, and consumer goods. Many products containing hazardous chemicals are routinely used and stored in homes. Hazardous materials can be in the form of explosives, flammable and combustible substances, poisons, radioactive materials, pesticides, and petroleum products. These substances are most often released as a result of motor vehicle or equipment accidents or because of chemical accidents during industrial use. These substances have the potential to leach into soils, surface water, and groundwater due to spills if not properly contained (FEMA 2006). Land may become contaminated due to past and current uses. To avoid the exposure of workers and the public to hazardous substances, potentially contaminated land should be identified so that contaminants can be disposed of according to regulations. Pursuant to Government Code Section 65962.5 (DoTSC 2007), land used for the storage of toxic substances is added to the annually updated Cortese list, and subsequently its land uses are restricted.

D.8.1 Environmental Setting

The Project would service the growing communities in the City of Lake Elsinore, the City of Perris, and the surrounding areas of unincorporated Riverside County. However, construction, maintenance, and operation of the proposed subtransmission line, telecommunications system, and Fogarty, Valley, and Ivyglen Substations could present safety hazards impacting both workers and the general public. This analysis focuses on the general potential hazards within the Valley-Ivyglen Subtransmission Line and Fogarty Substation project areas as well as on specific potential hazards highlighted by CEQA—airports and airstrips, emergency response, and fire potential. Although the Public Health and Safety Section includes an analysis of the Project's impact on emergency response time, refer to Section D.13 Public Services and Utilities for a more thorough discussion.

D.8.1.1 Valley-Ivyglen Subtransmission Line and the Telecommunications System

The Valley-Ivyglen Subtransmission Line and telecommunications system are located within a 25 mile long, 4,000 foot wide corridor that traverses the City of Perris, the City of Lake Elsinore, and the Glen Ivy/Corona Lake Area, all within Riverside County. Potential Hazards include hazardous materials stored, used, and produced in the area; underground pipelines carrying natural gas, explosives, radioactive

materials, and various chemicals; and seismic faults. For a more in depth discussion of seismic faults, please refer to Section D.6 Geology, Soils, and Mineral Resources.

As discussed in Section D.2 Land Use, the Valley-Ivyglen Subtransmission Line would pass through primarily rural areas and open spaces (Table D.2-2). Undeveloped and unused land is less likely to contain soil, surface water, or groundwater contaminated by hazardous materials. However, the proposed route also passes through a number of light industrial areas at Segments E-1, C-1, C-6, W-8, and W-10 (Table D.2-2). Furthermore, during construction, hazardous materials will be introduced to the site. These hazards include potential spills of gasoline, diesel fuel, oils, solvents, and lubricants from construction vehicles.

Additional construction hazards include contact with underground gas lines and electric lines when trenching or boring for the placement of LSD poles and TSPs. The proposed subtransmission line and telecommunications system crosses an existing natural gas pipeline in five locations. There are two crossing locations on each of Segments W-1 and W-10, and one crossing of Segment W-4. The natural gas pipeline and the proposed subtransmission line and telecommunications system routes are shown on Figure D.8-1, with details of the two substation locations shown on Figures D.8-2 and D.8-3.

D.8.1.2 Fogarty Substation

The proposed site for Fogarty Substation is a 6.6 acre plot located in the northern portion of the City of Lake Elsinore. The Fogarty Substation project site is vacant and surrounded primarily by undeveloped terrain. Hazards are unlikely to be present at the proposed site as a result of previous land uses. There are no known utilities crossing the site and no pipelines.

A Phase I Environmental Site Assessment site reconnaissance was conducted on behalf of the Applicant on December 15, 2006, to identify recognized environmental conditions (RECs) at the substation site. A REC is defined by the American Society of Testing and Materials (ASTM) Standard E 1527-97 as "[t]he presence or likely presence of hazardous substances or petroleum products that indicate an existing release, past release or material threat of a release into the ground, groundwater, or surface water of the property" (ASTM 2008). The field investigation conducted failed to detect any surface evidence of hazardous materials, waste, or other signs that would indicate the existence of RECs on-site. Based upon review of historical records, interviews, and the interpretation of historical topographic maps and aerial photographs of the project site it was found that there was also no evidence to conclude a historical presence of RECs on-site. However, since the project site and the immediately surrounding areas may have historically been utilized for agricultural purposes, there is a potential for pesticides or metals to be present in soil and underlying groundwater.

Hazards that would be on the Fogarty Substation site therefore primarily include hazardous materials introduced to the site for construction and operation of the proposed facility.

D.8.1.3 Airports and Airstrips

Perris Valley Airport is a privately-owned, public-use airport located near the corner of Ethanac Road and Goetz Road in Perris. This facility provides a 5,100-foot long runway and handles approximately 94 aircraft operations per day (FAA 2008). The airport serves as home to ultralight plane rides and the Perris Valley Skydiving Company (City of Perris 2004). It is located approximately 1.1 miles north of the proposed subtransmission line route.

Insert 1 of 2

Figure D.8-1 Proposed Route and Natural Gas Pipeline

CLICK HERE TO VIEW FIGURE

Insert 2 of 2

Figure D.8-1 Proposed Route and Natural Gas Pipeline

Insert 1 of 2

Figure D.8-2 Proposed and Alternative Routes and Natural Gas Pipeline (West)

CLICK HERE TO VIEW FIGURE

Insert 2 of 2

Figure D.8-2 Proposed and Alternative Routes and Natural Gas Pipeline (West)

Insert 1 of 2

Figure D.8-3 Proposed and Alternative Routes and Natural Gas Pipeline (East)

CLICK HERE TO VIEW FIGURE

Insert 2 of 2

Figure D.8-3 Proposed and Alternative Routes and Natural Gas Pipeline (East)

Skylark Airport is located within the City of Lake Elsinore, in the vicinity of the southern terminus of Lake Elsinore. This airport provides glider and skydiving opportunities for the community and surrounding region. The runway surface of Skylark Airport consists of turf (FAA 2008). Skylark Airport is located 4.9 miles from the proposed subtransmission line route and approximately 6 miles south of the Fogarty Substation project site.

D.8.1.4 Emergency Response

Emergency response time is defined as the speed at which fire, police, and ambulance service effectively reacts to an emergency or emergency call. Law enforcement in the project area is provided primarily through the Riverside County Sheriff's Department under contract with the Lake Elsinore Police Department and the City of Perris Police Department. The California Highway Patrol provides support.

The Riverside County Fire Department contracts with the California Department of Forestry and Fire Protection (CDF) to provide fire protection services to unincorporated Riverside County. Additional discussion of emergency services is included in Section D.13 Public Services.

D.8.1.5 Fire Potential

Fire hazards are typically exacerbated by specific environmental conditions such as dry climates or high winds. Fire hazards can also be the result of human activities, including the use of petroleum fuels and products and the combustion of natural gas and wood for heating. Wildfires in both the subtransmission line project study area and the Fogarty Substation project site are a threat year-round. Wildfires are a threat due to dry vegetation and grasslands, which are prone to catching fire from natural phenomenon (lightning strikes), as well as human sources (cigarette smoking, equipment use, and electric fires) (City of Lake Elsinore 2006).

Much of Riverside County is identified as a potential wildland fire area by the CDF as well as the County of Riverside General Plan Safety Element. A large portion of the County is undeveloped and consists of rugged terrain with highly flammable indigenous vegetation. In particular, the hillside landscape of Riverside County has a substantial fire risk. Fire potential for the County is typically greatest during the months of August, September, and October when dry vegetation coexists with hot, dry, Santa Ana winds.

The potential for brushfire exists at any time of the year. The entire subtransmission line project study area is within a high fire potential area.

As shown on Figure D.8-4, Elsinore Area Plan - Wildfire, the Fogarty Substation project site is located in an area of northwestern Lake Elsinore that consists generally of naturally vegetated hillsides and valleys that have high fire hazards (City of Lake Elsinore General Plan Background Report, January 2006). According to Figure D.8-4, the project site's location is in a valley area for which wildfire hazard information is "unavailable." Surrounding areas are marked as having a high susceptibility to wildfire. As discussed in Section D.4 Biological Resources, the project site's annual grassland cover is contiguous with that of the surrounding hillside areas. Therefore, the site would be considered to have a similarly high risk for fire hazard, greatest during the months of August, September, and October.

D.8.2 Applicable Regulations, Plans, and Standards

D.8.2.1 Federal

US Environmental Protection Agency

The U.S. Environmental Protection Agency (U.S. EPA) was established in 1970 in response to the growing public demand for cleaner water, air, and land. The U.S. EPA was established to consolidate a variety of federal research, monitoring, standard-setting, and enforcement activities into one agency to ensure environmental protection. The U.S. EPA's mission is to protect human health and the environment. The U.S. EPA develops and enforces congressional laws and regulations, offers financial assistance to State environmental programs, performs environmental research, and furthers environmental education. Where national standards are not met, the U.S. EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality (EPA 2008).

Comprehensive Environmental Response, Compensation, and Liability Act

In 1980, the United States Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C. § 9601–9675), also known as Superfund. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Superfund established requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. Superfund also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and contaminants. The NCP also established the National Priorities List (NPL) to prioritize and rank hazardous sites (Superfund 2008).

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) of 1976 regulates hazardous waste from the time that waste is generated through its management, storage, transport, and treatment, until its final disposal. The 1984 Hazardous and Solid Waste Act amended the RCRA and prohibited certain techniques for Hazardous Waste Disposal. The U.S. EPA has authorized the Department of Toxic Substances Control (DTSC) to administer the RCRA program in California.

D.8.2.2 State

California Environmental Protection Agency (CalEPA)

The CalEPA was created in 1991 by combining six boards, departments, and offices under an umbrella cabinet to ensure a coordinated deployment of state resources to protect human health and the environment. CalEPA comprises the Air Resources Board, the Department of Pesticide Regulation, the Department of Toxic Substances Control, the Integrated Waste Management Board, the Office of Environmental Health Hazard Assessment, and the State Water Resources Control Board (SWRCB) (CalEPA 2007).

California Occupational Safety and Health Administration (Cal/OSHA)

California law defines a hazardous material as any material that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may pose a present or potential hazard to human health and safety or to the environment if released in the workplace or the environment (California Health and

Insert 1 of 2

Figure D.8-4 Elsinore Area Plan - Wildfire

CLICK HERE TO VIEW FIGURE

Insert 2 of 2

Figure D.8-4 Elsinore Area Plan - Wildfire

Safety Code Section 25501). A hazardous waste is defined as a discarded material of any form (e.g., solid, liquid, gas) that may pose a present or potential hazard to human health and safety or to the environment when improperly treated, stored, transported, or disposed of, or otherwise managed (California Health and Safety Code Section 25117). Cal/OSHA requires the employer to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

Department of Toxic Substances Control (DTSC)

DTSC is a department of CalEPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning (DTSC 2007).

Government Code §65962.5 (commonly referred to as the Cortese List) includes DTSC listed hazardous waste facilities and sites, California Department of Health Services (DHS) lists of contaminated drinking water wells, sites listed by the SWRCB as having underground storage tank (UST) leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) General Order (GO) 95 specifies required clearances, grounding techniques, maintenance, and inspection requirements for electrical transmission and substation projects.

California Code of Regulations

State laws and regulations are codified in the California Code of Regulations (CCR). CCR provisions relevant to the Project include the following:

- *8 CCR 2700 et seq. High Voltage Electrical Safety Orders.* Establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger
- *14 CCR 1250-1258, Fire Prevention Standards for Electric Utilities.* Provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply

D.8.2.3 Regional and Local

County of Riverside

Riverside County developed a Safety Element as part of the County of Riverside General Plan (2003) "to reduce death, injuries, property damage, and economic and social impacts from hazards." The Safety Element of the Riverside General Plan outlines safety considerations for planning and presents policies to reduce hazards during development. The Plan specifically addresses hazardous materials within Riverside County, including agricultural chemicals, natural gas and petroleum, explosives, radioactive materials, and various commercial chemical substances, and their use, storage, and production. Additionally, the Plan identifies underground pipelines carrying natural gas, crude oil, and other petroleum products and

seismic faults as potential hazards and calls for "hazard-conscious project design and mitigation engineering."

City of Lake Elsinore

Community Wildfire Protection Plans (CWPP) are authorized and defined in the Healthy Forests Restoration Act (HFRA) (City of Lake Elsinore 2006). The HFRA places emphasis on community planning by extending a variety of benefits to communities with a wildfire protection plan. Critical among these benefits is the option of establishing a localized definition and boundary for the wildland-urban interface and the opportunity to help shape fuels treatment priorities. The Lake Elsinore General Plan Update recommends the City adopt a CWPP.

City of Perris

The Safety Element of the City of Perris General Plan (City of Perris 2005) outlines the City's goals for reducing the potential risks for death, injuries, property damage, and economic and social dislocation resulting from hazards or catastrophic events. The Safety Element also addresses issues related to man-made hazards, such as hazardous water users and the level of emergency services accessible by residents of the City of Perris.

D.8.3 Project Impacts and Mitigation

D.8.3.1 Significance Criteria

For the purpose of this evaluation, the Project would have a significant impact on public health and safety if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, 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 one-quarter mile of an existing or proposed school
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment
- Result in a safety hazard for people residing or working along the proposed subtransmission line route within an area regulated by an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport
- Result in a safety hazard for people residing or working along the proposed subtransmission line route for a project within the vicinity of a private airstrip
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

Potential impacts are discussed according to the significance criteria above. Each impact is categorized according to the following classifications:

Class III – Less than significant impact without mitigation measures
Class II – Less than significant impact after mitigation measures are implemented
Class I – Significant impact and no feasible mitigation measures are available

D.8.3.2 Applicant Proposed Measures

The Applicant would implement the following standard measures. For the purposes of this evaluation these measures are considered to be part of the Project Description.

HAZ-SCE-1: The Applicant would prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) prior to initiating construction activities. The SWPPP would utilize Best Management Practices (BMPs) to address the storage and handling of hazardous materials during construction activities.

HAZ-SCE-2: The Applicant would implement standard fire prevention and response measures. The standards address spark arresters, smoking and fire rules, storage guard, fire suppression tools, fire suppression equipment, and training requirements. Trained fire suppression personnel and fire suppression equipment would be established at key locations, and the personnel and equipment would be capable of responding to a fire within 15 minutes notification. Portable communication devices (i.e. radio or mobile telephones) would be available to construction personnel.

HAZ-SCE-3: The Applicant would maintain an area of cleared brush around construction areas in accordance with applicable State and Federal laws and in accordance with the Applicant's protocol for minimizing the risk of fire. The Applicant would further minimize this risk by clearing all potential materials from the area, and maintaining clearance throughout the operation of the Project.

HAZ-SCE-4: The Applicant would prepare and implement a Spill Prevention, Control and Countermeasure plan (SPCC) prior to transporting any oil containing equipment to the site.

D.8.3.3 Impacts Analysis

Impact HAZ-1: Environmental Hazards Due to the Use, Transport, or Storage of Hazardous Materials

Hazardous materials to be used during the construction of the proposed subtransmission line would include gasoline, diesel fuel, oil, and lubricants. The Applicant has included Applicant Proposed Measure (APM) HAZ-SCE-1 covering best management practices (BMPs) to be implemented during construction to reduce the potential for or exposure to accidental spills or fires involving the use of hazardous materials. Implementation of the BMPs would minimize the risk of a spill that could be caused by improper use, transport, or storage. With the implementation of BMPs and adherence to existing laws and regulations, construction of the Project is not expected to create a hazard due to the use, transport, or storage of hazardous materials (Class III).

Operation and maintenance of the proposed subtransmission line and telecommunications system would not require the routine transport, use, or disposal of hazardous materials. Annual visual inspection of the line and maintenance when necessary would require the use of motor vehicles. The motor vehicles represent a potential for the accidental release of hazardous materials into the environment; however, due to the infrequency of the inspections and anticipated repairs, mitigation measures are not required (Class III).

The operation and maintenance of the Fogarty Substation and the improved Valley and Ivyglen Substations would not pose an environmental hazard due to the use, transport, or storage of hazardous materials. As outlined in APM HAZ-SCE-4, the Applicant would continue to provide containment and/or diversionary structures or equipment at the Valley and Ivyglen Substations to prevent discharge of an oil spill as described in the SPCC requirements (40 CRF 112.1 Part 112.7). Therefore, there is no significant impact (Class III).

Fogarty Substation would be remotely managed and monitored. Routine maintenance would occur two to three times a week and require gasoline, diesel fuel, oil, and lubricants. As outlined in APM HAZ-SCE-I, the Applicant would employ BMPs to reduce the potential of accidental spills. Furthermore, APM HAZ-SCE-3 requires vegetation be cleared to minimize fire risk. The operations and maintenance of these substations would result in a less than significant environmental hazard (Class III).

Impact HAZ-2: Environmental Hazards Due to Release of Hazardous Materials into the Environment

The hazards associated with excavating holes for the placement of poles for the proposed subtransmission line include accidental contact with existing underground gas lines. The proposed subtransmission line route crosses the existing natural gas pipeline at five locations. These locations include two each at Segments W-1 and Segment W-10, and one at Segment W-4. Striking a natural gas line during construction would release hazardous materials into the environment, endangering both workers and the public, and is a potentially significant impact. Mitigation Measure (MM) HAZ-2a is identified to reduce the risk of accidental release of hazardous materials. MM HAZ-2a requires that the Applicant contact the Underground Service Alert of Southern California as part of the siting and engineering process to locate the precise locations of all gas lines in the project area and chart the route accordingly. With the adoption of MM HAZ-2a, the construction of the proposed subtransmission line would not create a significant risk of the release of hazardous materials into the environment (Class II).

The potential for hazards associated with installing underground fiber optic cables for telecommunications systems along the proposed subtransmission line route would be the same as the hazards described above. Since the installation of the telecommunications system would involve the installation of tubular steel poles (TSPs), light duty steel (LDS) poles, and underground digging, construction of the telecommunications system creates a hazard to the public by potentially striking a natural gas line and releasing hazardous materials into the environment. Therefore, as with construction of the proposed subtransmission line, construction of the telecommunications system requires MM HAZ-2a—the Applicant shall specifically identify all natural gas pipelines as part of the citing and engineering process to map its route accordingly. With the implantation of MM HAZ-2a, installation of the telecommunications system including underground fiber optic cables presents no hazard to public safety by release of hazardous materials into the environment (Class II).

The operation of the proposed subtransmission line and telecommunications system would require annual visual inspections and maintenance as needed. Motor vehicles pose a risk of accident or spills; however, given the infrequency of the inspections and with BMPs as outlined in HAZ-SCE-1, the operation of the lines does not require MMs. Annual visual inspections will be completed by air or motor vehicle. Maintenance will be provided on an as needed basis. The risk of spill due to inspections or maintenance is low. No additional MMs are required (Class III).

In upgrading the Valley and Ivyglen Substations and constructing the Fogarty Substation, there exists the potential for environmental effects from using fuels and other hazardous materials necessary to run construction equipment. There would be potential for spills and drips of gasoline, diesel fuel, oil,

hydraulic fluid, and lubricants from vehicles or other machinery. There would also be a potential for release of paints, solvents, adhesives, or cleaning chemicals during construction. APM HAZ-SCE-1 would demand the implementation of SWPPP and the use of BMPs to reduce the risk of spills during construction of the Valley and Ivyglen Stations improvements and Fogarty Substation (Class III).

The use of hazardous materials in the operation of the Valley and Ivyglen Stations and Fogarty Substation presents a risk of accidental release into the environment. APM HAZ-SCE-4 requires containment or diversionary structures or equipment on-site as required by 40 CFR Part 112.1 through 112.7. No MMs are necessary (Class III).

Mitigation Measures for Impact HAZ-2

MM HAZ-2a: As part of the siting and engineering process for the proposed subtransmission line, the Applicant shall precisely locate all underground natural gas lines in the area. Prior to finalizing the engineering design, the Applicant shall contact the Underground Service Alert of Southern California (DigAlert 2006) to identify the exact locations of gas pipelines within the project area.

Impact HAZ-3: Hazardous Emissions within a Quarter Mile of a School

As discussed in Section D.13 Public Services and Utilities, there are fifteen schools within two miles of the project area. One school, Temescal Canyon High School, falls within a quarter mile of the proposed subtransmission line route. The Applicant Proposed Measures, BMPs, and MMs described in the discussions of Impacts HAZ-1 and HAZ-2 render the hazards associated with the use, transport, and storage of hazardous materials less than significant. APMs HAZ-SCE-1 and HAZ-SCE-4 outline policies and measures to prevent spillage of hazardous materials during construction and operations, including the implementations of a SWPPP and SPCC plan. MM HAZ-2a requires that the Applicant Contact DigAlert2006 as part of the siting and engineering process to ensure avoidance of natural gas lines when installing TSPs, LDS poles, and underground fiber optic cable. Given the implementation of those measures and practices, hazardous emissions within a quarter mile of a school would constitute a less than significant impact (Class II).

During the Public Scoping Process, a private citizen raised the issue of public health effects of electric and magnetic fields (EMFs) from power lines. This section does not consider magnetic fields in the context of CEQA and determination of environmental impact, first because there is no agreement among scientists that EMF does create a potential health risk, and second because there are no defined or adopted CEQA standards for defining health risk from EMF. However, recognizing that there is a great deal of public interest and concern regarding potential health effects from exposure to electric and magnetic fields (EMFs) from power lines, the DEIR provides information regarding EMF following the analysis of impacts in this section.

Impact HAZ-4: Located on Hazardous Materials Site pursuant to Government Code Section 65962.5

Neither the Fogarty Substation nor the Valley-Ivyglen Subtransmission Line would be located on a site which is included on the "Cortese List," a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (DoTSC 2007) and, as a result, there is no impact.

Impact HAZ-5: Public or Worker Safety Hazard Due to Proximity to a Public or Public Use Airport

The proposed subtransmission line route is approximately 1.1 miles from the Perris Valley Airport, a private airport used primarily for recreation. The proposed subtransmission line would be located within the Applicant's existing right-of-way (ROW), on the north side of the existing Valley-Serrano 500 kV

transmission line. The proposed subtransmission line would be parallel to the airport runway and construction activities would not interfere with airport operations (Class III).

Communication with Ben Conaster, owner of Perris Valley Airport, confirmed that the proposed Valley-Ivyglen 115 kV Subtransmission Line running alongside and beneath the existing Valley-Serrano 500 kV Transmission Line would not present any new hazards to public safety. The impact of the proposed line on public or worker safety due to proximity to a public use airport is less than significant and does not require mitigation (Class III).

The Lake Elsinore Skylark Airport is located 4.9 miles from the proposed route. CEQA significance criteria mandate an analysis for all airports within two miles of the Project. Lake Elsinore Skylark Airport does not fall within two miles of the Project; therefore, there would be no impact related to this airport.

Impact HAZ-6: Public or Worker Safety Hazard Due to Proximity to Private Airstrip

The proposed subtransmission line route is approximately 1.1 miles from the Perris Valley Airport, a private airport used exclusively for recreation. Neither Valley Substation, Ivyglen Substation, nor the proposed Fogarty Substation are within the vicinity of a private airstrip. The potential impacts to both airports and workers are discussed above and determined to be less than significant (Class III).

During public scoping, Ken Niemi (a private citizen) raised concerns on behalf of the Elsinore Hang Gliding Associate that the proposed subtransmission line would present a public safety hazard to recreational hang gliders. The proposed subtransmission line route runs alongside the Corona Freeway. The hang glider activity is primarily centered on the Elsinore Mountains southeast of Lake Elsinore in the Cleveland National Forest. Due to a natural phenomenon called the Elsinore Convergence, the Elsinore Mountains are a popular launch point for cross-country or long-distance hang gliders. Mr. Niemi identified vacant fields alongside I-15 in segment C6 of Figure B.4-5 where the proposed line crosses I-15 at Nichols Road as an area of high public safety concern. Mr. Niemi indicated that hang gliders frequently use fields along highways for landings for accessibility reasons and cited visibility of lines as an issue. Visibility markers such as orange balls on the lines in segment C6 would reduce the risk of hang glider entanglement with power lines and MM HAZ-6a is recommended. With the implementation of MM HAZ-6a, this impact would be less than significant (Class II).

Mitigation Measures for Impact HAZ-6

MM HAZ-6a: The Applicant shall use visibility markers on all portions of the proposed subtransmission line within half a mile in either direction of I-15 where the line crosses I-15 near Nichols Road.

Impact HAZ-7: Interference with an Emergency Response Plan or Emergency Evacuation Plan

Construction of the proposed subtransmission line and telecommunications system could potentially interfere with emergency response by ambulance, fire, paramedic, and police vehicles at locations where subtransmission line stringing activities would occur over I-215 and I-15, and the local roads identified in Table D.12-2 in Section D.12 Transportation, including Ethanac Road, Murrietta Road, Goetz Road, Conrad Avenue, Nichols Road, Lake Road, Horsethief Canyon Road, Indian Truck Trail, and Temescal Canyon Road. The temporary road and lane closures associated with construction activities could lengthen response times required for emergency vehicles passing through the construction zone. The Applicant would accommodate the emergency service provider vehicle by employing BMPs and immediately stopping work to allow the passage of emergency vehicles with minimal delay. As discussed in APM TRANS-APM-1 in D.12 Transportation, the Applicant will work with CalTrans, County, and City Staff to prepare a Traffic Management Plan to minimize the effects of road crossings and

construction near roadways. As part of this APM, the Applicant will obtain any and all encroachment permits necessary when construction or maintenance activities occur within or above the public road ROW. The Applicant will comply with all safety measures mandated by the permit, including but not limited to detouring or breaking traffic and working during off-peak hours. No additional MMs are recommended (Class III).

Construction of Fogarty Substation and improvements to the Valley and Ivyglen Substations would occur on-site and therefore would not interfere with emergency response time. Should the delivery of materials require lane closures or create traffic problems that would impede an emergency response effort, the Applicant would follow the same procedures outlined for lane closures in TRANS-APM-1. Construction materials and supplies would be delivered to the construction sites by vendors who would implement a Traffic Management Plan to avoid blocking emergency or other accesses (Class III).

Operation and maintenance of the proposed subtransmission line would not block roads or impede emergency road access in the area. Maintenance would be performed according to a Traffic Management Plan that requires standard measures, including flagging, working at night, and hiring a traffic service to ensure avoidance of impediments to emergency access via roads. However, wires can present an aviation hazard for low-flying Forest Service aircraft. As noted in this section, Riverside County contracts with the CDF to provide aerial protection against wildfires. The Project is located entirely within high risk fire zones. The CDF Riverside Air Attack Base operates out of Ryan Field in Hemet, California, approximately ten miles east of the Valley Substation. Correspondence with Fire Chief John Winder confirmed that the installation of TSPs, LDS poles, and wires would not create a significant hazard for low-flying aircraft. Local Air Attack firefighters create and maintain hazard maps outlining power lines in the region and visually sight and avoid lines during flight by locating poles. No MMs are required (Class III).

Impact HAZ-8: Significant Hazards Associated with Wildfires

Construction of the proposed subtransmission line and telecommunications system could present a fire risk. Grasslands within and adjacent to the proposed subtransmission line route are prone to wildfires and could be ignited if proper fire prevention measures are not implemented. Fire risk during project construction could result from refueling, operating vehicles, and cigarette smoking. The Applicant would employ BMPs and APMs HAZ-SCE-2 and HAZ-SCE-3 to minimize fire risk. According to HAZ-SCE-2, the Applicant would implement standard fire prevention and response measures, including but not limited to identifying construction sites as non-smoking areas, training personnel, and equipping personnel with portable communication devices. HAZ-SCE-3 mandates that the Applicant adhere to all state and federal standards in grading and clearing vegetation and flammable materials from construction sites to minimize fire risk. No other MMs are recommended (Class III).

Substation construction and improvements could present a fire risk. The existing adjacent grasslands are prone to wildfires and could be ignited if proper fire prevention measures are not implemented. Construction of Fogarty Substation presents the same risks as construction of the proposed subtransmission line. The risk of fire from substation improvements at Valley and Ivyglen would be low because the work would take place within the boundary of the two substations. However, BMPs and APMs HAZ-SCE-2 and HAZ-SCE-3 would reduce impact levels to less than significant (Class III).

The County of Riverside contracts with the CDF to provide aerial wildfire response. Refer to Impact HAZ-7 for a discussion of construction and operational impact on fire response.

D.8.3.4 Electric and Magnetic Fields

Due to public concern regarding electric and magnetic fields (EMF), this section defines the phenomena and presents a summary of research about EMF for the informational benefit of both the public and lawmakers. Potential health effects from exposure to electric fields from power lines is typically not of concern since electric fields are effectively shielded by materials such as trees and walls (PTI 1993). Therefore, the majority of the following information related to EMF focuses primarily on exposure to magnetic fields from power lines.

Defining Electric and Magnetic Fields

Electric and magnetic fields are separate phenomena and occur both naturally and as a result of human activity across a broad electrical spectrum. Naturally occurring electric and magnetic fields are caused by the weather and the earth's geomagnetic field. The fields caused by human activity result from technological application of the electromagnetic spectrum for uses such as communications, appliances, and the generation, transmission, and local distribution of electricity.

The frequency of a power line is determined by the rate at which electric and magnetic fields change their direction each second. For power lines in the United States, the frequency of change is 60 times per second and is defined as 60 Hertz (Hz) power. In Europe and many other countries, the frequency of electric power is 50 Hz. Radio and communication waves operate at much higher frequencies: 500,000 Hz to 1,000,000,000 Hz. The information presented in this document is limited to the EMF from power lines operating at frequencies of 50 or 60 Hz.

Electric power flows across transmission systems from generating sources to serve electrical loads within the community. The apparent power flowing over a transmission line is determined by the transmission line's voltage and the current. The higher the voltage level of the transmission line, the lower the amount of current needed to deliver the same amount of power. For example, a 115 kV transmission line with 200 amps of current will transmit approximately 40,000 kilowatts (kW), and a 230 kV transmission line requires only 100 amps of current to deliver the same 40,000 kW.

Electric Fields

Electric fields from power lines are created whenever the lines are energized, with the strength of the field dependent directly on the voltage of the line creating it. Electric field strength is typically described in terms of kilovolts per meter (kV/m). Electric field strength attenuates (reduces) rapidly as the distance from the source increases. Electric fields are reduced at many receptors because they are effectively shielded by most objects or materials such as trees or houses.

Unlike magnetic fields, which penetrate almost everything and are unaffected by buildings, trees, and other obstacles, electric fields are distorted by any object that is within the electric field including the human body. Even trying to measure an electric field with electronic instruments is difficult because the devices themselves will alter the levels recorded. Determining an individual's exposure to electric fields requires the understanding of many variables, one of which is the electric field itself, with others including how effectively the person is grounded and their body surface area within the electric field.

Electric fields in the vicinity of power lines can cause the same phenomena as the static electricity experienced on a dry winter day, or with clothing just removed from a clothes dryer, and may result in small nuisance electric discharges when touching long metal fences, pipelines, or large vehicles. An acknowledged potential impact to public health from electric transmission lines is the hazard of electric shock: electric shocks from transmission lines are generally the result of accidental or unintentional contact by the public with the energized wires.

Magnetic Fields

Magnetic fields from power lines are created whenever current flows through power lines at any voltage. The strength of the field is directly dependent on the current in the line. Magnetic field strength is typically measured in milliGauss (mG). Similar to electric fields, magnetic field strength attenuates rapidly with distance from the source. However, unlike electric fields, magnetic fields are not easily shielded by objects or materials.

The nature of a magnetic field can be illustrated by considering a household appliance. When the appliance is energized by being plugged into an outlet but not turned on, no current flows through it. Under such circumstances, an electric field is generated around the cord and appliance, but no magnetic field is present. If the appliance is switched on, the electric field would still be present and a magnetic field would also be created. The electric field strength is directly related to the magnitude of the voltage from the outlet and the magnetic field strength is directly related to the magnitude of the current flowing in the cord and appliance.

EMF in the Proposed Project Area

Subtransmission Lines

The Project consists of the installation of about 25 miles of new 115 kV subtransmission line. The line has been divided into a number of segments based upon the terrain and whether the line will run adjacent to existing lines, whether it will replace existing lines, or whether it will be new construction. The majority of the 115 kV line is located in undeveloped, rural areas.

In undeveloped and natural areas, measurable EMFs are not present except in the vicinity of existing power line corridors. Public exposure to EMF in undeveloped areas would be limited, primarily due to the absence of the public; however, periodic and transient uses of these areas for activities such as recreation would result in public exposure to EMF when in the vicinity of existing electric transmission lines.

In developed areas public exposure to EMFs is more widespread and encompasses a very broad range of field intensities and durations. In the developed and agricultural areas of the proposed 115 kV segment EMFs are prevalent from the use of electronic appliances or equipment and existing electric distribution lines. In general distribution lines exist throughout developed portions of the community and represent the predominant source of public exposure to power line EMF except in the immediate vicinity of transmission corridors.

The proposed subtransmission line and telecommunications system would cross lands in the cities of Lake Elsinore and Perris and predominately rural unincorporated areas of Riverside County. Most land that would be crossed by the proposed subtransmission line and telecommunications system is undeveloped, with the exception of the lands within the two cities.

Substations

At substations, station buswork, substation equipment, and subtransmission and distribution lines entering or exiting a station all contribute electromagnetic fields to the immediate environment of an existing substation. However, the most significant contributors to the EMFs are the subtransmission and distribution lines. Therefore, the subtransmission line magnetic fields described above would also apply in the immediate area of substations.

Scientific Background and Regulations Applicable to EMF

EMF Research

For more than 20 years, questions have been asked regarding the potential effects within the environment of EMFs from power lines and research has been conducted to provide some basis for response. Earlier studies focused primarily on interactions with the electric fields from power lines. In the late 1970s, the subject of magnetic field interactions began to receive additional public attention and research levels have increased. A substantial amount of research investigating both electric and magnetic fields has been conducted over the past several decades; however, much of the body of national and international research regarding EMF and public health risks remains contradictory or inconclusive.

Extremely low frequency (ELF) fields are known to interact with tissues by inducing electric fields and currents in these fields. However, the electric currents induced by ELF fields commonly found in our environment are normally much lower than the strongest electric currents naturally occurring in the body such as those that control the beating of the heart.

Research related to EMF can be grouped into three general categories: cellular level studies, animal and human experiments, and epidemiological studies. These studies have provided mixed results, with some studies showing an apparent relationship between magnetic fields and health effects while other similar studies do not.

Since 1979, public interest and concern specifically regarding magnetic fields from power lines has increased. This increase has generally been attributed to publication of the results of a single epidemiological study (Wertheimer and Leeper, 1979). This study observed an association between the wiring configuration on electric power lines outside of homes in Denver and the incidence of childhood cancer. Following publication of the Wertheimer and Leeper study, many epidemiological, laboratory, and animal studies regarding EMF have been conducted. Research on ambient magnetic fields in homes and buildings in several western states found average magnetic field levels within most rooms to be approximately 1 mG, while in a room with appliances present, the measured values ranged from 9 to 20 mG (Severson et al., 1988, and Silva, 1988). Immediately adjacent to appliances (within 12 inches), field values are much higher, as illustrated in Tables D.8-1 and D.8-2. These tables indicate typical sources and levels of electric and magnetic field exposure the general public experiences from appliances.

Table D.8-1 Typical Electric Field Values for Appliances, at 12 Inches

Appliance	Electric Field Strength (kV/m)
Electric Blanket	.25*
Broiler	.13
Stereo	.09
Refrigerator	.06
Iron	.06
Hand Mixer	.05
Phonograph	.04
Coffee Pot	.03
* One to ten kV/m next to blanket Wires	

Source: Enertech, 1985.

Table D.8-2 Magnetic Field From Household Appliance

	Magnetic Field (mG)	
Appliance	12" Distant	Maximum
Electric Range	3-30	100-1,200
Electric Oven	2-25	10-50

Table D.8-2 Magnetic Field From Household Appliance

Appliance	Magnetic Field (mG)	
	12" Distant	Maximum
Garbage Disposal	10-20	850-1,250
Refrigerator	0.3-3	4-15
Clothes Washer	2-20	10-400
Clothes Dryer	1-3	3-80
Coffee Maker	0.8-1	15-250
Toaster	0.6-8	70-150
Crock Pot	0.8-1	15-80
Iron	1-3	90-300
Can Opener	35-250	10,000-20,000
Mixer	6-100	500-7,000
Blender, popper, processor	6-20	250-1,050
Vacuum Cleaner	20-200	2,000-8,000
Portable Heater	1-40	100-1,100
Fan/Blower	0.4-40	20-300
Hair Dryer	1-70	60-20,000
Electric Shaver	1-100	150-15,000
Color TV	9-20	150-500
Florescent Fixture	2-40	140-2,000
Florescent Desk Lamp	6-20	400-3,500
Circular Saw	10-250	2,000-10,000
Electric Drill	25-35	4,000-8,000

Source: Gauger 1985

Methods to Reduce EMF

EMF levels from transmission lines can be reduced in three primary ways: shielding, field cancellation, or increasing the distance from the source. Shielding, which reduces exposure to electric fields, can be actively accomplished by placing trees or other physical barriers along the transmission line ROW. Shielding also results from existing structures the public may use or occupy along the line. Since electric fields can be blocked by most materials, shielding is effective for the electric fields but is not effective for magnetic fields.

Magnetic fields can be reduced either by cancellation or by increasing distance from the source. Cancellation is achieved in two ways. A transmission line circuit consists of three "phases": three separate wires (conductors) on a transmission tower. The configuration of these three conductors can reduce magnetic fields. First, when the configuration places the three conductors closer together, the interference or cancellation of the fields from each wire is enhanced. This technique has practical limitations because of the potential for short circuits if the wires are placed too close together. There are also worker safety issues to consider if spacing is reduced. Second, in instances where there are two circuits (more than three phase wires), such as in portions of the Project, cancellation can be accomplished by arranging phase wires from the different circuits near each other. In underground lines, the three phases are typically much closer together than in overhead lines because the cables are insulated (coated).

The distance between the source of fields and the public can be increased by either placing the wires higher aboveground, burying underground cables deeper, or by increasing the width of the ROW. For transmission lines, these methods can prove effective in reducing fields because the reduction of the field strength drops rapidly with distance.

Scientific Panel Reviews

Numerous panels of expert scientists have convened to review the data relevant to the question of whether exposure to power-frequency EMF is associated with adverse health effects. These evaluations have been conducted in order to advise governmental agencies or professional standard-setting groups. These panels of scientists first evaluate the available studies individually, not only to determine what specific information they can offer, but also in terms of the validity of their experimental design, methods of data collection, analysis, and suitability of the authors' conclusions to the nature and quality of the data presented. Subsequently, the individual studies, with their previously identified strengths and weaknesses, are evaluated collectively in an effort to identify whether there is a consistent pattern or trend in the data that would lead to a determination of possible or probable hazards to human health resulting from exposure to these fields.

These reviews include those prepared by international agencies such as the World Health Organization (WHO 1984, WHO 1987, and WHO 2001) and the international Non-Ionizing Radiation Committee of the International Radiation Protection Association (IRPA/INIRC 1990) as well as governmental agencies of a number of countries, such as the U.S. EPA, the National Radiological Protection Board of the United Kingdom, the Health Council of the Netherlands, and the French and Danish Ministries of Health.

As noted below these scientific panels have varied conclusions on the strength of the scientific evidence suggesting that power frequency EMF exposures pose any health risk.

In May 1999, the National Institute of Environmental Health Sciences (NIEHS) submitted to Congress its report titled, *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields*, containing the following conclusion regarding EMF and health effects:

> "Using criteria developed by the International Agency for Research on Cancer (IARC), none of the Working Group considered the evidence strong enough to label ELF-EMF exposure as a known human carcinogen or probable human carcinogen. However, a majority of the members of this Working Group concluded that exposure to power-line frequency ELF-EMF is a possible carcinogen."

In June 2001, a scientific working group of IARC (an agency of WHO) reviewed studies related to the carcinogenicity of EMF. Using standard IARC classification, magnetic fields were classified as "possibly carcinogenic to humans" based on epidemiological studies. "Possibly carcinogenic to humans" is a classification used to denote an agent for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence of carcinogenicity in experimental animals. Other agents identified as "possibly carcinogenic to humans" include gasoline exhaust, styrene, welding fumes, and coffee (WHO 2001).

On behalf of the California Public Utilities Commission (CPUC), the California Department of Health Services (DHS) completed a comprehensive review of existing studies related to EMF from power lines and potential health risks. This risk evaluation was undertaken by three staff scientists with the DHS. Each of these scientists is identified in the review results as an epidemiologist, and their work took place from 2000 to 2002. The results of this review titled, *An Evaluation of the Possible Risks From Electric and Magnetic Fields (EMFs) From Power Lines, Internal Wiring, Electrical Occupations, and Appliances*, were published in June 2002. The conclusions contained in the executive summary are provided below:

- To one degree or another, all three of the DHS scientists are inclined to believe that EMFs can cause some degree of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig's Disease, and miscarriage.
- They strongly believe that EMFs do not increase the risk of birth defects, or low birth weight.
- They strongly believe that EMFs are not universal carcinogens, since there are a number of cancer types that are not associated with EMF exposure.
- To one degree or another they are inclined to believe that EMFs do not cause an increased risk of breast cancer, heart disease, Alzheimer's Disease, depression, or symptoms attributed by some to sensitivity to EMFs. However, all three scientists had judgments that were "close to the dividing line between believing and not believing" that EMFs cause some degree of increased risk of suicide.
- For adult leukemia, two of the scientists are "close to the dividing line between believing or not believing" and one was "prone to believe" that EMFs cause some degree of increased risk.

The report indicates that the DHS scientists are more inclined to believe that EMF exposure increased the risk of the above health problems than the majority of the members of scientific committees that have previously convened to evaluate the scientific literature. With regard to why the DHS review's conclusions differ from those of other recent reviews, the report states:

> "The three DHS scientists thought there were reasons why animal and test tube experiments might have failed to pick up a mechanism or a health problem; hence, the absence of much support from such animal and test tube studies did not reduce their confidence much or lead them to strongly distrust epidemiological evidence from statistical studies in human populations. They therefore had more faith in the quality of the epidemiological studies in human populations and hence gave more credence to them." (DHS 2002)

While the results of the DHS report indicate these scientists believe that EMF can cause some degree of increased risk for certain health problems, the report did not quantify the degree of risk or make any specific recommendations to the CPUC.

In addition to the uncertainty regarding the level of health risk posed by EMF, individual studies and scientific panels have not been able to determine or reach consensus regarding what level of magnetic field exposure might constitute a health risk. In some early epidemiological studies, increased health risks were discussed for daily time-weighted average field levels greater than 2 mG. However, the IARC scientific working group indicated that studies with average magnetic field levels of 3 to 4 mG played a pivotal role in their classification of EMF as a possible carcinogen.

Policies, Standards, and Regulations

A number of counties, states, and local governments have adopted or considered regulations or policies related to EMF exposure. The reasons for these actions have been varied; in general, however, the actions can be attributed to addressing public reaction to and perception of EMF as opposed to responding to the findings of any specific scientific research. Following is a brief summary of the guidelines and regulatory activity regarding EMF.

International Guidelines

The International Radiation Protection Association, in cooperation with the World Health Organization, has published recommended guidelines (INRC 1998) for electric and magnetic field exposures. For the general public, the limits are 4.2 kV/m for electric fields, and 833 mG for magnetic fields. Neither of these organizations has any governmental authority nor recognized jurisdiction to enforce these guidelines. However, because they were developed by a broad base of scientists, these guidelines have been given merit and are considered by utilities and regulators when reviewing EMF levels from electric power lines.

National Guidelines

Although the U.S. EPA has conducted investigations into EMF related to power lines and health risks, no national standards have been established. There have been a number of studies sponsored by the U.S. EPA, the Electric Power Research Institute (EPRI), and other institutions. Several bills addressing EMF have been introduced at the congressional level and have provided funding for research; however, no bill has been enacted that would regulate EMF levels.

The 1999 NIEHS report to Congress suggested that the evidence supporting EMF exposure as a health hazard was insufficient to warrant aggressive regulatory actions. The report did suggest passive measures to educate the public and regulators on means aimed at reducing exposures. NIEHS also suggested the power industry continue its practice of siting lines to reduce public exposure to EMF and to explore ways to reduce the creation of magnetic fields around lines.

State Guidelines

Several states have adopted limits for electric field strength within transmission line ROWs. Florida and New York are the only states that currently limit the intensity of magnetic fields from transmission lines. These regulations include limits within the ROW as well as at the edge of the ROW and cover a broad range of values. Table D.8-3 lists the states regulating EMF and their respective limits. The magnetic field limits were based on an objective of preventing field levels from increasing beyond levels currently experienced by the public and are not based upon any link between scientific data and health risks (Morgan, 1991).

Elsewhere in the United States, several agencies and municipalities have taken action regarding EMF policies. These actions have been varied and include requirements that the fields be considered in the siting of new facilities. The manner in which EMF is considered has taken several forms. In a few instances, a concept referred to as “prudent avoidance” has been formally adopted. Prudent avoidance, a concept proposed by Dr. Granger Morgan of Carnegie-Mellon University, is defined as “. . . limiting exposures which can be avoided with small investments of money and effort” (Morgan, 1991). Some municipalities or regulating agencies have proposed limitations on field strength, requirements for siting of lines away from residences and schools, and, in some instances, moratoria on the construction of new transmission lines. The origin of these individual actions has been varied, with some initiated by regulators at the time of new transmission line proposals within their community and some by public grass-roots efforts.

Table D.8-3 EMF Regulated Limits (by State)

State	Electric Field (kV/M)	Magnetic Field (mG)	Location	Application
Florida (codified)				
500 kV Lines	10		In ROW	Single-circuit
	2	200	Edge of ROW	Single-circuit
	2	250	Edge of ROW	Double-circuit
230 kV Lines or less	8		In ROW	
	2	150	Edge of ROW	230 kV or less
Minnesota	8		In ROW	>200 kV
Montana (codified)	1 7		Edge of ROW In ROW	>69 kV Road crossings
New Jersey	3		Edge of ROW	Guideline for complaints
New York	1.6 7 11 11.8	200	Edge of ROW In ROW In ROW In ROW	>125 kV, >1 mile Public roads Public roads Other terrain
North Dakota	9		In ROW	Informal
Oregon (codified)	9		In ROW	230 kV, 10 miles

Source: Public Utilities Commission of Texas

California Department of Education's (CDE) Standards for Siting New Schools Adjacent to Electric Power Lines Rated 50 kV and Above

The California Department of Education (CDE) evaluates potential school sites under a range of criteria, including environmental and safety issues. There are no EMF guidelines that apply to existing school sites; this information is presented in order to demonstrate the range of existing guidelines that address EMF. Exposures to power-frequency electric and magnetic fields (EMF) are one of the criteria. CDE has established the following "setback" limits for locating any part of a school site property line near the edge of easements for any electrical power lines rated 50 kV and above:

- 100 feet for lines from 50 to 133 kV
- 150 feet for lines from 220 to 230 kV
- 350 feet for lines from 500 to 550 kV

School districts that have sites that do not meet the California Department of Education setbacks may still obtain construction approval from the State by submitting an EMF mitigation plan. The mitigation plan should consider possible reductions of EMF from all potential sources, including power lines, internal wiring, office equipment, and mechanical equipment.

CPUC Guidelines

In 1991, the CPUC initiated an investigation into electric and magnetic fields associated with electric power facilities. This investigation explored the approach to potential MMs for reducing public health impacts and possible development of policies, procedures, or regulations. Following input from interested parties, the CPUC implemented a decision (D.93-11-013) that requires that utilities use "low-cost or no-cost" MMs for facilities requiring certification under General Order 131-D. The decision directed the utilities to use a 4% benchmark on the low-cost mitigation. This decision also implemented a number of EMF measurement, research, and education programs, and provided the direction that led to the preparation of the DHS study described above. The CPUC did not adopt any specific numerical limits or regulations on EMF levels related to electric power facilities.

In Decision D.93-11-013, the CPUC addressed mitigation of EMF of utility facilities and implemented the following recommendations:

- No-cost and low-cost steps to reduce EMF levels
- Workshops to develop EMF design guidelines
- Uniform residential and workplace programs
- Stakeholder and public involvement
- A four-year education program
- A four-year non-experimental and administrative research program
- An authorization of federal experimental research conducted under the National Energy Policy Act of 1992.

Most recently the CPUC issued Decision D.06-01-042, on January 26, 2006, affirming the low-cost/no-cost policy to mitigate EMF exposure from new utility transmission and substation projects. This decision also adopted rules and policies to improve utility design guidelines for reducing EMF. The CPUC stated "at this time we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences." The CPUC has not adopted any specific limits or regulation on EMF levels related to electric power facilities.

D.8.4 Cumulative

Riverside County is expected to experience dramatic residential and commercial development over the next twenty years. Such development will involve many large scale construction projects that would use varying amounts of hazardous materials as well as the transport of hazardous materials.

The geographic extent for the analysis of cumulative impacts related to hazards and hazardous materials, including environmental contamination, is limited to the areas of active construction as well as those within the immediate area of the subtransmission line ROW and the substation sites. The limited geographic scope is due to the fact that there is low risk of hazardous materials spills or release of hazardous materials as a result of this Project. The greatest risk includes spillage of gasoline, diesel fuel, oil, and lubricants during construction and the release of gas from a natural gas line during TSP and LDS pole installantion. In the event of accident, none of the aforementioned substances are expected to be released in large quantities or to travel long distances.

Construction and operation of the proposed project would require the use of hazardous materials that could potentially be released into the environment in the event of an accident. These include gasoline,

diesel fuel, oil, and lubricants. Additionally, the installation of LDS poles and TSPs involves boring holes in areas where underground natural gas lines are present; this raises the potential of striking a line and releasing natural gas into the environment. The Applicant has proposed measures HAZ-SCE-I and HAZ-SCE-4 to reduce the risk of spills and to ensure proper response measures are in place for clean-up in the event of accidental release. Furthermore, this document has imposed MM D.8-2, requiring the applicant to precisely locate all natural gas lines as part of the siting and engineering process, to avoid hitting natural gas lines when installing powerline poles. The likelihood of release of hazardous materials as a result of construction and operation of this project is low; therefore, the Project contribution to a potential cumulative hazardous material impact would be less than significant after mitigation.

The subtransmission line traverses a high risk fire area, and the Fogarty Substation Site sits within a high fire risk area as well. The Project, particularly during construction, presents the risk of both starting fires and slowing emergency response times. APMs HAZ-SCE-2 and HAZ-SCE-3 lessen the risk of fire by regulating construction activities and ensuring response systems are in place. According to a representative of the California Forestry Department as stated above, the Project would not impede aerial emergency response during fire fighting activities. The cumulative impact to fire risk and emergency response time would be less than significant. For these reasons, the Project would not contribute substantially to these potential hazardous materials or public safety cumulative impacts (Class II).