D.8 Public Health and Safety

This section evaluates the potential hazards to public and worker health and safety associated with the South Bay Substation Relocation Project and alternatives. Section D.8.1 describes the environmental setting and Section D.8.2 describes the regulatory conditions related to hazards and hazardous materials associated with the South Bay Substation Relocation Project. Section D.8.3 includes an analysis and discussion of environmental contamination and hazardous materials impacts resulting from the South Bay Substation Relocation Project, and Section D.8.4 presents impact analysis for the alternatives. Sections D.8.5 and D.8.6 address concerns about electric and magnetic fields and other field-related concerns. Section D.8.7 presents the mitigation monitoring program for all topics covered in this section.

D.8.1 Environmental Setting for the Proposed Project

Hazardous Materials

This section evaluates hazards and hazardous materials as they pertain to the South Bay Substation Relocation Project (Proposed Project). Both the existing South Bay Substation site and the proposed Bay Boulevard Substation site and the immediate vicinity were evaluated for hazards and hazardous materials. The primary reason to identify potentially hazardous sites is to protect worker health and safety and to eliminate or minimize public exposure to hazardous materials during construction and waste handling. Where encountered, contaminated soil and groundwater may qualify as hazardous waste, thus requiring handling and disposal according to local, state, and federal regulations. Information about hazards and hazardous materials related to the Proposed Project was collected from review of San Diego Gas & Electric's (SDG&E's) Proponent's Environmental Assessment (PEA) (2010a) and review of the following documents:

- Draft Phase I Environmental Site Assessment Update: South Bay Substation Relocation Project prepared by Haley & Aldrich, Inc. (SDG&E 2010b).
- Draft Phase I Environmental Site Assessment Update Electrical Substation South Bay Power Plant prepared by Haley & Aldrich, Inc. (SDG&E 2010b).

As indicated, SDG&E conducted two Phase I environmental site assessments (ESAs) for the Proposed Project: one for the proposed Bay Boulevard Substation site and one for the existing South Bay Substation site. While the Bay Boulevard Substation would be located on the southernmost 12.42 acres of the former liquefied natural gas (LNG) property, the Phase I ESA covered the southernmost 22 acres of the property and included the substation site, a temporary work area, and 800 feet of existing SDG&E right-of-way (ROW). In addition to site reconnaissance conducted in February 2010, the Phase I ESAs included a regulatory records search by Environmental Data Resources Inc. (EDR). The EDR report contains a review of

federal, state, and local databases to see whether there are currently—or were previously—any reports of hazardous materials contamination or usage at the project site or at other sites within a specific search radius. The search radius varies by database, but is limited to 1 mile from the substation sites and, for the purposes of this project, includes transmission line components.

General Overview

Land uses surrounding the Proposed Project site can be characterized as mixed industrial and commercial. While the proposed Bay Boulevard Substation site itself is unoccupied and covered with grasses, shrubs, and pavement, commercial businesses currently in operation are located to the southeast of the site. Bay Boulevard is located east of the site. The former LNG facility at the South Bay Substation is located north of the site, and salt crystallizer ponds are located to the west. Many industrial sites, historical and current, are known to have soil or groundwater contamination by hazardous substances. Other hazardous materials sources include leaking underground storage tanks (LUST) in commercial and industrial areas, surface runoff from contaminated sites, and migration of contaminated groundwater plumes from areas of past and current commercial or industrial use.

The Draft Phase I ESA for the Bay Boulevard Substation did not find evidence that the subject property was impacted by soil or groundwater contamination. The Draft Phase I ESA for the South Bay Substation identified one site upgradient of the subject property as a recognized environmental concern. A former junkyard immediately east of the subject property (upgradient) is known to have groundwater impacted by trichloroethylene (TCE), a volatile organic compound (VOC). Two additional recognized environmental concerns were identified as part of the Draft Phase I ESA for the South Bay Substation. However, these are considered historical concerns and appear to have been remediated.

Bay Boulevard Substation

The address of the former LNG site, 990 Bay Boulevard, was listed in several databases in the EDR records search for the proposed substation site. These listings included the former LNG site, South Bay Power Plant (SBPP), Tank #1602 at the SBPP site, LSP South Bay, Inc., Dynegy South Bay LLC., Duke Energy Corporation, and SDG&E (SDG&E 2010a). In addition to the sites with the 990 Bay Boulevard address, the EDR records search identified several businesses within a 1-mile radius of the proposed substation site in various databases. According to the Phase I ESA, approximately 21 sites on 11 databases are located within a 1-mile radius of the proposed substation site (several of the identified sites are listed on multiple databases) (SDG&E 2010b).

Twenty-five orphan sites (sites that were unable to be mapped due to incorrect or incomplete addresses) were also identified in the Phase I ESA as occurring within the vicinity of the Bay

Boulevard Substation site (see Attachment 4.7-A to the SDG&E PEA (SDG&E 2010b)). Lastly, the Phase I ESA was used to identify any recognized environmental conditions (RECs) or historical RECs associated with the proposed site. RECs are defined as the presence or likely presence of any hazardous substances or petroleum products in structures on the property or in the ground, groundwater, or surface water of the property (SDG&E 2010a). According to the Phase I ESA, no evidence of RECs or historical RECs was identified in connection with the Bay Boulevard Substation site (SDG&E 2010b).

South Bay Substation

The SBPP facility was listed in several databases including the Resource Conservation and Recovery Act–Small Quantity Generators (RCRA-SQG), California Hazardous Material Incident Report System (CHMIRS), LUST, Aboveground Storage Tank (AST), and Statewide Environmental Evaluation and Planning System (SWEEPS) Underground Storage Tank (UST). However, no regulatory database listings were identified for the South Bay Substation (SDG&E 2010b). The Phase I ESA identified several sites within a 1-mile radius of the substation site with environmental impacts. According to the Phase I ESA, approximately eight sites on seven databases are located within a 1-mile radius of the South Bay Substation site (several of the identified sites are listed on multiple databases) (SDG&E 2010b).

Thirty-two orphan sites were also identified by the Phase I ESA as occurring within the vicinity (see Attachment 4.7-A to the SDG&E PEA (2010b)). Lastly, the Phase I ESA identified one REC and two historic RECs associated with the substation site. The REC was for a former junkyard, immediately east of the SBPP property (upgradient), which had groundwater impacted by VOCs, specifically TCE (SDG&E 2010b). The two historic RECs were for stained soil beneath a central 69-kilovolt (kV) transformer (the transformer and the impacted soil were removed from the site in 2009) and stained soil beneath switch reservoirs, which have been attributed to water condensation from electrical equipment (SDG&E 2010b). Water condensation staining was not observed during site reconnaissance conducted by Haley & Aldrich in February 2010. The Phase I ESA concluded that because the extent of the RECs had been identified no additional investigation of the site was warranted.

230 kV Loop-in, 138 kV Extension and 69 kV Relocation

Because a 1-mile radius was the search parameter for the EDR database records review conducted for the proposed Bay Boulevard Substation site and the existing South Bay Substation, the proposed transmission line components were included in nearly all of the previously conducted searches. The State and Tribal Institutional Controls/Engineering Controls database and the CHMIRS database records review did not, however, include the transmission

line component sites. Based on the results of the EDR searches, no hazardous materials sites were identified within the transmission line component sites (SDGE 2010a).

Fire Hazards

Based on the Wildfire Fire Hazards Map contained in the City of Chula Vista (City) General Plan Environmental Element, the project site is not located in a wildland fire hazard area (City of Chula Vista 2005). In addition, Government Code 51175-89 directs the California Department of Forestry and Fire Protection (CAL FIRE) to identify areas of very high fire hazard severity zones within Local Responsibility Areas (LRAs). The Proposed Project site has not been identified as a high fire hazard severity zone by CAL FIRE (CAL FIRE 2009).

Airports

The nearest public airport, Brown Field Municipal Airport, is operated by the City of San Diego and is located approximately 6.3 miles southeast of the proposed Bay Boulevard Substation. The nearest private airport, Naval Outlying Landing Field (NOLF) Imperial Beach, is located approximately 3 miles southwest of the proposed Bay Boulevard Substation (pilotoutlook.com 2010).

D.8.2 Applicable Regulations, Plans, and Standards

Federal

Hazardous Materials

Toxic Substances Control Act of 1976

Congress enacted the Toxic Substances Control Act of 1976 (15 U.S.C. 2601 et seq.) to give the U.S. Environmental Protection Agency (EPA) the ability to track the thousands of industrial chemicals being produced in or imported into the United States. The EPA routinely screens industrial chemicals and reports and tests those found to pose a potential health hazard to the environment and/or to human health. Through the Toxic Substances Control Act, the EPA can ban the manufacture and import of chemicals that pose an immediate risk. The EPA also can track and control new industry-developed chemicals to protect the environment and human health from potential risks.

Resource Conservation and Recovery Act of 1976

The Resource Conservation and Recovery Act (RCRA), or Solid Waste Disposal Act (42 U.S.C. 6901 et seq.), established a framework for the proper management of hazardous and non-hazardous solid waste. This act, along with the Toxic Substances Control Act, enacted a program

administered by the EPA for regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes from their creation to disposal. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act. RCRA focuses on active and future facilities; it does not address abandoned or historical sites, which are managed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 et seq.).

Comprehensive Environmental Response, Compensation, and Liability Act

CERCLA (42 U.S.C. 9601 et seq.), commonly known as Superfund, was enacted by Congress on December 11, 1980. 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. CERCLA established requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for the release of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. The law authorizes two types of responses: (1) short-term removals requiring prompt response and (2) long-term remedial response actions that permanently and significantly reduce serious on-site dangers. CERCLA also enabled revision of the National Contingency Plan (42 U.S.C. 9605). The National Contingency Plan provided guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The National Contingency Plan also established the National Priorities List of contaminated sites warranting further investigation by the EPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

Superfund Amendments and Reauthorization Act

Under SARA Title III, a nationwide emergency planning and response program was established that imposed reporting requirements for businesses that store, handle, or produce significant quantities of hazardous or acutely toxic substances, as defined under federal laws. SARA Title III required each state to implement a comprehensive system to inform federal authorities, local agencies, and the public when a significant quantity of hazardous, acutely toxic substances are stored or handled at a facility. In addition, SARA provided new enforcement and settlement tools, increased the focus on human health problems posed by hazardous waste sites, and stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites.

EPA Risk Management Program

Ammonia is an example of an acutely hazardous material that the EPA regulates under the Risk Management Program, contained in the Clean Air Act (42 U.S.C. 7401 et seq.). Although a federal program, the Risk Management Program is intended to reduce hazards at the local level. The program requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes detailed safety precautions and maintenance plans and an adequate emergency response program. The information required is intended to help local fire, police, and emergency response personnel (first responders) in the event of an accidental spill or exposure event.

Clean Water Act

The EPA's Oil Pollution Prevention Rule was published under the authority of the Clean Water Act and is outlined in 40 CFR 112. Facilities subject to the rule must prepare and implement a plan to prevent any discharges of oil into or upon navigable waters of the United States or adjoining shorelines. The plan is called a Spill Prevention Control and Countermeasures (SPCC) Plan and is generally intended to minimize the potential for spills into navigable waters of the United States as opposed to response and cleanup after a spill occurs.

All non-transportation-related facilities that have an aggregate aboveground storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons, and have a reasonable expectation of discharge into or upon navigable waters of the United States, are required to prepare an SPCC Plan. SPCC Plan requirements are discussed in 40 CFR 112, Oil Pollution Prevention. As part of the Clean Water Act, the EPA oversees and enforces the Oil Pollution Prevention regulations contained in 40 CFR 112.

Clean Air Act

Under the authority of Section 112(r) of the Clean Air Act, the Chemical Accident Prevention Provisions require facilities that produce, handle, process, distribute, or store more than a "threshold quantity" of any extremely hazardous toxic and flammable substance listed at 40 CFR Part 68.130 to develop and implement a Risk Management Program, prepare a risk management plan, and submit the risk management plan to EPA. Although a federal program, the Risk Management Program is intended to reduce hazards at the local level. The program is applicable to companies of all sizes that use certain flammable and toxic substances. The Risk Management Program is intended to help local fire, police, and emergency response personnel (first responders) in the event of an accidental spill or exposure event. The Risk Management Program is contained in the Clean Air Act (42 U.S.C. 7401 et seq.).

Uniform Building Code and Uniform Fire Code

The Uniform Building Code and Uniform Fire Code contain building standards and federal fire protection codes. The Uniform Building Code addresses proper building materials, spacing, and siting in order to minimize the potential for damage from fires. The Uniform Fire Code addresses applicable water pressure, fire hydrants, automatic fire sprinkler systems, fire alarm systems, explosion hazards, safety measures, and additional building-specific information.

Occupational Safety and Health Administration Process Safety Management of Highly Hazardous Chemicals

The Process Safety Management of Highly Hazardous Chemicals (HHCs) (29 CFR 1910.119) is intended to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive HHCs by regulating their use, storage, manufacturing, and handling. The standard intends to accomplish its goal by requiring a comprehensive management program integrating technologies, procedures, and management practices. The standard does not apply to gas well drilling and servicing activities.

U.S. Department of Transportation Office of Hazardous Materials Safety

Transportation of hazardous materials is regulated by the U.S. Department of Transportation's (DOT's) Office of Hazardous Materials Safety. The Office of Hazardous Materials Safety formulates, issues, and revises hazardous materials regulations under the federal Hazardous Materials Transportation Law (49 CFR 100–185). These regulations cover hazardous materials definitions and classifications, hazard communications, shipper and carrier operations, training and security requirements, and packaging and container specifications.

The hazardous materials transportation regulations require carriers transporting hazardous materials to receive training in the handling and transportation of hazardous materials. Training requirements include pre-trip safety inspections; use of vehicle controls and equipment, including emergency equipment; procedures for safe operation of the transport vehicle; training on the properties of the hazardous material being transported; and loading and unloading procedures. All drivers must possess a commercial driver's license (49 CFR 383). Vehicles transporting hazardous materials must be properly placarded. In addition, the carrier is responsible for the safe unloading of hazardous materials at the site, and operators must follow specific procedures during unloading to minimize the potential for an accidental release of hazardous materials.

State

Hazardous Materials

Hazardous Waste Control Law

The California Hazardous Waste Control Law (HWCL) is administered by the California EPA (CalEPA) to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the EPA approves the California hazardous waste control program (which is charged with regulating the generation, treatment, storage, and disposal of hazardous waste), both state and federal laws apply in California. The HWCL lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

The California Code of Regulations (CCR) provides the following definition for hazardous waste (22 CCR 66261.10 (a) (1)):

> . . . a waste that exhibits the characteristics may: (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed or otherwise managed.

According to 22 CCR, substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous waste. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, or contaminated or is being stored prior to proper disposal.

Toxic substances may cause short- or long-term health effects, ranging from temporary effects to permanent disability or death. For example, toxic substances can cause eye or skin irritation, disorientation, headache, nausea, allergic reactions, acute poisoning, chronic illness, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substance involved). Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a carcinogenic component of gasoline). Ignitable substances (e.g., gasoline, hexane, and natural gas) are hazardous because of their flammable properties. Corrosive substances (e.g., strong acids and bases such as sulfuric (battery) acid or lye) are chemically active and can damage other materials or cause severe burns upon contact. Reactive substances (e.g., explosives, pressurized

canisters, and pure sodium metal) may cause explosions or generate gases or fumes as a result of contamination or exposure to heat, pressure, air, or water.

Other types of hazardous materials include radioactive and biohazardous materials. Radioactive materials and wastes contain radioisotopes, which are atoms with unstable nuclei that emit ionizing radiation to increase their stability. Radioactive waste mixed with chemical hazardous waste is referred to as "mixed wastes." Biohazardous materials and wastes include anything derived from living organisms. They may be contaminated with disease-causing agents such as bacteria or viruses.

Department of Toxic Substance Control

The Hazardous Waste Control Law states that any person who stores, treats, or disposes of hazardous wastes must obtain a Hazardous Waste Facility Permit or a grant of authorization from the Department of Toxic Substances Control. In addition, the Department of Toxic Substances Control serves as the lead agency and provides regulatory oversight for projects such as the South Bay Substation Relocation Project; any action plan prepared pursuant to the California Health and Safe Code for the remediation of hazardous materials must be submitted to the Department for review.

California Accidental Release Prevention Program

Similar to the federal Risk Management Program, the California Accidental Release Prevention Program includes additional state requirements and an additional list of regulated substances and thresholds. The regulations of the program are contained in 19 CCR 2735.1. The intent of California Accidental Release Prevention is to provide first responders with basic information necessary to prevent or mitigate damage to public health, safety, and the environment from the release or threatened release of hazardous materials.

California Department of Transportation and California Highway Patrol

The California Department of Transportation (Caltrans) regulates the transportation of hazardous materials throughout the state. Caltrans requires that drivers transporting hazardous wastes obtain a certificate of driver training that shows the driver has met the minimum requirements concerning the transport of hazardous materials, including proper labeling and marking procedures, loading/handling processes, incident reporting and emergency procedures, and appropriate driving and parking rules. The California Highway Patrol also requires shippers and carriers to complete hazardous materials employee training before transporting hazardous materials.

California Health and Safety Code

In California, the handling and storage of hazardous materials is regulated by Chapter 6.95 of the California Health and Safety Code. Under Sections 25500–25543.3, facilities handling hazardous materials are required to prepare a hazardous materials business plan. The business plan provides information to local emergency response agencies regarding the types and quantities of hazardous materials stored at a facility, and the plan provides detailed emergency planning and response procedures in the event of a hazardous materials release. In the event that a facility stores quantities of specific acutely hazardous materials above the thresholds set forth by California code, facilities are also required to prepare a risk management plan and California accidental release plan. The risk management plan and accidental release plan provide information about the potential impact zone of a worst-case release and require plans and programs designed to minimize the probability of a release and mitigate potential impacts.

Underground or aboveground storage tanks are typically used to store hazardous waste. Regulations regarding underground storage tanks (USTs) used to store hazardous materials require owners and operators to register, install, monitor, and remove their tanks according to established standards and procedures. Releases are to be reported to the local Certified Unified Program Agency. Chapter 6.67 of the California Health and Safety Code (Sections 25270–25270.13) regulates the storage of petroleum in ASTs and requires construction methods and monitoring to prevent petroleum releases. Owners of ASTs containing petroleum products with an aggregate storage capacity greater than 1,320 gallons are required to prepare and implement spill prevention and response strategies and to contribute to the Environmental Protection Trust Fund that is used to respond to some spills. Proper drainage, dikes, and walls are required to prevent accidental discharge from endangering employees, facilities, or the environment.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the work place. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

Public Resource Code

The Public Resource Code (PRC) includes regulations regarding the safe operations of electrical transmission lines. Applicable PRC regulations include the following sections:

PRC Section 4292. Requires clearing of flammable vegetation to reduce fire hazards around specific structures that support certain connectors or types of electrical apparatus. This cleared area (10-foot radius) is required to be kept clear of flammable vegetation during the entire fire season (California Public Resources Code Section 4291 et seq.).

PRC Section 4293. Requires specific clearance between conductors and vegetation (clearance requirements are determined by line voltage). This code also requires the removal of trees adjacent to electrical transmission lines that may present a hazard if they fall on the line (California Public Resources Code Section 4291 et seq.).

Local

County of San Diego

Hazardous Materials Management Division

For San Diego County (County) and incorporated cities in the County (including the City of Chula Vista) the County Department of Environmental Health (DEH) Hazardous Materials Management Division (HMMD) is responsible for regulating hazardous materials business plans (HMBPs) and chemical inventory, hazardous waste permitting, USTs, and risk management plans (the HMMD is also the Certified Unified Program Agency (CUPA) administrator). As stated previously, HMBPs contain basic information regarding the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the state, and Chapter 6.95 of the Health and Safety Code establishes minimum statewide standards for HMBPs. These standards were previously discussed within the applicable state policies, plans, and regulations subsection.

The goal of HMMD is to protect human health and the environment by ensuring that hazardous materials, hazardous waste, medical waste, and USTs are properly managed. To accomplish this goal, the HMMD has several programs for working with the regulated community and the public, which include the California Accidental Release Prevention Program, the Hazardous Incident Response Team, the Hazardous Materials Duty Desk, the Pollution Prevention Specialist, and the Underground Storage Tank Group.

Office of Emergency Services

The County of San Diego Office of Emergency Services (OES) coordinates the overall county response to disasters. Specifically, OES is responsible for alerting and notifying appropriate agencies when disaster strikes, coordinating all agencies that respond, ensuring resources are available and mobilized during disaster events, developing plans and procedures for response to and recovery from disasters, and developing and providing preparedness materials for the public

(County of San Diego Office of Emergency Services 2010). OES implements the Multi-jurisdictional Hazard Mitigation Plan and designed the County Operational Area Emergency Plan (Annex Q Evacuation). The Multi-jurisdiction Hazard Mitigation Plan is a countywide plan that identifies risks including dam failure, fire threat, flood, and earthquake and ways to minimize damage caused by disasters. The County Operational Area Emergency Plan (Annex Q Evacuation) was intended as a template for the development of other jurisdictional evacuation plans and to support and supplement the evacuation plans prepared by local jurisdictions. More than just a template, Annex Q (Evacuation) includes strategies, procedures, recommendations and organizational structures useful in implementing a coordinated evacuation in the County of San Diego Operational Area (County of San Diego Office of Emergency Services 2007). More specific hazard considerations including evacuation transportation routes and capacities, capacities of shelters across the county, and identification of local available resources and resources available through mutual aid agreements are also identified in Annex Q (Evacuation). The City and the 17 other incorporated cities in the County are included in the Annex Q (Evacuation) plan.

City of Chula Vista

Emergency Operations Center

The City has an Emergency Operations Center capable of being fully staffed in the event of a large emergency. Natural, civil, or terrorist emergencies can be managed, resources can be directed and controlled, and informed decisions can made from the Operations Center. Also, the Operations Center can inform citizens of emergency shelter and medical aid station locations throughout the City. After an emergency, the Emergency Operation Center is used to direct recovery operations until the city is brought back to a state of normalcy (City of Chula Vista 2010).

General Plan

The City's General Plan Public Services and Facilities Element identifies emergency evacuation routes in the City. Evacuation routes are primarily interstates (I-5 and I-805), state routes (SR-54 and SR-125), and larger surface streets including E, H, J, and L Streets, Olympic Parkway, Palomar and Main Street, and Orange Avenue (City of Chula Vista 2005).

Urban Wildland Interface Code

The Urban-Wildland Interface Code (2000 edition), as copyrighted by the International Fire Code Institute, was adopted as the urban-wildland interface code for the City in 1999. The code was adopted by the City for the purpose of prescribing regulations mitigating the hazard to life and property from intrusion of fire from wildland fire exposures, fire exposures from adjacent

structures and prevention of structure fires from spreading to wildland fuels (City of Chula Vista Municipal Code Chapter 15.38 Urban-Wildland Interface Code, Section15.38.010).

D.8.3 Environmental Impacts and Mitigation Measures

D.8.3.1 Definition and Use of Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) provides guidance for evaluating whether a development project may result in significant impacts. Appendix G suggests that a development project could have a significant impact on hazards and hazardous materials if the project would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous or other materials into the environment

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment

e) For a project located within an airport land-use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan

h) 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.

D.8.3.2 Applicant Proposed Measures

Table D.8-1 presents the applicant proposed measure (APM) proposed by SDG&E to reduce or eliminate impacts from hazardous material use and storage, as well as existing environmental contamination within the proposed work limits.

Table D.8-1
APMs for Public Health and Safety

APM No.	Description
APM-HAZ-01	SDG&E would prepare and implement a project-specific Hazardous Substance Management and Emergency Response Plan during the construction period to reduce or avoid potentially hazardous materials for the purposes of worker safety, protection from groundwater contamination, and proper disposal of hazardous materials.

D.8.3.3 Bay Boulevard Substation

Impact HAZ-1: Impacts to soil or groundwater could result from an accidental spill or release of hazardous materials due to improper handling or storage of hazardous materials during construction activities.

During construction, hazardous materials such as vehicle fuels, oils, and other lubricants would be used and stored in SDG&E's existing easement, which would serve as a construction staging area during site development. Spills of hazardous materials during construction activities including clearing, access road construction, and foundation excavation could potentially result in soil or groundwater contamination. In addition, improperly maintained equipment could leak fluids during construction operation and while parked, resulting in soil contamination. Table D.8.2 lists hazardous materials routinely used during construction activities.

Table D.8-2
Hazardous Materials Typically Used during Construction

ABC fire extinguisher	Ammonium hydroxide
Air tool oil	Battery acid (in vehicles and in the meter house of the substations)
Automatic transmission fluid	Natural Community Conservation Plan (NCCP) approved pesticide
Bottled oxygen	Puncture seal tire inflator
Canned spray paint	Chain lubricant (contains methylene chloride)
Diesel de-icer	Connector grease (penotox)
Diesel fuel	Diesel fuel additive
Eye glass cleaner (contains methylene chloride)	Contact cleaner 2000

Table D.8-2
Hazardous Materials Typically Used during Construction

Gasoline	Gasoline treatment
Hot stick cleaner (cloth treated with polydimethylsiloxane)	Lubricating grease
Hydraulic fluid	Starter fluid
Insulating oil (inhibited, non-polychlorinated biphenyl)	Methyl alcohol
Mastic coating	Paint thinner
Propane	WD-40
Safety fuses	ZIP (1,1,1-trichloroethane)
Sulfur hexafluoride (within the circuit breakers in the substations)	Brake fluid
Two-cycle oil (contains distillates and hydrotreated heavy paraffinic)	Acetylene gas
NCCP Approved Pesticide	Antifreeze (ethylene glycol)
ZEP (safety solvent)	Motor oils

Source: SDG&E 2010a

During construction, all spills would be cleaned up and disposed of in accordance with SDG&E's Water Quality Construction Best Management Practices Manual as well as federal, state, and local regulations. Accidental release of hazardous materials could occur, and exposure of workers and the environment to hazardous materials would be significant.

To minimize impacts associated with the routine transport, use, or disposal of hazardous materials, SDG&E would implement APM-HAZ-01 (preparation of a project-specific Hazardous Substance Management and Emergency Response Plan) and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c. With implementation of APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c, impacts would be less than significant (Class II).

HAZ-1a Prior to construction, all SDG&E, contractor, and subcontractor project personnel would receive training regarding the appropriate work practices necessary to effectively implement hazardous materials procedures and protocols and to comply with the applicable environmental laws and regulations, including, without limitation, hazardous materials spill prevention and response measures. A sign-in sheet of contractor and subcontractor project personnel who have received training shall be provided to California Public Utilities Commission on a regular basis depending on the level of construction activity.

HAZ-1b The hazardous substance management and emergency response plan proposed by APM-HAZ-01 shall be reviewed by the California Public Utilities Commission (CPUC), California Department of Toxic Substances Control, and San Diego County Department of Environmental Health (DEH), Hazardous

Materials Division. The plan shall meet the requirements identified in California Health and Safety Code ~~§~~Sections 25503.4, ~~§~~25503.5, and ~~§~~25504 and specifically addressed for the County of San Diego in the County of San Diego DEH, Hazardous Material Division guidance on Hazardous Materials Business Plans.

HAZ-1c During removal of hazardous materials, SDG&E shall have an experienced environmental professional with 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training on site. This professional shall monitor the work site for contamination (including the subsurface) and shall ensure the implementation of mitigation measures needed to prevent exposure to the workers or the public. These measures shall include signage and dust control.

Impact HAZ-2: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation.

The former LNG site (at 990 Bay Boulevard) is listed on several federal, state, and local regulatory databases (SDG&E 2010b). In addition, a number of listed sites were identified as occurring within a 1-mile radius of the proposed substation site. However, according to the Phase I ESA, none of the sites associated with the 990 Bay Boulevard address or those identified within a 1-mile radius are likely to have impacted the substation site (SDG&E 2010b).

Although no RECs were identified, the Phase I ESA conducted for the Bay Boulevard Substation identified the former LNG Site (990 Bay Boulevard), which is located directly north of the proposed substation site, in several regulatory databases. Total petroleum hydrocarbons were detected in soil samples, but the risk was determined to be minimal to none. Trace to low concentrations of metals were also identified in the soil. There was also a small quantity chemical spill that was characterized as not likely to persist in the soil. The Phase I ESA concluded that due to distance and/or remediation status, the environmental conditions associated with the former LNG site are not likely to have impacted the proposed substation site (SDG&E 2010b). Excavation and construction activities at the proposed Bay Boulevard Substation site could create significant hazards because the subsurface has not been fully characterized. In addition, grading and excavation could result in fugitive dust, and if inhaled, dust particles containing concentrations of hazardous substances could pose a potential health hazard to workers or the general public.

To minimize the potential for impacts during construction activities, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. With implementation of the identified APM and mitigation measures, impacts would be reduced to less than significant (Class II).

HAZ-2 As part of the final design, a site assessment shall be performed to augment and consolidate previous studies performed for the entire Proposed Project site to identify where hazardous materials or wastes may be encountered. The site assessment shall be submitted to the California Public Utilities Commission and the Department of Toxic Substances Control at least 60 days prior to construction activities. In the event that grading, construction, or operation of proposed facilities will encounter hazardous waste, SDG&E shall ensure compliance with the State of California CCR Title 23 Health and Safety Regulations as managed by the Department of Toxic Substances Control and San Diego County Department of Environmental Health (DEH). Excavated soils impacted by hazardous waste or materials will be characterized and disposed of in accordance with CCR Title 14 and Title 22, the Department of Toxic Substances Control, and the San Diego County DEH.

Impact HAZ-3: Release of Hazardous Materials during Substation Operation.

Accidental releases of hazardous materials could occur during normal operations at the proposed substation and during routine maintenance activities. Seven transformers (three 230/69 kV transformers and four 69/12 kV transformers) with an aggregate storage capacity of 80,000 gallons of mineral oil would be installed at the Bay Boulevard Substation. In addition, vehicles and equipment utilized during maintenance activities would require the use of hazardous materials, including fuel, oil, and other lubricants. Therefore, because hazardous materials would either be located on or brought to the substation facility, if not properly managed, operation of the Bay Boulevard Substation could result in accidental conditions involving the release of contaminants into the environment. To minimize the potential for accidental conditions during operations, SDG&E would prepare an SPCC Plan, an HMBP, and would construct retention basins around each of the seven proposed transformers. In addition, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b to further minimize the potential for accidental release of hazardous materials during operations. Therefore, with implementation of the SPCC, HMBP, and construction of transformer retention basins as well as Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b, impacts would be reduced to less than significant (Class II).

HAZ-3a SDG&E shall prepare and submit a copy of the Spill Prevention, Control, and Countermeasure Plan, as required by Title 40 CFR Section 112.7, to the California Public Utilities Commission and the California Department of Toxic Substances Control for review and approval at least 60 days before the start of operation of the Bay Boulevard Substation.

HAZ-3b No hazardous materials used by SDG&E for operations and maintenance of the proposed substation will be stored or disposed of on site, and their use or disposal will conform to applicable laws and regulations governing the use, management, and disposal of hazardous materials.

Impact HAZ-4: Potential safety hazards could adversely affect construction workers or the general public accessing the project site during construction, operation, or decommissioning.

Construction

Although Bay Boulevard is not designated by the City of Chula Vista as a City streets evacuation route, people working or residing in the area could utilize the roadway to access I-5 or any of the other designated evacuation routes (e.g., Broadway, L Street, Naples Street, and Palomar Street) in the area. Because construction of the Bay Boulevard Substation would occur within the identified boundaries, construction would not impact or physically interfere with an emergency response plan or access to the emergency evacuation routes designated by the City. Impacts associated with construction traffic would be minimized through the implementation of Mitigation Measure TRA-1 (prepare a traffic control plan). Therefore, the Proposed Project would not physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant (Class III).

Operation and Maintenance

Operation and maintenance of the Proposed Project would not impair implementation of or interfere with an adopted emergency response plan or emergency evacuation plan. Project facilities would be located adjacent to roadways with direct access to major regional transportation facilities (I-5 and I-805). Operation of the Bay Boulevard Substation would not interfere with access to or affect any major transportation routes in the immediate area. Impacts would be less than significant (Class III).

Impact HAZ-5: Impacts to soil or groundwater could result from accidental spill or release of hazardous materials during operations and maintenance.

The unmanned Bay Boulevard Substation would be monitored and controlled by SDG&E's remote control center. Ongoing maintenance of the facility would involve testing, monitoring, and repair of the substation equipment, as well as emergency and routine procedures to enable efficient provision of SDG&E services. As proposed, three 230/69 kV transformers and four 69/12 kV transformers, containing a total of approximately 80,000 gallons of mineral oil, would be installed at the Bay Boulevard Substation. Soil or groundwater contamination could

potentially result from accidental spill or leakage of mineral oil at the substation transformers during facility operation. However, as stated in Section D.8.2, the Clean Water Act requires that all non-transportation-related facilities with an aggregate aboveground storage capacity greater than 1,320 gallons prepare a site-specific SPCC Plan that is intended to minimize the potential for spills into navigable waters of the United States. Specifically, the SPCC is required to include procedures for storage, handling, spill response, and disposal of hazardous materials, as well as refueling and spill reporting protocol. In addition, as required by California Health and Safety Code Division 20, Chapter 6.95, SDG&E would be required to prepare an HMBP for the Bay Boulevard Substation, and at a minimum, the HMBP must include an inventory of hazardous materials stored on site and a site map, an emergency response plan, and procedures for the safe handling of hazardous material, as well as procedures for communication and coordination with emergency response providers. Along with the required SPCC and HMBP, SDG&E proposes to construct oil retention basins for each transformer to ensure that future leaks or spills would be fully contained if they were to occur.

To further minimize impacts associated with operation of the Bay Boulevard Substation, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ 1b, HAZ-3a, and HAZ-3b. With implementation of these measures (in addition to the preparation of the SPCC and HMBP and construction of transformer retention basins) impacts would be less than significant (Class II).

Impact HAZ-6: **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.**

Construction

The Proposed Project area is not located within a wildland fire hazard area as delineated by the City. Project components are located in an industrial area on a nearly unoccupied site covered with grasses, shrubs, and pavement (see Section D.5, Biological Resources, for discussion and identification of on-site vegetation communities). Although the project site has not been identified as a wildland fire hazard area, heat or sparks from construction equipment and vehicles, as well as the use of flammable hazardous materials, could potentially ignite the on-site vegetation and start a fire. Although the Proposed Project site is located in an industrial area where wildlands do not occur, the presence and operation of construction vehicles and equipment in proximity to flammable vegetation could potentially ignite a wildfire. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts would be less than significant (Class II).

HAZ-4 Wildfires shall be prevented or minimized by exercising care when operating utility vehicles within the right-of-way and access roads and by parking vehicles away from dry vegetation where hot catalytic converters can ignite a fire. In times of high fire hazard, it may be necessary for construction vehicles to carry water and shovels or fire extinguishers. Fire protective mats or shields would be used during grinding or welding to prevent or minimize the potential for fire.

Operation and Maintenance

Although the Bay Boulevard Substation would be located in an industrial area, vegetation clearing would be required periodically for safety purposes and to reduce the risk of fire. The Bay Boulevard Substation would occupy approximately 9.7 acres, would be surrounded by a 10-foot-high concrete masonry wall, and 30 feet of cleared area would be maintained around the perimeter of the substation fence. Because operation and maintenance activities at the substation facility would occur at the cleared and graded substation site, the potential for maintenance activities to ignite vegetation would be extremely low. Therefore, wildland fire impacts associated with operation of the substation facility would be less than significant (Class III).

D.8.3.4 South Bay Substation Dismantling

Impact HAZ-1: Impacts to soil or groundwater could result from an accidental spill or release of hazardous materials due to improper handling or storage of hazardous materials during construction activities.

Prior to dismantling the South Bay Substation, the soil, conduit, control house materials, equipment, and steel structures (e.g., switch racks, bus supporters, and switch stands) currently located at the site would be tested for environmental hazards including oil, lead-based paint, and asbestos. All identified hazardous materials would be abated prior to or during the demolition process and all oil-containing equipment would be drained and processed in accordance with standard SDG&E procedures. After all overhead structures and equipment are removed from the site, the removal of belowground facilities would commence. If not handled properly, the removal of structures or equipment from the site could result in accidental spills or leaks of oil and/or other environmental hazards, which could result in the exposure of workers to hazardous substances. If exposure were to occur, the impact would be considered significant.

To minimize the potential for impacts associated with routine transport, use, or disposal of hazardous materials during dismantling of the South Bay Substation, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c. With implementation of APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c, impacts would be less than significant (Class III).

Impact HAZ-2: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation.

Construction

According to the Phase I ESA prepared for the South Bay Substation, no regulatory database listings were identified for the South Bay Substation site and orphan sites occurring in the vicinity are unlikely to pose a risk to the substation site (SDG&E 2010b). The Phase I ESA did, however, identify a REC (TCE detected in the groundwater) located upgradient of the substation site. Due to depth of excavation associated with removal of existing foundations, work crews could encounter contaminated groundwater.

Equipment containing oil and other hazardous materials would be removed from the site during dismantling activities. In addition, all aboveground and belowground equipment, including underground cable, would be disconnected and removed from the site. The accidental release of hazardous materials could occur during the removal of oil-containing equipment (if a spill or leak were to occur) and during ground-disturbing activities required to remove subsurface components (if contaminated soil or groundwater was encountered). While the Phase I ESA revealed no records of contamination associated with the South Bay Substation, a REC (VOCs, specifically TCE, which has been detected in groundwater located upgradient of the substation site) was identified. During dismantling activities, existing foundations would be removed to a depth of approximately 6 feet, and because the depth to groundwater in the area is between 5 and 13.5 feet (SDG&E 2010a), contaminated groundwater may be encountered during subsurface activity.

To minimize the potential for impacts during construction activities, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. With implementation of identified APM and mitigation measures, impacts would be reduced to less than significant (Class II).

Operation and Maintenance

Because the South Bay Substation would be dismantled, no operational activities would occur at the facility. Therefore, because no operational activities would occur, no impacts would occur.

Impact HAZ-3: Release of hazardous materials during substation operation.

Because the South Bay Substation would be dismantled, no operational activities would occur at the facility. Therefore, because no operational activities would occur, no impacts would occur.

Impact HAZ-4: Potential safety hazards could adversely affect construction workers or the general public accessing the project site during construction, operation, or decommissioning.

Construction

As seen in Section D.8.3.3, Impact HAZ-4, construction dismantling of the South Bay Substation would occur within the identified boundaries of the site, which is located adjacent to the South Bay Power Plant. Potential impacts associated with construction traffic would be minimized through the implementation of Mitigation Measure TRA-1 (prepare a traffic control plan). Therefore, the Proposed Project would not physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant (Class II).

Operation and Maintenance

Because the South Bay Substation would be dismantled, no operational activities would occur at the facility. Therefore, because no operational activities would occur, no impacts would occur.

Impact HAZ-5: Impacts to soil or groundwater could result from accidental spill or release of hazardous materials during operations and maintenance.

Because the South Bay Substation would be dismantled, no operational activities would occur at the facility. Therefore, since no operational activities would occur, no impacts would occur.

Impact HAZ-6: 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.

Construction

As seen in Section D.8.3.3 the Proposed Project area is not located within a wildland fire hazard area as delineated by the City. Project components are located in an industrial area on a nearly unoccupied site covered with grasses, shrubs, and pavement (see Section D.5, Biological Resources, for discussion and identification of on-site vegetation communities). Although the project site has not been identified as a wildland fire hazard area, heat or sparks from construction equipment and vehicles, as well as the use of flammable hazardous materials, could potentially ignite the on-site vegetation and start a fire. Although the Proposed Project site is located in an industrial area where wildlands do not occur, the presence and operation of construction vehicles and equipment in proximity to flammable vegetation could potentially ignite a wildfire. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts would be less than significant (Class II).

Operation and Maintenance

Because the South Bay Substation would be dismantled, no operational activities would occur at the facility. Therefore, since no operational activities would occur, no impacts would occur.

D.8.3.5 Transmission Interconnections

Impact HAZ-1: Impacts to soil or groundwater could result from an accidental spill or release of hazardous materials due to improper handling or storage of hazardous materials during construction activities.

Construction activities associated with the proposed transmission line components would include clearing and grading, excavation for pole foundations, pouring of concrete, conductor installation, open-cut trenching for the underground transmission line components, horizontal jack-and-bore techniques (where open-cut trenching is not permitted or not feasible), and excavation for duct bank installation. Construction activities would require the use of hazardous materials such as vehicle fuels, oils, and other lubricants associated with the operation of vehicles and equipment, and spills involving these materials could potentially result in soil or groundwater contamination. To minimize the potential for impacts during construction of transmission line components, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c. With implementation of APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c, impacts would be less than significant (Class II).

Impact HAZ-2: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation.

Construction

Although the database searches for the substation components discussed above in Section D.8.3.1 did not identify any listed sites, the CHMIRS and State and Tribal Institutional Controls/Engineering Controls databases were not reviewed for records specific to the transmission line alignment (SDG&E 2010a), and therefore, previously unknown contamination could be present.

Open-cut trenching for the underground transmission line components and excavation for overhead transmission line pole components would occur within the proposed Bay Boulevard Substation boundary and within the boundary of the former LNG site. According to the Phase I ESA conducted for the Bay Boulevard Substation, several past uses associated with 990 Bay Boulevard (address of the former LNG site) are listed on federal, state, and local regulatory

databases (SDG&E 2010b). Although the Phase I ESA concluded that these past uses are unlikely to pose a risk at the proposed substation site, trenching and excavation could result in significant hazards to the public or environment via the accidental release of previously unidentified hazardous materials including contaminated soils and groundwater. Although the Phase I ESA did not identify hazardous material sites as occurring within the anticipated work areas for the transmission line components, sites were identified as occurring within a 1-mile radius of both the proposed Bay Boulevard Substation and the existing South Bay Substation, and because these sites would be located closer to the transmission line components (specifically the overhead 69 kV relocation), they could potentially impact the transmission line alignment areas. In addition, the CHMIRS and State and Tribal Institutional Controls/Engineering Controls databases were not reviewed for records specific to the transmission line alignment areas (SDG&E 2010a), and therefore, previously unknown contamination could be present.

Similar to other project components, to minimize potential construction-related impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. With implementation of identified APM and mitigation measures, impacts would be reduced to less than significant (Class II).

Operation and Maintenance

Spills of hazardous materials could occur during normal operation or during maintenance activities occurring along the proposed overhead transmission line corridors. To minimize the potential for impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b, and with implementation of these measures, impacts would be less than significant (Class II).

Impact HAZ-3: Release of hazardous materials during substation operation.

See discussion under Impact HAZ-3 in Section D.8.3.3.

Impact HAZ-4: Potential safety hazards could adversely affect construction workers or the general public accessing the project site during construction, operation, or decommissioning.

Construction

Transmission line work (relocation of the 69 kV transmission line) would occur within the Bay Boulevard ROW, and SDG&E anticipates that the one southbound lane of Bay Boulevard would be closed during installation of underground duct banks (see Section D.16, Transportation and Traffic). Although one travel lane would be closed during duct bank installation, vehicular access on north and southbound Bay Boulevard would be maintained, and with implementation

of Mitigation Measure TRA-1 (see Section D.16), impacts to vehicular movement on Bay Boulevard would be minimized. Therefore, the Proposed Project would not physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant (Class II).

Operation and Maintenance

Operation and maintenance of the Proposed Project would not impair implementation of or interfere with an adopted emergency response plan or emergency evacuation plan. Project facilities would be located adjacent to roadways with direct access to major regional transportation facilities (I-5 and I-805). Operation of the transmission line components for the Proposed Project would not interfere with access to or affect any major transportation routes in the immediate area. Impacts would be less than significant (Class III).

Impact HAZ-5: Impacts to soil or groundwater could result from accidental spill or release of hazardous materials during operations and maintenance.

Operation and maintenance activities associated with proposed transmission line components would involve both routine preventive maintenance and emergency procedures to maintain service continuity. Spills of hazardous materials could occur during normal operation or maintenance along the proposed overhead transmission line corridors. To minimize the potential for impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b, and with implementation of these measures, impacts would be less than significant (Class II).

Impact HAZ-6: 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.

Construction

As seen in Section D.8.3.3 the Proposed Project area is not located within a wildland fire hazard area as delineated by the City. Project components are located in an industrial area on a nearly unoccupied site covered with grasses, shrubs, and pavement (see Section D.5, Biological Resources, for discussion and identification of on-site vegetation communities). Although the project site has not been identified as a wildland fire hazard area, heat or sparks from construction equipment and vehicles, as well as the use of flammable hazardous materials, could potentially ignite the on-site vegetation and start a fire. Although the Proposed Project site is located in an industrial area where wildlands do not occur, the presence and operation of construction vehicles and equipment in proximity to flammable vegetation could potentially

ignite a wildfire. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts would be less than significant (Class II).

Operation and Maintenance

Electrical arcing from power lines represents a potential fire hazard. This phenomenon is more prevalent for lower voltage distribution lines since these lines are typically on shorter structures and in much greater proximity to trees and vegetation compared with higher voltage lines. To reduce the potential for fires attributed to arcing, overhead transmission line ROWs would be cleared of trees in accordance with the requirements of CPUC General Order 95, Rules for Overhead Electric Line Construction. In addition, fire hazards due to a fallen conductor from an overhead line or ruptured underground cable are minimal due to system protection features. Both overhead and underground high-voltage transmission lines include system protection (transmission line relays and line breakers) designed to safeguard the public and line equipment. Because transmission line structures (and vegetation clearance) must meet the requirements of the CPUC General Order No. 95 and because system protection features are included in higher voltage transmission lines, wildland fire impacts associated with operation of overhead transmission lines would be less than significant (Class III).

Underground transmission line components would not represent a risk for wildland fire because potential ignition sources (transmission lines) would be placed underground at an approximate depth of 6 feet. No impacts associated with operation of underground transmission lines would occur.

D.8.4 Project Alternatives

D.8.4.1 Gas Insulated Substation Technology Alternative

Environmental Setting

Section D.8.1 describes known hazardous waste contamination sites in the study area for the proposed Bay Boulevard Substation, South Bay Substation Dismantling, and the utility interconnections to the proposed Bay Boulevard Substation. SDG&E's Gas Insulated Substation Technology Alternative would occur at the same location as the proposed Bay Boulevard Substation; therefore, the existing conditions would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

This alternative would use gas insulated substation technology for the 69/230 kV switchyard that would be associated with the proposed Bay Boulevard Substation. All other project components

as described for the Proposed Project would remain the same. Under this alternative, use of gas insulated technology equipment would result in an approximate 4.4 acre footprint within the same location as the Proposed Project.

Impact HAZ-1 (accidental spills during construction), HAZ-2 (unknown soil and/or groundwater contamination during grading or excavation), HAZ-3 (release of hazardous materials during substation operation), HAZ-4 (potential safety hazards could adversely affect construction workers or the general public), HAZ-5 (soil or groundwater contamination from accidental spill or release of hazardous materials during operations and maintenance), and HAZ-6 (wildland fires) would be applicable to the Gas Insulated Substation Technology Alternative. Implementation of APM HAZ-01 and Mitigation Measures HAZ-1a, 1b, 1c, 2, 3a, 3b, 4, and TRA-1 would mitigate these potential impacts to less than significant (Class II).

Comparison to the Proposed Project

This alternative would result in a smaller overall footprint than the Proposed Project. The Gas Insulated Substation Technology Alternative would require approximately 4.4 acres for construction and operation of the substation, whereas the Proposed Project (air-insulated substation) would require approximately 9.7 acres. However, since the Gas Insulated Substation Technology Alternative and the Proposed Project are located within the same area and would take approximately the same duration to complete construction, the potential for encountering hazardous materials or experiencing a hazardous material spill would be considered substantially the same. Impacts Haz-1 through Haz-6 would be mitigated to a less-than-significant level through implementation of the APMs and mitigation measures listed in Section D.8.3.3, D.8.3.4 and D.8.3.5 for both the Gas Insulated Technology Alternative and the Proposed Project.

D.8.4.2 Tank Farm Site Alternative

Environmental Setting

Portions of the ~~19~~17-acre Tank Farm site were previously developed as the North Tank Farm for the SBPP. The site is currently unoccupied and is covered with tan and brown grasses and low-lying shrubs. Earthen berms associated with previous industrial uses (berms and low-lying areas served as spill containment basins for power plant tanks) are located in the central and eastern portions of the site.

Although a Phase I ESA has not been conducted for the Tank Farm Site Alternative, the Phase I ESA conducted for the Proposed Project identified approximately eight sites on seven databases within a 1-mile radius of the South Bay Substation site (the southern extent of the Tank Farm site is located approximately 250 feet (0.04 mile) north of the existing substation site, and the

northern extent is located approximately 0.25 mile north of the substation site). Of the eight sites, one site (listed on the SWEEP UST database) was identified as occurring within 0.25 mile of the existing substation; however, based on information obtained from the EnviroStor and GeoTracker online databases, this site does not occur on the Tank Farm site (rather, the site occurs to the east of the existing substation and east of I-5) (ENVIROSTOR 2011; GeoTracker 2011).The Phase I ESA also identified one recognized environmental condition (REC) and two historical RECs associated with the substation site; however, these conditions occur east of the SBPP property (south of the Tank Farm site and the existing substation).

Because the South Bay Substation dismantling and transmission interconnections component of this alternative would occur in similar locations as previously identified for the Proposed Project, the environmental setting for these project components under the Tank Farm site alternative would be similar to the setting previously discussed in Section D.8.1 for the Proposed Project.

The environmental setting for the Air Insulated Substation and Gas Insulated Substation Alternatives at the Tank Farm site would be the same, and therefore, environmental setting is not further discussed in Sections D.8.4.2.1 and D.8.4.2.2.

D.8.4.2.1 Tank Farm Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

During construction activities at the Tank Farm site hazardous materials including vehicle fuels, oils, and lubricants (similar materials as previously identified in Table D.8-2 and associated with construction of the Proposed Project would be used during construction of this alternative) would be transported to the site, used, and temporarily stored in SDG&E's transmission easement, which would serve as a staging area during construction. Spills of hazardous materials could occur during transport and use, and foundation excavation could potentially expose soil and groundwater to hazardous contaminants. Hazardous conditions could also result from improperly maintained (and leaking) construction equipment, which (if not contained) could result in soil contamination. Similar to protocol employed during construction of the Proposed Project, all spills during construction at the Tank Farm site would be cleaned up and disposed of in accordance with SDG&E's *Water Quality Construction Best Management Practices Manual* (as well as in accordance with federal, state, and local regulations). Similarly, construction activities at the South Bay Substation and at work areas associated with the transmission interconnections could result in accidental spills or leaks of oil and/or other environmental hazards (which could result in the exposure of workers to hazardous substances) if equipment and materials are not properly handled during transport and use. To minimize the potential for impacts associated with the routine transport, use, or disposal of hazardous materials, APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c would be implemented by SDG&E, and with

implementation of these measures, construction impacts to soil or groundwater resulting from spills or improper handling or storage or hazardous materials (Impact HAZ-1) would be less than significant (Class II).

By virtue of a 1-mile search radius deployed around the existing South Bay Substation, the Tank Farm site was included in the hazardous material records review conducted for the Proposed Project. While no regulatory database listings were identified for the Tank Farm site, portions of the site were previously developed as the North Tank Farm for the SBPP, and the SBPP was listed on several databases including LUST, Cortese, San Diego County HMMD, and SWEEPS UST. Therefore, due to the previous use of the site and its association with the SBPP, it is assumed that cleanup of the site may be required as part of the SBPP remediation project, and construction activities could potentially encounter contaminated soil or groundwater during grading or excavation (for purposes of this analysis, a fully remediated site is not considered an existing condition at the Tank Farm site). Similarly, the Phase I ESA conducted for the Proposed Project did not discover regulatory database listings for the South Bay Substation, and orphan sites occurring in the vicinity were determined to be unlikely to pose a risk to the substation site; however, a REC was identified upgradient of the site, and soil and/or groundwater contamination could occur during the removal of oil-containing equipment from the site (depth to groundwater in the area is relatively shallow (between 5 and 13.5 feet)) (SDG&E 2010a). Lastly, although the Phase I ESA did not identify hazardous material sites within the anticipated work areas for the transmission interconnections of the Proposed Project (similar work areas are assumed under this alternative), sites were identified as occurring within a 1-mile radius of the South Bay Substation, and because these sites would be located closer to the transmission line components (specifically the overhead 69 kV relocation), they could potentially impact the SDG&E easement area. (In addition, the CHMIRS and State and Tribal Institutional Controls/Engineering Controls databases were not reviewed for records specific to the transmission interconnection work areas; therefore, previously unknown contamination could be present.) To minimize potential construction-related impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. With implementation of identified APM and mitigation measures, HAZ-2 impacts would be reduced to less than significant (Class II).

Similar to the proposed Bay Boulevard Substation, three 230/69 kV transformers and four 69/12 kV transformers, containing a total of approximately 80,000 gallons of mineral oil, would be installed at the Tank Farm Site – Air Insulated Substation Alternative. Soil or groundwater contamination could potentially result from accidental spill or leakage of mineral oil at the substation transformers during facility operation; however, in addition to federal and state regulations that require the preparation of a site-specific SPCC Plan and HMBP, SDG&E would construct oil retention basins to ensure that future leaks or spills would be fully contained should they occur. In addition, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and

HAZ-3b to further minimize the potential for accidental release of hazardous materials during operations. In addition, to further minimize the potential for accidental release of hazardous materials during substation operations (Impact HAZ-3), SDG&E would implement Mitigation Measures HAZ-1c and HAZ-3a; with implementation of the SPCC, HMBP, and construction of transformer retention basins as well as Mitigation Measures HAZ-1a, HAZ-3a and HAZ-3b, impacts would be reduced to less than significant (Class II). No operational impacts would occur at the existing South Bay Substation because the facility would be dismantled (no operational activities would occur), and since Impact HAZ-3 is specific to substation operations, no impacts associated with transmission interconnections are assumed.

Construction of the Tank Farm Site – Air Insulated Substation Alternative would occur within the identified boundaries of the Tank Farm site, and construction activities are not anticipated to impact or physically interfere with an emergency response plan or access to the emergency evacuation routes designated by the City. Dismantling of the South Bay Substation would occur within the existing substation boundary, and on-site construction activities are not anticipated to interfere with access to or movement through the immediate area. Work associated with the transmission interconnections includes pole locations within the Bay Boulevard ROW (underground trenching in Bay Boulevard would also be required), and closure of one travel lane on Bay Boulevard would likely be required during construction. Although one travel lane would be closed during duct bank installation, vehicular access on north and southbound Bay Boulevard would be maintained, and traffic impacts resulting from construction of all project components would be minimized through implementation of a Traffic Control Plan (Mitigation Measure TRA-1; see Section D.16, Transportation and Traffic). Operation of the substation facility at the Tank Farm site and the transmission interconnections would not interfere with access to or affect any major transportation routes in the immediate area because these components would generate limited (and sporadic) traffic in the project area (maintenance activities would occur several times a year and on an as-needed basis). Therefore, HAZ-4 impacts during construction would be less than significant (Class II) with implementation of Mitigation Measure TRA-1, and the potential for impacts during operations are considered less than significant (Class III).

As discussed in the Impact HAZ-3 analysis above, seven transformers (three 230/69 kV transformers and four 69/12 kV transformers) with an aggregate storage capacity of 80,000 gallons of mineral oil would be installed at the Tank Farm site substation facility, and vehicles and equipment used during maintenance activities would require the use of hazardous materials, including fuel, oil, and other lubricants. An accidental spill or leakage of mineral oil at the substation transformers or accident conditions involving maintenance vehicles and equipment could potentially occur during facility operations and maintenance; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, SDG&E would construct oil retention basins around transformers to ensure that future leaks or

spills would be fully contained if they should occur. To further reduce the potential for accidental spills and/or leaks and resulting soil and/or groundwater contamination, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b; with implementation of the required SPCC Plan, HMBP, installation of retention basins, and implementation of applicable mitigation measures, impacts would be reduced to less than significant (Class II). Because the South Bay Substation would be dismantled, no operational activities would occur at the facility, and therefore, no HAZ-5 impacts would occur. Lastly, spills of hazardous materials could occur during normal operation of or during maintenance activities along the proposed overhead transmission line corridors; therefore, to minimize the potential for impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b. With implementation of these measures, HAZ-5 impacts associated with operation and maintenance of the transmission interconnections would be less than significant (Class II).

The components of the Tank Farm Site – Air Insulated Substation Alternative are not located within a wildland fire hazard area as delineated by the City; however, heat or sparks from construction equipment and vehicles, as well as the use of flammable hazardous materials, could potentially ignite the on-site vegetation and start a fire. Although the Tank Farm site is located in an industrial area where wildlands do not occur, the presence and operation of construction vehicles and equipment in proximity to flammable vegetation could potentially ignite a wildfire that could spread to surrounding land uses. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts would be less than significant (Class II). During operations of the substation facility, vegetation clearing would be conducted periodically to reduce the risk of fire around the substation facility (the facility would be surrounded by a concrete masonry wall, and approximately 30 feet of cleared area would be maintained around the wall); therefore, wildland fire impacts associated with operation of the substation facility are considered less than significant (Class III). Electrical arcing from power lines represents a potential fire hazard along the transmission interconnections alignment(s), and to reduce the potential for fires attributed to arcing, overhead transmission line ROWs would be cleared of trees in accordance with the requirements of CPUC General Order 95, Rules for Overhead Electric Line Construction (underground transmission line components would not represent a risk for wildland fire since they would be placed underground). Therefore, because transmission line structures and vegetation clearance procedures must meet the requirements of CPUC General Order 95 and because system protection features are included in higher voltage transmission lines, HAZ-6 impacts attributed to the proposed transmission interconnections would be less than significant (Class III).

Comparison to the Proposed Project

Due to past industrial use of the Tank Farm site and because hazardous materials used during construction and operation of this alternative would be similar to those used during construction and operation of the Proposed Project, Impacts HAZ-1 through HAZ-6 under the Tank Farm Site – Air Insulated Substation Alternative would be similar to Impacts HAZ-1 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project.

D.8.4.2.2 Tank Farm Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because construction activities associated with the substation facility, dismantling of the existing South Bay Substation, and transmission interconnection would occur in similar locations, and because construction schedules, equipment, vehicles, and hazardous materials used during construction and operational activities would be similar, HAZ-1 through HAZ-6 impacts would be similar to the impacts characterized in Section D.8.4.2.1 for the Tank Farm Site – Air Insulated Substation Alternative. Although substation transformers would be installed with buildings under the Gas Insulated Substation Alternative, retention basins would likely be constructed around buildings to contain spills or leaks and minimize the potential for soil and/or groundwater contamination; therefore, all plans, BMPs, and mitigation measures discussed in Section D.8.4.2.1 within the analysis for Impacts HAZ-3 and HAZ-5 for the Tank Farm Site – Air Insulated Substation Alternative would also apply to the Tank Farm Site – Gas Insulated Substation Alternative.

Comparison to the Proposed Project

Due to past industrial use of the Tank Farm site and because hazardous materials used during construction and operation of this alternative would be similar to those used during construction and operation of the Proposed Project, Impacts HAZ-1 through HAZ-6 under the Tank Farm Site – Gas Insulated Substation Alternative would be similar to Impacts HAZ-1 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project.

D.8.4.3 Existing South Bay Substation Site Alternative

Environmental Setting

The environmental setting at and surrounding the existing South Bay Substation was previously discussed in Section D.8.1 for the Proposed Project. Similar to the Proposed Project, this alternative would dismantle and remove the existing substation; however, this alternative would construct a new substation facility at the existing substation site. Still, since this alternative

would occur within the boundary of the existing South Bay Substation, the environmental setting would be the same as previously discussed in Section D.8.1 for the South Bay Substation. As mentioned in Section D.8.1, no regulatory database listings were identified for the South Bay Substation during the records review conducted for the Proposed Project; however, several sites were located within a 1-mile radius of the existing substation facility.

D.8.4.3.1 Existing South Bay Substation Site – Air Insulated Substation Alternative

In addition to construction of the transmission interconnections, construction of the Air Insulated Substation Alternative at the existing South Bay Substation site would require the use of hazardous materials typical to the construction process (see Table D.8-2 for a partial list of materials). While accidental spillage of materials during transport, use, and/or from improperly maintained equipment could percolate through the ground surface and result in impacts to the soil and groundwater (Impact HAZ-1), spills would be cleaned up and disposed of in accordance with all pertinent regulations as well as SDG&E's *Water Quality Construction Best Management Practices Manual*, and SDG&E would implement a series of measures (APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c) to further reduce the potential impacts to less-than-significant (Class II) levels. The hazardous material records review conducted for the Proposed Project indicated that land uses in the vicinity of the South Bay Substation site have generated contamination that may have impacted the groundwater beneath the site. Because excavation activities would be required to remove existing below-grade components and install new foundations and transmission interconnections, construction activities could encounter contaminated soil and/or groundwater Impact HAZ-2); therefore, APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2 would be implemented to reduce potential HAZ-2 impacts to less than significant (Class II).

Components installed at the Air Insulated Substation Alternative would include mineral oil–containing transformers. Release of mineral oil during substation operations (Impact HAZ-3) would be considered a significant impact. SDG&E is required (by federal and state regulations) to prepare and implement a site-specific SPCC Plan and an HMBP (these plans would contain protocols to abide by if a spill were to occur and would include a listing of all materials stored and used on site) and would also construct retention basins around the substation transformers to control potential leaks and spills. In addition, Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b would be implemented and along with the SPCC Plan, HMBP, and retention basins, would reduce Impact HAZ-3 to a less-than-significant (Class II) level.

Construction of this alternative is not anticipated to impact or interfere with an emergency response plan or conflict with the operation of a city-designated evacuation route (Impact HAZ-4). Implementation of traffic control plan (Mitigation Measure TRA-1) would minimize potential

construction-related traffic conflicts that could affect access to the site (or movement along Bay Boulevard), and due to its location within a disturbed industrial area, operation of the substation would not result in safety hazards that would adversely affect access to the site for maintenance personnel. Therefore, HAZ-4 impacts are considered to be less than significant (Class III).

Due to the presence of mineral oil–containing transformers and the use of hazardous materials during maintenance of substation facility and transmission line equipment, impacts to soil and groundwater during operation of the Air Insulated Substation Alternative (Impact HAZ-5) could result if an accidental spill or leak of hazardous materials were to occur. However, as previously noted, preparation and implementation an SPCC Plan and HMBP, construction of retention basins around transformers, and implementation of APM-HAZ-01 and Mitigation Measures HAZ 1b, HAZ-3a, and HAZ-3b would reduce potential HAZ-5 impacts to a less-than-significant (Class II) level.

While the existing substation site is not located within a wildland fire hazard area, the operation of construction equipment, use of hazardous materials, and presence of vegetation could result in an accidental fire; however, SDG&E would implement Mitigation Measure HAZ-4 to reduce potential fire risks (Impact HAZ-6) to less than significant (Class II).

Comparison to the Proposed Project

Because this alternative is located in the same general location and would require similar construction practices, the public health and safety impacts (Impacts HAZ-1 through HAZ-6) associated with the Air Insulated Substation Alternative at the existing South Bay Substation site would not be substantially different when compared to the public health and safety impacts of the Proposed Project.

D.8.4.3.2 Existing South Bay Substation Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Hazardous materials including but not limited to vehicle fuels, oils, and lubricants would be transported to the existing South Bay Substation site and used during construction, and materials would be temporarily stored in SDG&E's transmission easement. A list of hazardous materials typically used during construction was identified in Section D.8.3.3 for the Proposed Project (see Table D.8-2); similar materials would be used during construction of this alternative. Routine transport and use of materials could result in accidental spills, and grading and excavation could expose soil and groundwater to hazardous contaminants. Hazardous conditions could also result from improperly maintained, leaking construction equipment, which (if not properly contained) could result in soil contamination. During construction, all spills at the South Bay Substation site

occurring during dismantling of the existing substation and construction of the new facility would be cleaned up and disposed of in accordance with federal, state, and local regulations as well as in accordance with SDG&E's *Water Quality Construction Best Management Practices Manual*. In addition, construction activities at work areas associated with the transmission interconnections component of this alternative could result in accidental spills or leaks of oil and/or other environmental hazards (which could result in the exposure of workers to hazardous substances and/or contamination of soil and groundwater) if equipment and materials are not properly handled during transport, use, and storage. To reduce impacts associated with routine transport, use, or disposal of hazardous materials to less-than-significant levels, APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c would be implemented by SDG&E, and with implementation of these measures, construction impacts to soil or groundwater resulting from spills or improper handling or storage or hazardous materials (Impact HAZ-1) would be less than significant (Class II).

The South Bay Substation site was included in the hazardous material records review conducted for the Proposed Project (dismantling of the existing facility is a component of the Proposed Project). While no regulatory database listings were identified for the substation site, several sites (including the SBPP) were located within a 1-mile radius of the existing substation facility, and a REC (TCE detected in groundwater) was identified as occurring upgradient of the site. These sites and conditions may have migrated to the substation site, and due to depth of excavation associated with removal of existing foundations and construction of new foundations to support substation facilities, construction work crews at the site could encounter contaminated groundwater. In addition, during removal of oil-containing equipment from the site, the accidental release of hazardous materials could occur and would be considered a significant impact.

Although the Phase I ESA conducted for the Proposed Project did not identify hazardous material sites within the anticipated work areas for the transmission interconnections of the Proposed Project (similar work areas are assumed under this alternative), sites were identified as occurring within a 1-mile radius of the South Bay Substation, and because these sites would be located closer to the transmission line components (specifically the overhead 69 kV relocation), they could potentially impact the SDG&E easement area. In addition, the CHMIRS and State and Tribal Institutional Controls/Engineering Controls databases were not reviewed for records specific to the transmission interconnection work areas associated with the Proposed Project; therefore, previously unknown contamination could be present at pole locations. To minimize potential construction-related impacts associated with encountering previously unknown soils and/or groundwater contamination during excavation and grading (Impact HAZ-2) at the South Bay Substation site and at work locations associated with transmission interconnections, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and

HAZ-2. With implementation of identified APM and mitigation measures, HAZ-2 impacts would be reduced to less than significant (Class II).

Three 230/69 kV transformers and four 69/12 kV transformers, containing a total of approximately 80,000 gallons of mineral oil, would be installed at the Existing South Bay Substation Site – Gas Insulated Substation Alternative (for purposes of this analysis, the ultimate arrangement of the Gas Insulated Substation Alternative (as opposed to the initial arrangement) discussed in Section C.5.1 of this Environmental Impact Report (EIR) is assumed). Soil or groundwater contamination could potentially result from accidental spill or leakage of mineral oil at the substation transformers during facility operation; however, in addition to federal and state regulations that require the preparation of a site-specific SPCC Plan and HMBP, transformers would be installed within metallic buildings, and to further minimize the potential for leaks or spills to contaminate the soils and/or groundwater, SDG&E would construct oil retention basins around the buildings to ensure that future leaks or spills would be fully contained (if they should occur). SDG&E would also implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b to minimize the potential for accidental release of hazardous materials during operations; with implementation of the SPCC, HMBP, the construction of transformer retention basins, and Mitigation Measures HAZ-1a, HAZ-3a and HAZ-3b, impacts would be reduced to less than significant (Class II). Because Impact HAZ-3 is specific to substation operations, no HAZ-3 impacts associated with transmission interconnections would occur.

Because the dismantling of the existing substation and construction of a new substation would take place within the boundaries of the South Bay Substation site, construction activities are not anticipated to impact or physically interfere with an emergency response plan or access to the emergency evacuation routes designated by the City. Work associated with the transmission interconnections would include the removal of existing poles within the Bay Boulevard ROW (underground trenching in Bay Boulevard would also be required), and the closure of one travel lane on Bay Boulevard is anticipated during construction. Although one travel lane would be closed during duct bank installation, vehicular access on northbound and southbound Bay Boulevard would be maintained, and traffic impacts resulting from construction of all project components would be minimized through implementation of a Traffic Control Plan (Mitigation Measure TRA-1; see Section D.16, Transportation and Traffic). Operation of the Existing South Bay Substation Site – Gas Insulated Substation Alternative would not interfere with access to or affect any major transportation routes in the immediate area because these components would generate an extremely small volume of traffic in the project area (maintenance activities would occur several times a year and on an as-needed basis at the substation facility and transmission structures). Therefore, HAZ-4 impacts during construction would be less than significant (Class II) with implementation of Mitigation Measure TRA-1, and the potential for impacts during operations are considered less than significant (Class III).

As discussed in the Impact HAZ-3 analysis above, seven transformers (three 230/69 kV transformers and four 69/12 kV transformers) with an aggregate storage capacity of 80,000 gallons of mineral oil would be installed under the ultimate arrange of the Gas Insulated Substation Alternative at the existing South Bay Substation site. In addition, hazardous materials stored at the Gas Insulated Substation facility, and vehicles and equipment used during maintenance activities would require the use of hazardous materials, including fuel, oil, and other lubricants. An accidental spill or leakage of mineral oil at the substation transformers or accident conditions involving maintenance vehicles and equipment could potentially occur during facility operations and maintenance; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, SDG&E would construct oil retention basins around transformers to ensure that future leaks or spills would be fully contained. Also, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b, and with implementation of the required SPCC and HMBP, installation of retention basins, and implementation of applicable mitigation measures, impacts would be reduced to less than significant (Class II). Additionally, spills of hazardous materials could occur during normal operation of or during maintenance activities along the proposed overhead transmission line corridors; therefore, to minimize the potential for impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b. With implementation of these measures, HAZ-5 impacts associated with operation and maintenance of the transmission interconnections would be less than significant (Class II).

Although the existing South Bay Substation site and transmission interconnection work areas are not located within a wildland fire hazard area as delineated by the City, heat or sparks from construction equipment and vehicles, as well as the use of flammable hazardous materials, could potentially ignite on-site (or nearby) vegetation at these sites and start a fire. The presence and operation of construction vehicles and equipment in proximity to flammable vegetation could potentially ignite a wildfire that could spread to surrounding land uses. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts would be less than significant (Class II). During operations of the substation facility, vegetation clearing would be conducted periodically to reduce the risk of fire around the substation facility, and a concrete masonry wall and a cleared area would be installed around the facility. Therefore, with implementation of the vegetation clearing practices and design considerations, wildland fire impacts associated with operation of the substation facility are considered less than significant (Class III).

Electrical arcing from power lines represents a potential fire hazard along the transmission interconnections alignment(s) and to reduce the potential for fires attributed to arcing, overhead transmission line ROWs would be cleared of trees in accordance with the requirements of CPUC General Order 95, Rules for Overhead Electric Line Construction (wildland fire impacts are not anticipated with the underground transmission line segments since these components would be

placed underground). Therefore, because transmission line structures and vegetation clearance procedures must meet the requirements of CPUC General Order 95 and because system protection features would be incorporated on the higher voltage lines, HAZ-6 impacts associated with transmission interconnections would be less than significant (Class III).

Comparison to the Proposed Project

Because construction activities associated with dismantling of the existing South Bay Substation and construction of a new facility at the same site (as well as work associated with transmission interconnections) would occur in similar locations and because construction schedules, equipment, vehicles, and hazardous materials used during construction and operational activities would be similar, HAZ-1 through HAZ-6 impacts would be similar to the impacts characterized in Section D.8.3 for the Proposed Project. Although substation transformers would be installed with buildings, retention basins would likely be constructed around buildings to contain spills or leaks and minimize the potential for soil and/or groundwater contamination; therefore, all plans, BMPs, and mitigation measures discussed in Section D.8.3 within the analysis for Impacts HAZ-3 and HAZ-5 for the Proposed Project would also apply to the Existing South Bay Substation – Gas Insulated Substation Alternative.

D.8.4.4 Power Plant Site Alternative

Environmental Setting

The 22-acre Power Plant Site Alternative is located on the SBPP property and includes facilities associated with previous SBPP operations. According to the Phase I ESA conducted for the Proposed Project, the SBPP is listed on several databases including the National Pollutant Discharge Elimination System (NPDES), California Waste Discharge System (CA WDS), Waste Management Unit Databases/Solid Waste Assessment Test Program (WMUDS/SWAT), Toxic Pits, historical (HIST) UST, landfill disposal sites (LDS), and CHMIRS (SDG&E 2010B). The NPDES, CA WDS, and WMUDS/SWAT listings are associated with continuous/seasonal discharge of cooling water (and process wastewater) by the Power Plant, which is under waste discharge requirements as of March 2010. The Toxic Pits case was closed as of March 1991, and the listing on the CHMIRS database is due to a spill associated with emptying of an oil circuit breaker (the spill was contained) (SDG&E 2010B). The UST case was closed as of September 1988, and the LDS case was closed as of March 2005 (GeoTracker 2011)

Because the South Bay Substation dismantling and transmission interconnections component of this alternative would occur in similar locations as previously identified for the Proposed Project, the environmental setting for these project components under the Power Plant Site Alternative would be similar to the setting previously discussed in Section D.8.1 for the Proposed Project.

The environmental setting for the Air Insulated Substation and Gas Insulated Substation Alternatives at the Power Plant site would be the same, and therefore, environmental setting is not further discussed in Sections D.8.4.4.1 and D.8.4.4.2.

D.8.4.4.1 Power Plant Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

During construction, hazardous materials similar to those previously identified in Table D.8-2 for construction of the Proposed Project would be transported to and used at the Power Plant site and temporarily stored on site or within SDG&E's transmission easement. During transport and use of materials, spills could occur, and foundation excavation could potentially expose soil and groundwater to hazardous contaminants. Improperly maintained (and leaking) construction equipment on site could also result in soil contamination if leaks are not properly contained. All spills occurring during construction at the Power Plant would be cleaned up and disposed of in accordance with federal, state, and local regulations as well as in accordance with SDG&E's *Water Quality Construction Best Management Practices Manual.* Dismantling activities at the South Bay Substation site and construction activities at transmission interconnection work areas could result in accidental spills or leaks of hazardous materials (which could result in the exposure of works to hazardous substances) if equipment and materials are not properly handled during transport, use, or storage. To minimize the potential for impacts associated with the routine transport, use, or disposal of hazardous materials, APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c would be implemented by SDG&E; with implementation of these measures, construction impacts to soil or groundwater resulting from spills or improper handling or storage of hazardous materials (Impact HAZ-1) would be less than significant (Class II).

The Power Plant site (a 22-acre site located on the SBPP property) was not specifically identified in the hazardous materials records review conducted for the Proposed Project; however, the SBPP facility was listed on several databases including LUST, Cortese, San Diego County HMMD, and SWEEPS UST. Although the GeoTracker online database identifies a closed LUST cleanup site (closed as of September 1988) and a closed Land Disposal Site (closed as of March 2005), previous known use of the site (the site contains towers and building associated with operation of the SBPP) and its association with the SBPP suggest that cleanup of the site may be required as part of the ongoing SBPP remediation process, and construction activities could potentially encounter contaminated soil or groundwater during grading or excavation (for purposes of this analysis a fully remediated site is not considered an existing condition at the Power Plant site). The Phase I ESA conducted for the Proposed Project did not discover regulatory database listings for the South Bay Substation, and orphan sites occurring in the vicinity were determined to be unlikely

to pose a risk to the substation site; however, a REC was identified upgradient of the site, which may have contaminated soil and groundwater, and additional contamination could occur during the removal of oil-containing equipment from the site (SDG&E 2010a). In addition, because hazardous material releases were identified within a 1-mile radius of the South Bay Substation, there is the potential that these releases could have migrated to the SDG&E easement area. Also, the CHMIRS and State and Tribal Institutional Controls/Engineering Controls databases were not reviewed for records specific to the transmission interconnection work areas during the records review conducted for the Proposed Project; therefore, previously unknown contamination could be present around work areas. To minimize potential construction-related impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. With implementation of identified APM and mitigation measures, HAZ-2 impacts would be reduced to less than significant (Class II).

Similar to the Proposed Project, seven transformers containing a total of approximately 80,000 gallons of mineral oil would be installed by the Power Plant Site – Air Insulated Substation Alternative. During operations, soil or groundwater contamination could potentially occur due to an accidental spill or leakage of mineral oil at the substation transformers; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, SDG&E would construct oil retention basins around the transformers to ensure that future leaks or spills would be fully contained if they were to occur. Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b would also be implemented to further minimize the potential for accidental release of hazardous materials and resulting soils and/or groundwater contamination during operations. Therefore, with implementation of the SPCC and HMBP, construction of transformer retention basins, and implementation of Mitigation Measures HAZ-1a, HAZ-3a and HAZ-3b, impacts would be reduced to less than significant (Class II). No operational impacts would occur at the existing South Bay Substation since the facility would be dismantled (no operational activities would occur), and since Impact HAZ-3 is specific to substation operations, no impacts associated with transmission interconnections are assumed.

Construction of the Power Plant Site – Air Insulated Substation Alternative would occur within the identified boundaries of the Power Plant site, and therefore, construction activities at the site (located west of Bay Boulevard on the SBPP property) are not anticipated to impact or physically interfere with an emergency response plan or access to emergency evacuation routes designated by the City. Similarly, dismantling of the South Bay Substation would occur within the existing substation boundary, and on-site construction activities are not anticipated to interfere with access to or movement through the immediate area. Work associated with the transmission interconnections would occur within the Bay Boulevard ROW (underground trenching would occur within Bay Boulevard), and the closure of one travel lane on Bay Boulevard would be required during construction. Although movement through the immediate

area would be affected by the closure of one travel lane on Bay Boulevard during duct bank installation, north and southbound vehicular movement on Bay Boulevard would be facilitated through the project Traffic Control Plan (Mitigation Measure TRA-1; see Section D.16, Transportation and Traffic), and other traffic-related impacts during construction would also be reduced through implementation of the Traffic Control Plan. Operation of the substation facility at the Power Plant site and the transmission interconnections would not interfere with access to or affect any major transportation routes in the immediate area because these components would generate limited (and sporadic) traffic in the project area (maintenance activities would occur several times a year and on an as-needed basis). Therefore, HAZ-4 impacts during construction would be less than significant (Class II) with implementation of Mitigation Measure TRA-1, and the potential for impacts during operations are considered less than significant (Class III).

As discussed in the Impact HAZ-3 analysis above, seven transformers with an aggregate storage capacity of 80,000 gallons of mineral oil would be installed at the Power Plant site substation facility, and vehicles and equipment used during maintenance activities would require the use of hazardous materials, including fuel, oil, and other lubricants. An accidental spill or leakage of mineral oil at the substation transformers or accidental conditions involving maintenance vehicles and/or equipment could potentially occur during facility operations and during maintenance activities; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, SDG&E would construct oil retention basins around transformers to ensure that future leaks or spills would be fully contained. SDG&E would also implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b; with implementation of the required SPCC Plan, HMBP, installation of retention basins, and implementation of applicable mitigation measures, impacts would be reduced to less than significant (Class II). Once dismantled, no operational activities would occur at the South Bay Substation, and therefore, no HAZ-5 impacts would occur. During normal operation of and/or during maintenance activities along the proposed overhead transmission line corridors, spills of hazardous materials could occur; therefore, to minimize the occurrence of spills, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b. With implementation of these measures, HAZ-5 impacts associated with operation and maintenance of the transmission interconnections would be less than significant (Class II).

Although the Power Plant site, existing South Bay Substation, and work areas associated with transmission interconnection are not located in a wildland fire area, heat or sparks from construction equipment and vehicles, as well as the use of flammable hazardous materials, could potentially ignite the on-site vegetation and start a fire. Although the project is located in an industrial area where wildlands do not occur, the presence and operation of construction vehicles and equipment in proximity to flammable vegetation could potentially ignite a wildfire that could spread to surrounding land uses. Implementation of Mitigation Measure HAZ-4 would ensure

that wildfire impacts would be less than significant (Class II). During operations, routine vegetation clearing would be conducted periodically around the substation facility to reduce the potential for ignition and fire, and the facility would be surrounded by a concrete masonry wall (and approximately 30 feet of cleared area), and therefore, wildland fire impacts associated with operation of the substation facility are considered less than significant (Class III). To reduce the potential for fires attributed to arcing on the overhead transmission lines, overhead transmission ROWs would be cleared of trees in accordance with the requirements of CPUC General Order 95, Rules for Overhead Electric Line Construction (underground transmission line components would not represent a risk for wildland fire since they would be placed underground). Therefore, because transmission line structures and vegetation clearance procedures must meet the requirements of CPUC General Order 95 and because system protection features are included in higher voltage transmission lines, HAZ-6 impacts associated with the proposed transmission interconnections would be less than significant (Class III).

Comparison to the Proposed Project

Due to the Power Plant site's association with the SBPP and because hazardous materials used during construction and operation of this alternative would be similar to those used during construction and operation of the Proposed Project, Impacts HAZ-1 and HAZ-3 through HAZ-6 under the Power Plant Site – Air Insulated Substation Alternative would be similar to Impacts HAZ-1 and HAZ-3 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. The proximity of the Power Plant site to the SBPP could result in an increased potential for construction activities to encounter contaminated soils and/or groundwater (resulting from past releases or spills of hazardous materials at the SBPP); however, with implementation of mitigation, the potential for encountering previously unknown contamination (Impact HAZ-2) during construction activities would be reduced to less than significant (Class II). Since there is a higher likelihood to encounter contaminated soils and/or groundwater at this alternative site in comparison to the Proposed Project, potential impacts are anticipated to be greater for Impact HAZ-2.

D.8.4.4.2 Power Plant Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because construction activities associated with the substation facility, dismantling of the existing South Bay Substation, and transmission interconnection would occur in similar locations, and because construction schedules, equipment, vehicles, and hazardous materials used during construction and operational activities would be similar, HAZ-1 through HAZ-6 impacts would be similar to the impacts characterized in Section D.8.4.4.1 for the Power Plant Site – Air Insulated Substation Alternative. Although the Gas Insulated Substation Alternative would

include installation of substation transformers within buildings at the Power Plant site, retention basins would likely be constructed around buildings for spill containment purposes (to minimize the potential for soil and/or groundwater contamination); therefore, all plans, BMPs, and mitigation measures discussed in Section D.8.4.4.1 within the analysis for Impacts HAZ-3 and HAZ-5 for the Power Plant Site – Air Insulated Substation would also apply to the Power Plant Site – Gas Insulated Substation Alternative.

Comparison to the Proposed Project

Impacts HAZ-1 and HAZ-3 through HAZ-6 under the Power Plant Site – Gas Insulated Substation Alternative would be similar to Impacts HAZ-1 and HAZ-3 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. The proximity of the Power Plant site to the SBPP could result in an increased potential for construction activities to encounter contaminated soils and/or groundwater (resulting from past releases or spills of hazardous materials at the SBPP); however, with implementation of mitigation, the potential for encountering previously unknown contamination (Impact HAZ-2) during construction activities would be reduced to less than significant (Class II). Since there is a higher likelihood to encounter contaminated soils and/or groundwater at this alternative site in comparison to the Proposed Project, potential impacts are anticipated to be greater for Impact HAZ-2.

D.8.4.5 Broadway and Palomar Site Alternative

Environmental Setting

The 9-acre Broadway and Palomar site is an SDG&E transmission corridor located between Industrial Boulevard and Broadway, and south of Palomar Street. With the exception of transmission structures, the site is undeveloped; however, commercial uses are located to the north, and commercial and light industrial uses are located to the south. A Phase I ESA has not been conducted for the Broadway and Palomar site; however, based on a recent review of the ENVIROSTOR and GeoTracker online databases, there are no cases (open or closed) associated with the site (ENVIROSTOR 2011; GeoTracker 2011). In addition, no listed cases or RECs were identified at the Broadway and Palomar site in the Final EIR for the SDG&E Otay Mesa Power Purchase Agreement (OMPPA) Transmission Project.

Because the South Bay Substation dismantling component of this alternative would occur in similar locations as previously identified for the Proposed Project, the environmental setting for South Bay Substation dismantling under the Broadway and Palomar Site Alternative would be similar to the setting previously discussed in Section D.8.1 for the Proposed Project.

This alternative would require construction of approximately 2.9 miles of transmission corridors to provide connections to the SDG&E grid, which includes construction of 69 kV lines that would need to cross I-5 via horizontal directional drilling. This work would be in addition to the transmission interconnection work located in the vicinity of the existing South Bay Substation and would occur within the existing SDG&E transmission alignment and along Palomar Street. The ENVIROSTOR and GeoTracker online databases generally do not identify open (or closed) cases involving the release of hazardous materials within the existing SDG&E transmission easement or along Palomar Street between Bay Boulevard and Broadway; however, the presence of hazardous materials along the potential 2.9-mile alignment cannot be fully determined at this time.

The environmental setting for the Air Insulated Substation and Gas Insulated Substation Alternatives at the Broadway and Palomar site would be the same, and therefore, environmental setting is not further discussed in Sections D.8.4.5.1 and D.8.4.5.2.

D.8.4.5.1 Broadway and Palomar Site – Air Insulated Substation Alternative

The 9-acre Broadway and Palomar site is not physically large enough to accommodate the 10-acre Air Insulated Substation Alternative. As such, the Air Insulated Substation Alternative is not technically feasible at this site.

D.8.4.5.2 Broadway and Palomar Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Hazardous materials including but not limited to vehicle fuels, oils, and lubricants would be transported to the Broadway and Palomar site and used during construction (materials would also be temporarily stored on site). A list of hazardous materials typically used during construction was identified in Section D.8.3.3 for the Proposed Project (see Table D.8-2), and similar materials would be used during construction of this alternative. Routine transport and use of materials could result in accidental spills, and grading and excavation could expose soil and groundwater to hazardous contaminants (hazardous conditions could also result from leaking construction equipment). During construction, all spills at the Broadway and Palomar site occurring during construction of the new Gas Insulated Substation facility would be cleaned up and disposed of in accordance with federal, state, and local regulations as well as in accordance with SDG&E's *Water Quality Construction Best Management Practices Manual*. In addition, dismantling and removal activities at the South Bay Substation and construction activities at work areas associated with the transmission interconnections component of this alternative could result in accidental spills or leaks of oil and/or other environmental hazards that could result in the exposure of workers and the public to hazardous substances and/or contamination of soil and groundwater. To reduce impacts associated with routine transport, use, or disposal of hazardous

materials to less-than-significant levels, APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c would be implemented by SDG&E, and with implementation of these measures, HAZ-1 impacts would be less than significant (Class II).

The Broadway and Palomar site was not included in the hazardous material records review conducted for the Proposed Project, and based on a recent review of the ENVIROSTOR and GeoTracker online databases, there are no hazardous material release cases (open or closed) associated with the site (ENVIROSTOR 2011; GeoTracker 2011). In addition, no listed cases or RECs were identified at the Broadway and Palomar site in the Final EIR for the SDG&E OMPAA Transmission Project; however, the document did identify the site as an area of potential contamination. Because a Phase I ESA has not been conducted for the Broadway and Palomar site, and because a previous environmental document indicated the possible presence of hazardous conditions after a transmission project that traversed the site was conducted, the potential for soil and/or groundwater contamination is assumed. As mentioned previously, the South Bay Substation was not listed on any regulatory database indicating the presence of hazardous materials; however, several sites (including the SBPP) were located within a 1-mile radius of the existing substation facility, and a REC (TCE detected in groundwater) was identified as occurring upgradient of the site (the hazardous contaminants at the identified sites and the identified REC could potentially have migrated to the substation site, and construction work crews could encounter contaminated groundwater during excavation and grading). Accidental release of hazardous materials could also potentially occur during removal of oil-containing equipment from the substation. Construction work associated with transmission interconnections in the vicinity of the South Bay Substation could encounter previously unknown soil and/or groundwater contamination based on previous industrial operations occurring in the area and based on the prevalence of hazardous material releases in the area (as discussed in Section D.8.3 for the Proposed Project) Although the potential for construction crews to encounter contamination while working on additional connections to the SDG&E grid is low (as mentioned in Section D.4.8.5), spills of hazardous materials associated with transmission infrastructure maintenance activities could have potentially occurred (historic uses of the corridor may also have resulted in site contamination). To minimize potential construction-related impacts associated with encountering previously unknown soils and/or groundwater contamination during excavation and grading (Impact HAZ-2) at the Broadway and Palomar site and at work locations associated with transmission interconnections, SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. A Phase I ESA for the site should be conducted to identify any hazardous conditions occurring at the site or in the vicinity (the Phase I ESA shall be incorporated into Mitigation Measure HAZ-2 for this alternative). Therefore, with implementation of the identified APM and applicable mitigation measures, HAZ-2 impacts would be reduced to less than significant (Class II).

Three 230/69 kV transformers and four 69/12 kV transformers, containing a total of approximately 80,000 gallons of mineral oil, would be installed at the existing Broadway and Palomar Site – Gas Insulated Substation Alternative (for purposes of this analysis, the ultimate arrangement of the Gas Insulated Substation alternative (as opposed to the initial arrangement) discussed in Section C.5.1 of this EIR is assumed). Soil or groundwater contamination could potentially result from accidental spill or leakage of mineral oil at the substation transformers during facility operation; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, transformers would be installed within metallic buildings, and to further minimize the potential for leaks or spills to contaminate the soils and/or groundwater, SDG&E would construct oil retention basins around the buildings to ensure that future leaks or spills would be fully contained. SDG&E would also implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b to minimize the potential for accidental release of hazardous materials during operations, and with implementation of the SPCC, HMBP, the construction of transformer retention basins, and Mitigation Measures HAZ-1a, HAZ-3a, and HAZ-3b, impacts would be reduced to less than significant (Class II). Because Impact HAZ-3 is specific to substation operations, no HAZ-3 impacts associated with transmission interconnections would occur.

Because the construction of the Broadway and Palomar substation facility would occur within the site boundaries and would not obstruct traffic movement in the immediate area, construction activities are not anticipated to impact or physically interfere with an emergency response plan or access to the emergency evacuation routes designated by the City. Work associated with the transmission interconnections would include the removal of existing poles within the Bay Boulevard ROW (underground trenching in Bay Boulevard is not anticipated to be required; however, trenching along Broadway and Palomar may also be required to facilitate an interconnections with 69 kV lines located to the west. Although travel lanes on Broadway and Palomar may be closed during duct bank installation, vehicular access could be maintained, and traffic impacts resulting from construction of all project components would be minimized through implementation of a Traffic Control Plan (Mitigation Measure TRA-1; see Section D.16, Transportation and Traffic). Operation of the Broadway and Palomar Site – Gas Insulated Substation Alternative would not interfere with access to or affect any major transportation routes in the immediate area because these components would generate an extremely small volume of traffic in the project area (maintenance activities would occur several times a year and on an as-needed basis at the substation facility and transmission structures). Therefore, HAZ-4 impacts during construction would be less than significant (Class II) with implementation of Mitigation Measure TRA-1, and the potential for impacts during operations are considered less than significant (Class III).

As discussed in the Impact HAZ-3 analysis above, seven transformers with an aggregate storage capacity of 80,000 gallons of mineral oil would be installed under the ultimate arrangement of the Gas Insulated Substation Alternative at the Broadway and Palomar site. In addition to hazardous materials stored at the Gas Insulated Substation facility, vehicles and equipment used during maintenance activities would require the use of hazardous materials, including fuel, oil, and other lubricants. An accidental spill or leakage of mineral oil at the substation transformers or accident conditions involving maintenance vehicles and equipment could potentially occur during facility operations and maintenance; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, SDG&E would construct oil retention basins around transformers to ensure that future leaks or spills would be fully contained. Also, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b, and with implementation of the required SPCC and HMBP, installation of retention basins, and implementation of applicable mitigation measures, impacts would be reduced to less than significant (Class II). Also, spills of hazardous materials could occur during normal operation of or during maintenance activities along the proposed overhead transmission line corridors; therefore, to minimize the potential for impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b. With implementation of these measures, HAZ-5 impacts associated with operation and maintenance of the transmission interconnections would be less than significant (Class II).

Similar to the Proposed Project and all other alternatives analyzed, heat or sparks from construction equipment and vehicles could potentially ignite on-site vegetation and start a fire that could spread to surrounding land uses. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts during construction would be less than significant (Class II). During operations of the substation facility, vegetation clearing would be conducted periodically to reduce the risk of fire around the substation facility, and a concrete masonry wall and a cleared area would be installed around the facility. Therefore, with implementation of the vegetation clearing practices and design considerations, wildland fire impacts associated with operation of the substation facility are considered less than significant (Class III). Electrical arcing from power lines represents a potential fire hazard along the transmission interconnections alignment(s), and to reduce the potential for fires attributed to arcing, overhead transmission line ROWs would be cleared of trees in accordance with the requirements of CPUC General Order 95, Rules for Overhead Electric Line Construction (wildland fire impacts are not anticipated with the underground transmission line segments since these components would be placed underground). Therefore, because transmission line structures and vegetation clearance procedures must meet the requirements of CPUC General Order 95 and because system protection features would be incorporated on the higher voltage lines, HAZ-6 impacts associated with transmission interconnections would be less than significant (Class III).

Comparison to the Proposed Project

Impacts HAZ-1 through HAZ-6 under the Broadway and Palomar Site – Gas Insulated Substation Alternative would be similar to Impacts HAZ-1 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. Due to location and the lack of hazardous materials cases and industry land uses in the area, the Broadway and Palomar site could result in a reduced potential for construction activities to encounter contaminated soils and/or groundwater; however, the presence (or lack of) hazardous materials and conditions at the Broadway and Palomar site and at work areas associated with the additional 2.9 miles of transmission corridors required under this alternative is not well known (a records review has not been conducted for the site or transmission work areas as part of the Proposed Project); therefore, there is potential that construction activities could encounter previously unknown soil and/or groundwater contamination (Impact HAZ-2) during excavation and grading. Because mitigation similar to that implemented by the Proposed Project would be implemented to reduce the potential impacts to less than significant (Class II), HAZ-2 impacts under this alternative would be similar to the anticipated HAZ-2 impacts of the Proposed Project.

D.8.4.6 Goodrich South Campus Site Alternative

Environmental Setting

The 31-acre Goodrich South Campus site is located west of I-5 and east of the Chula Vista Marina, approximately 0.35 mile north of the existing South Bay Substation. The site is located northwest of the J Street/Bay Boulevard intersection and was previously used by Goodrich for industrial operations and associated parking needs. The Goodrich South Campus site and the H Street Yard site discussed in Section D.8.4.7 are listed and identified as the Goodrich Aerostructures – South Campus site on the ENVIROSTOR and GeoTracker databases. In addition, the sites are identified as a cleanup program site with the cleanup status listed as ongoing. According to the GeoTracker website, potential contaminants of concern from previous on-site operations include heavy metals, chromium, hydrocarbons, polychlorinated biphenyls (PCBs), fuels/oils, and VOCs, all of which may have affected both surface and groundwater resources (GeoTracker 2011). In addition, based on a review of the GeoTracker online database map for the project area, there are approximately 12 monitoring wells located on the Goodrich South Campus site, ostensibly to monitor ongoing soil excavation and disposal actions. The last recorded (and publically available) regulatory action for the site was a revised work plan for groundwater assessment that was submitted to and reviewed by the California Regional Water Quality Control Board (San Diego Region) in December 2010. Lastly, in the Final EIR for the SDG&E Silvergate Transmission Substation Property, the document states several investigations have been conducted for the BF Goodrich/Rohr property (the North and South campuses) that

disclose soil and groundwater have been contaminated by various chemicals including TCE and other chlorinated VOCs in the vicinity of the SDG&E transmission easement (CPUC 2006b).

Additional open and closed cleanup program listings occur north of the Goodrich South Campus site (generally north of H Street, south of G Street, and west of Marina Parkway), and the cases are associated with previous industrial operations conducted by Goodrich Aerostructures and Rohr Industries Incorporated. Remediation of these sites is active and ongoing. A discussion of these cases (cases are associated with operations of the Goodrich Aerostructures – North Campus) is provided in Section D.4.8.8.

Because the South Bay Substation dismantling component of this alternative would occur in the same location as previously identified for the Proposed Project, the environmental setting for South Bay Substation dismantling under the Goodrich South Campus Site alternative would be similar to the setting previously discussed in Section D.8.1 for the Proposed Project. This alternative would require construction of approximately 0.6 mile of transmission corridors to provide connections to the SDG&E grid, which includes construction of 69 kV lines that terminate at the existing South Bay Substation that would need to be extended north to the Goodrich South Campus Site Alternative. This work is assumed to occur primarily within the existing SDG&E transmission easement, and based on a review of the ENVIROSTOR and GeoTracker online databases, there are no open (or closed) cases involving the release of hazardous materials in the easement between the existing South Bay Substation and the Goodrich South Campus site. Therefore, additional environmental conditions beyond those identified in Section D.8.1 for the transmission interconnections are not anticipated.

The environmental setting for the Air Insulated Substation and Gas Insulated Substation Alternatives at the Goodrich South Campus site would be the same, and therefore, environmental setting is not further discussed in Sections D.8.4.6.1 and D.8.4.6.2.

D.8.4.6.1 Goodrich South Campus Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Hazardous materials including but not limited to vehicle fuels, oils, and lubricants (a list of typical materials used during construction is provided in Table D.8-2 for the Proposed Project; similar materials would be used during construction of this alternative) would be transported to and used at the Goodrich South Campus site during construction. When not in use, materials would be temporarily stored in SDG&E's transmission easement (the anticipated staging area for construction activities at the substation site). Spills or leaks could potentially occur during routine transport, and use of hazardous materials and during excavation and grading, soil and groundwater could be expose to hazardous contaminants. Hazardous conditions could also result

from improperly maintained construction equipment leaking fuels, oils, and/or other lubricants that could come into contact with the ground and result in soil contamination. Accidental spills of hazardous materials at the Goodrich South Campus site would be cleaned and disposed of in accordance with applicable federal, state, and local regulations (see Section D.8.2 for a discussion of federal, state, and local regulations relevant to hazardous materials) as well as with SDG&E's *Water Quality Construction Best Management Practices Manual*. Also, dismantling of the South Bay substation and construction activities at transmission interconnection work areas could result in accidental spills or leaks of fuels, oils, and/or other hazardous materials used during construction that could result in the exposure of workers and the public to hazardous substances. To minimize the potential for impacts associated with the routine transport, use, or disposal of hazardous materials, APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c would be implemented and would reduce HAZ-1 impacts to a less-than-significant (Class II) level.

By virtue of a 1-mile search radius deployed around the existing South Bay Substation, the Goodrich South Campus site was included in the hazardous material records review conducted for the Proposed Project. Although (as discussed previously in Section D.8.4.6) the site is included on the GeoTracker and ENVIROSTOR online databases, the site identified as "Rohr Aircraft" in the records review conducted for the Proposed Project is in fact located north of the Goodrich South Campus site (and north of H Street). Therefore, although the site was not specifically identified in the records review conducted for the Proposed Project, the site is listed on databases (i.e., GeoTracker and ENVIROSTOR), and past releases of hazardous materials at the site have occurred (according to site records obtained from the online GeoTracker database, remediation of the site is ongoing). Therefore, due to previous use of the site and past occurrences of hazardous materials incidents, construction activities could potentially encounter contaminated soil or groundwater during grading or excavation (for purposes of this analysis a fully remediated site is not considered an existing condition at the Goodrich South Campus site). Regarding the South Bay Substation site, the Phase I ESA conducted for the Proposed Project did not discover regulatory database listings for the existing substation facility, and orphan sites occurring in the vicinity were determined to pose a minimal risk to the substation site; however a REC was identified upgradient of the site (the source of the REC is attributable to a former auto junkyard located east of the property between Bay Boulevard and I-5), and soil and/or groundwater contamination could potentially occur during removal of oil-containing equipment from the site. Lastly, although the Phase I ESA did not identify hazardous material sites within the anticipated work areas for the transmission interconnections of the Proposed Project (in addition to new work areas associated with the extra 0.6 mile of transmission corridor that would be required under this alternative, similar work areas are assumed under this alternative), sites were identified as occurring within a 1-mile radius of the South Bay Substation that could have migrated to and impacted the SDG&E easement area. To minimize potential for construction-

related impacts associated with encountering previously unknown soil and/or groundwater contamination during subsurface activities (Impact HAZ-2), SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. With implementation of identified APM and mitigation measures, HAZ-2 impacts would be reduced to less than significant (Class II).

Similar to the proposed Bay Boulevard Substation, three 230/69 kV transformers and four 69/12 kV transformers containing an aggregate 80,000 gallons of mineral oil would be installed at the Goodrich South Campus site substation facility. During substation operations, soil or groundwater contamination could potentially occur during an accidental spill or leakage of oil from an improperly maintained transformer; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, which both include spill prevention and response measures, SDG&E would construct oil retention basins around each transformer to ensure that future leaks or spills would be fully contained. Retention basins and spill prevention and containment measures would be vital at this alternative site because a waterway bisects the site and conveys water to San Diego Bay (releases of hazardous materials that could enter the waterway and eventually discharge into San Diego Bay would be a significant impact). In addition to required plans and the construction of retention basins, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b to further minimize the potential for accidental release of hazardous materials during operations. Therefore, with implementation of Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b, as well implementation of the site-specific SPCC Plan and HMBP, and construction of transformer retention basins, HAZ-3 impacts would be reduced to less than significant (Class II). No operational impacts would occur at the existing South Bay Substation since the facility would be dismantled, and no operational activities would occur. Impact HAZ-3 is specific to substation operations, and therefore, transmission interconnections are not considered in the Impact HAZ-3 analysis.

Construction activities are not anticipated to impact or physically interfere with an emergency response plan or access to the emergency evacuation routes designated by the City. Construction of the new substation facility would occur within the identified boundaries of the Goodrich South Campus site, and dismantling of the South Bay Substation would occur within the existing substation boundary. On-site construction activities associated with these facilities are not anticipated to interfere with access to or movement through the immediate area. Work associated with the transmission interconnections include pole locations within the Bay Boulevard ROW (underground trenching in Marina Parkway, which could require the closure of travel lanes, may also be required to facilitate an underground connection between transmission structures in the SDG&E transmission easement southeast of the site and the new substation facility), and the closure of travel lanes on Marina Parkway could result in traffic delays and/or access restrictions

in the immediate area. Although travel lanes may be closed during trenching and duct bank installation, vehicular access on east and westbound Marina Parkway would be maintained through implementation of a traffic control plan (Mitigation Measure TRA-1), and traffic impacts resulting from construction of the new substation facility and dismantling activities at the existing South Bay Substation would also be minimized through implementation of the traffic control plan. Operation activities associated with the new substation facility and newly installed (and replaced) transmission infrastructure would not interfere with access to or affect any major transportation routes in the immediate area because these components would generate limited (and sporadic) traffic in the project area. Therefore, HAZ-4 impacts during construction would be less than significant (Class II) with implementation of Mitigation Measure TRA-1, and the potential for impacts during operations are considered less than significant (Class III).

Seven transformers (three 230/69 kV transformers and four 69/12 kV transformers) with an aggregate storage capacity of 80,000 gallons of mineral oil would be installed at the Goodrich South Campus site substation facility, and maintenance activities would require the use of hazardous materials including fuels, oils, and lubricants. An accidental spill or leakage of mineral oil at the substation transformers or accident conditions involving maintenance vehicles and equipment could potentially occur during facility operations; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, oil retention basins would be constructed around transformers, and to further reduce the potential for accidental spills and/or leaks and resulting soil and/or groundwater contamination, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b. Therefore, with implementation of the required SPCC and HMBP, installation of retention basins and implementation of applicable mitigation measures, impacts would be reduced to less than significant (Class II). Because the South Bay Substation will be dismantled, no operational activities would occur at the facility; therefore, no HAZ-5 impacts would occur. Lastly, spills of hazardous materials could occur during normal operation of or during maintenance activities associated with the various transmission interconnection components, and to minimize the potential for impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b. With implementation of these measures, HAZ-5 impacts associated with operation and maintenance of the transmission interconnections would be less than significant (Class II).

Similar to the Proposed Project and all other alternatives analyzed, heat or sparks from construction equipment and vehicles could potentially ignite vegetation at or near the Goodrich South Campus site and start a fire that could spread to surrounding land uses. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts during construction would be less than significant (Class II). During operations of the substation facility, vegetation clearing would be conducted periodically to reduce the risk of fire, and a concrete masonry wall and a cleared area would be installed around the facility (the cleared area would reduce the fuel load near the

substation facility). Therefore, with implementation of the vegetation clearing practices and design components (i.e., the concrete masonry wall and cleared area), wildland fire impacts associated with operation of the substation facility are considered less than significant (Class III). Electrical arcing from power lines represents a potential fire hazard along the transmission interconnection alignments if the lines were to come into contact with vegetation or other flammable materials; however, overhead transmission line ROWs would be cleared of trees in accordance with the requirements of CPUC General Order 95, Rules for Overhead Electric Line Construction. Therefore, because transmission line structures and vegetation clearance procedures must meet the requirements of CPUC General Order 95 and because system protection features would be incorporated on the higher voltage lines, HAZ-6 impacts associated with transmission interconnections would be less than significant (Class III).

Comparison to the Proposed Project

Impacts HAZ-1 and HAZ-3 through HAZ-6 under the Goodrich South Campus Site – Air Insulated Substation Alternative would be similar to Impacts HAZ-1 and HAZ-3 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. Due to the level of contamination and ongoing remediation activities occurring at the Goodrich South Campus Site, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater when compared to the proposed Bay Boulevard Substation (as stated in Section D.8.3.3, no RECs were identified at the proposed Bay Boulevard site, and the site itself was not listed on any regulatory databases). This alternative would be required to implement the same APMs and mitigation measures as would be implemented by the Proposed Project to ensure that construction impacts (specifically, HAZ-2 impacts) are reduced to less-than-significant (Class II) levels; however, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater under this alternative than under the Proposed Project.

D.8.4.6.2 Goodrich South Campus Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because construction activities associated with the substation facility, dismantling of the existing South Bay Substation, and transmission interconnection would occur in similar locations, and because construction schedules, equipment, vehicles, and hazardous materials used during construction and operational activities would be similar, HAZ-1 through HAZ-6 impacts would be similar to the impacts characterized in Section D.8.4.6.1 for the Goodrich South Campus Site – Air Insulated Substation Alternative. Although the Gas Insulated Substation Alternative would include installation of substation transformers within buildings at the Goodrich South Campus site, retention basins would likely be constructed around buildings for spill containment purposes

(to minimize the potential for soil and/or groundwater contamination);therefore, all plans, BMPs, and mitigation measures discussed in Section D.8.4.6.1 within the analysis for Impacts HAZ-3 and HAZ-5 for the Goodrich South Campus Site – Air Insulated Substation would also apply to the Goodrich South Campus Site – Gas Insulated Substation Alternative.

Comparison to the Proposed Project

Impacts HAZ-1 and HAZ-3 through HAZ-6 under the Goodrich South Campus Site – Gas Insulated Substation Alternative would be similar to Impacts HAZ-1 and HAZ-3 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. Due to the level of contamination and ongoing remediation activities occurring at the Goodrich South Campus site, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater when compared to the proposed Bay Boulevard Substation. This alternative would be required to implement the same APMs and mitigation measures as would be implemented by the Proposed Project to ensure that HAZ-2 impacts are reduced to less-than-significant (Class II) levels; however, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater under this alternative than under the Proposed Project as identified in Section D.8.3.3.

D.8.4.7 H Street Yard Site Alternative

Environmental Setting

This alternative consists of a 47-acre site that is located approximately 0.8 mile north of the existing South Bay Substation. The site is located southwest of the H Street/Bay Boulevard intersection. The site consists of a linear configuration that is east of an SDG&E ROW within an area previously utilized as a parking lot for Goodrich employees.

As stated in Section D.8.4.6, the H Street Yard site and the Goodrich South Campus site are collectively referred to and identified as the Goodrich Aerostructures – South Campus site on ENVIROSTOR and GeoTracker databases (the existing setting applicable to the site is discussed in Section D.8.4.6), and according to the Final EIR for the Silvergate Substation Transmission Project, several investigations have been conducted that corroborate the presence of hazardous materials (i.e., TCEs and chlorinated VOCs) in on-site soils and groundwater underlying the site (CPUC 2006b). Also, according to the GeoTracker online database map, there are approximately 28 monitoring wells located on the H Street Yard site to monitor ongoing soil excavation and disposal actions. Lastly, in addition to the active cleanup program identified for the Goodrich Aerostructures – South Campus site, a closed (as of June 1998) LUST cleanup site is also identified on site. The closed LUST case was associated with previous Rohr Industries

Incorporated operations (potential contaminants of concern include motor, hydraulic, and lubricating oils) (GeoTracker 2011).

Because the South Bay Substation dismantling component of this alternative would occur in similar locations as previously identified for the Proposed Project, the environmental setting for South Bay Substation dismantling under the H Street Yard alternative would be similar to the setting previously discussed in Section D.8.1 for the Proposed Project. This alternative would require construction of approximately 0.8 mile of transmission corridors to provide connections to the SDG&E grid, which includes construction of 69 kV lines that terminate at the existing South Bay Substation and that would need to be extended north to the H Street Yard Alternative Site. This work is assumed to occur primarily within the existing SDG&E transmission easement, and based on a review of the ENVIROSTOR and GeoTracker online databases, there are no open (or closed) cases involving the release of hazardous materials in the easement between the existing South Bay Substation and the H Street Yard site.

The environmental setting for the Air Insulated Substation and Gas Insulated Substation Alternatives at the H Street Yard site would be the same, and therefore, environmental setting is not further discussed in Sections D.8.4.7.1 and D.8.4.7.2.

D.8.4.7.1 H Street Yard Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Hazardous materials including but not limited to vehicle fuels, oils, and lubricants (see Table D.8-2 for a detailed list of materials that could be used during construction of this alternative) would be used during construction at the H Street Yard site, and materials would be temporarily stored in SDG&E's transmission easement. During routine transport and use of hazardous materials, spills or leaks (from vehicles and equipment) could potentially occur, and during excavation and grading, soil and groundwater could be exposed to hazardous contaminants. Hazardous conditions could also result from improperly maintained construction equipment leaking fuels, oils, and/or other lubricants that could come into contact with the ground and result in soil contamination. Accidental spills or leaks of hazardous materials at the H Street Yard site would be cleaned and disposed of in accordance with applicable federal, state, and local regulations (see Section D.8.2 for a discussion of federal, state, and local regulations relevant to hazardous materials) as well as with SDG&E's *Water Quality Construction Best Management Practices Manual*. Also, dismantling of the South Bay Substation and construction activities at transmission interconnection work areas could result in accidental spills or leaks of fuels, oils, and/or other hazardous materials used during construction, which could result in the exposure of workers and the public to hazardous substances. To minimize the potential for impacts associated with the routine transport, use, or disposal of hazardous materials during construction of the H

Street Yard Site – Air Insulated Substation Alternative, APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c would be implemented and would reduce HAZ-1 impacts to a less-than-significant (Class II) level.

By virtue of a 1-mile search radius deployed around the existing South Bay Substation, the H Street Yard site was included in the hazardous materials records review conducted for the Proposed Project. Although the site was not identified in the records review, the site is included on GeoTracker and ENVIROSTOR online databases (refer to the environmental setting discussion in Section D.8.4.7 for a summary of the nature and extent of contamination at the H Street Yard site), and remediation of past releases of hazardous materials is ongoing (GeoTracker 2011). Therefore, due to the previous use of the site and recorded occurrences of hazardous material releases (as well as the need for remediation of the site), construction activities could potentially encounter contaminated soil or groundwater during grading or excavation (for purposes of this analysis a fully remediated site is not considered an existing condition at the H Street Yard site). In regard to the remaining components of this alternative, the Phase I ESA conducted for the Proposed Project did not discover regulatory database listings for the South Bay Substation, and orphan sites occurring in the vicinity were determined to pose a minimal risk to the substation site; however, a REC was identified upgradient of the site (the source of the REC is attributable to a former auto junkyard located east of the property between Bay Boulevard and I-5), and soil and/or groundwater contamination could potentially occur during the removal of oil-containing equipment from the site. Similarly, the Phase I ESA conducted for the Proposed Project did not identify hazardous material sites within the anticipated work areas for the transmission interconnections of the Proposed Project (in addition to new work areas associated with the extra 0.8 mile of transmission corridor that would be required under this alternative, similar work areas identified for the Proposed Project are assumed under this alternative); however, sites were identified as occurring within a 1-mile radius of the South Bay Substation that could hypothetically have migrated to and impacted the SDG&E easement area. To minimize potential for construction-related impacts associated with encountering previously unknown soil and/or groundwater contamination during subsurface activities (Impact HAZ-2), SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. With implementation of identified APM and mitigation measures, HAZ-2 impacts would be reduced to less than significant (Class II).

Similar to the proposed Bay Boulevard Substation and all other Air Insulated Substation alternatives considered, seven transformers (three 230/69 kV transformers and four 69/12 kV transformers) containing an aggregate 80,000 gallons of mineral oil would be installed at the H Street Yard site substation facility. Soil or groundwater contamination could potentially occur during an accidental spill or leakage of oil from an improperly maintained transformer during substation operations; however, in addition to federal and state regulations that require preparation

of a site-specific SPCC Plan and HMBP, which both include spill prevention and response measures, SDG&E would construct oil retention basins around each transformer to ensure that future leaks or spills would be fully contained. Similar to the Goodrich South Campus site, retention basins and spill prevention and containment measures would be vital at this alternative site because a waterway located in the southwest corner of the site collects water from the area and conveys it to San Diego Bay (releases of hazardous materials that could enter the waterway and eventually discharge into San Diego Bay would be a significant impact). In addition to required plans and the construction of retention basins, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b to further minimize the potential for accidental release of hazardous materials during operations. Therefore, with implementation of Mitigation Measures HAZ-1c, HAZ-3a and HAZ-3b, as well implementation of the site-specific SPCC and HMBP, and construction of transformer retention basins, HAZ-3 impacts would be reduced to less than significant (Class II). No operational impacts would occur at the existing South Bay Substation since the facility would be dismantled, and no operational activities would occur. Impact HAZ-3 is specific to substation operations, and therefore, transmission interconnections are not considered in the Impact HAZ-3 analysis.

Construction of the new substation facility would occur within the identified boundaries of the H Street Yard site, and dismantling of the South Bay Substation would occur within the existing substation boundary; therefore, on-site construction activities are not anticipated to interfere with access to or movement through the immediate area that might impact or physically interfere with an emergency response plan or emergency evacuation routes. Work associated with transmission interconnections includes removal of existing transmission structures within the Bay Boulevard ROW (underground trenching in Bay Boulevard is not anticipated to be required under this alternative but may be required on the eastern portion of the H Street Yard site to facilitate an underground connection between transmission structures in the SDG&E transmission easement and the new substation facility); however, the closure of travel lanes on Bay Boulevard is not anticipated. Construction activities would, however, increase traffic levels in the immediate area, which could result in delays or access restrictions to surrounding businesses; therefore, Mitigation Measure TRA-1 (traffic control plan) would be implemented to reduce the potential impact to less than significant (Class II). Operational activities associated with the new substation facility and newly installed (and replaced) transmission infrastructure would not interfere with access to or affect any major transportation routes in the immediate area because these components would generate limited (and sporadic) traffic in the project area. Therefore, HAZ-4 impacts during construction would be less than significant (Class II) with implementation of Mitigation Measure TRA-1, and the potential for impacts during operations are considered less than significant (Class III).

Seven transformers (three 230/69 kV transformers and four 69/12 kV transformers) with an aggregate storage capacity of 80,000 gallons of mineral oil would be installed at the H Street Yard site substation facility, and maintenance activities would require the use of hazardous materials including fuels, oils, and lubricants. An accidental spill or leakage of mineral oil at the substation transformers or accident conditions involving maintenance vehicles and equipment could potentially occur during facility operations; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, oil retention basins would be constructed around transformers, and SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b to further reduce the potential for accidental spills and/or leaks. Therefore, with implementation of the required SPCC and HMBP, installation of retention basins and implementation of applicable mitigation measures, impacts would be reduced to less than significant (Class II). Once dismantled no operational activities would occur at the South Bay Substation, and therefore, no HAZ-5 impacts would occur. Lastly, spills of hazardous materials could occur during normal operation of or during maintenance activities associated with the various transmission interconnection components, and to minimize the potential for impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b. With implementation of these measures, HAZ-5 impacts associated with operation and maintenance of the transmission interconnections would be less than significant (Class II).

Similar to the Proposed Project and all other alternatives analyzed, heat or sparks from construction equipment and vehicles could potentially ignite vegetation at or near the H Street Yard site and start a fire that could spread to surrounding land uses. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts during construction would be less than significant (Class II). During operations of the substation facility, vegetation clearing would be conducted periodically to reduce the risk of fire, and a concrete masonry wall and a cleared area would be installed around the facility (the cleared area would reduce the fuel load near the substation facility). Therefore, with implementation of the practices and design consideration described previously, wildland fire impacts associated with operation of the substation facility are anticipated to be less than significant (Class III). Electrical arcing from power lines represents a potential fire hazard along the transmission interconnections alignments if the lines were to come into contact with vegetation or other flammable materials; however, overhead transmission line ROWs would be cleared of trees in accordance with the requirements of CPUC General Order 95, Rules for Overhead Electric Line Construction. Therefore, because transmission line structures and vegetation clearance procedures must meet the requirements of CPUC General Order 95 and because system protection features would be incorporated on the higher voltage lines, HAZ-6 impacts associated with transmission interconnections would be less than significant (Class III).

Comparison to the Proposed Project

Impacts HAZ-1 and HAZ-3 through HAZ-6 under the H Street Yard Site – Air Insulated Substation Alternative would be similar to Impacts HAZ-1 and HAZ-3 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. Due to the level of contamination and ongoing remediation activities occurring at the H Street Yard site, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater when compared to the proposed Bay Boulevard Substation (as stated in Section D.8.3.3, no RECs were identified at the proposed Bay Boulevard site, and the site itself was not listed on any regulatory databases). This alternative would be required to implement the same APMs and mitigation measures as would be implemented by the Proposed Project to ensure that construction impacts (specifically, HAZ-2 impacts) are reduced to less-than-significant (Class II) levels; however, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater under this alternative than under the Proposed Project as identified in Section D.8.3.3.

D.8.4.7.2 H Street Yard Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because of construction activities associated with the substation facility, dismantling of the existing South Bay Substation and transmission interconnection would occur in similar locations, and because construction schedules, equipment, vehicles, and hazardous materials used during construction and operational activities would be similar, HAZ-1 through HAZ-6 impacts would be similar to the impacts characterized in Section D.8.4.4.1 for the H Street Yard Site – Air Insulated Substation Alternative. Although the Gas Insulated Substation Alternative would include the installation of substation transformers within buildings at the H Street Yard site, retention basins would likely be constructed around buildings for spill containment purposes (to minimize the potential for soil and/or groundwater contamination), and therefore, all plans, BMPs, and mitigation measures discussed in Section D.8.4.4.1 within the analysis for Impacts HAZ-3 and HAZ-5 for the H Street Yard Site – Air Insulated Substation would also apply to the H Street Yard Site – Gas Insulated Substation Alternative.

Comparison to the Proposed Project

Impacts HAZ-1 and HAZ-3 through HAZ-6 under the Goodrich South Campus Site – Gas Insulated Substation Alternative would be similar to Impacts HAZ-1 and HAZ-3 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. Due to the level of contamination and ongoing remediation activities occurring at the H Street Yard Site, the potential for construction activities to encounter contaminated soils and/or groundwater during

grading and excavation would be greater when compared to the proposed Bay Boulevard Substation. This alternative would be required to implement the same APMs and mitigation measures as would be implemented by the Proposed Project to ensure that HAZ-2 impacts are reduced to less-than-significant (Class II) levels; however, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater under this alternative than under the Proposed Project as identified in Section D.8.3.3.

D.8.4.8 Bayside Site Alternative

Environmental Setting

The 38-acre Bayside site is located west of I-5, east of Bayside Park, and approximately 0.8 mile north of the existing South Bay Substation. Sandpiper Way traverses the site and separates the previously developed eastern portion of the site from the disturbed yet undeveloped western portion of the site adjacent to Bayside Park. The easternmost portion of the site is entirely paved and includes several concrete pads that supported previous on-site industrial uses. The area west of Sandpiper Way consists of two disturbed yet undeveloped lots (the lots are separated by Quay Way).

No open or closed cases indicating the releases of hazardous materials are identified at the Bayside site on ENVIROSTOR or GeoTracker online databases. Both databases, however, contain both open and closed cleanup program site and LUST case site records for an adjacent parcel to the east (referred to by the GeoTracker database as the Goodrich Aerostructures – North Campus Site), which may pose a risk to the Bayside site due to proximity. Environmental records indicate that there are four open and active cleanup programs occurring on the adjacent North Campus site (chief contaminants of concern at the site include chlorinated hydrocarbons, other petroleum, solvents and/or non-petroleum hydrocarbons, oils, and TCEs that may have affected soil and groundwater), a closed gasoline LUST cleanup site (closed as of August 2002), and two cleanup program sites (closed as of 1991 and 1993, respectively). Both cleanup sites involved leaks (contaminants of concern were not specified in the GeoTracker records) that may have affected groundwater resources. Lastly, two monitoring wells are located on the Bayside site (immediately north of Sandpiper Way and west of Marina Parkway) and were installed to monitor the effectiveness of remediation actions employed at the Goodrich Aerostructures – South Campus Site (remediation efforts are ongoing as of December 27, 2011) (GeoTracker 2011).

Because the South Bay Substation dismantling component of this alternative would occur in similar locations as previously identified for the Proposed Project, the environmental setting for South Bay Substation dismantling under the Bayside Site alternative would be similar to the setting previously discussed in Section D.8.1 for the Proposed Project. This alternate site would require construction of approximately 1.5 miles of transmission corridors to provide connections

to the SDG&E grid, which includes construction of 69 kV lines that terminate at the existing South Bay Substation and that would need to be extended north to the Bayside site. In addition, approximately 0.3 mile of 230 kV conductor will need to be constructed from the existing 230 kV corridor located east of the Bayside Site Alternative. This work is assumed to occur primarily within the existing SDG&E transmission easement, and based on a review of the ENVIROSTOR and GeoTracker online databases, there are no open (or closed) cases involving the release of hazardous materials in the easement between the existing South Bay Substation and H Street. An open remediation cleanup program site is, however, located within the easement at H Street, and approximately four monitoring wells are located to the west within a paved road located between the easement and the eastern boundary of the Bayside site.

The environmental setting for the Air Insulated Substation and Gas Insulated Substation Alternatives at the Bayside site would be the same, and therefore, environmental setting is not further discussed in Sections D.8.4.8.1 and D.8.4.8.2.

D.8.4.8.1 Bayside Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Vehicle fuels, oils, lubricants, and other hazardous materials (see Table D.8-2 for a detailed list of materials that could be used during construction of this alternative) would be used during construction activities at the Bayside site, and materials would be temporarily stored in SDG&E's transmission easement (or on site) during construction. During routine transport and use of hazardous materials during construction, spills or leaks (from vehicles and equipment) could potentially occur, and excavation and grading could expose soil and groundwater to hazardous contaminants. Accidental spills or leaks of hazardous construction materials used at the Bayside site would be cleaned and disposed of in accordance with applicable federal, state, and local regulations (see Section D.8.2 for discussion of federal, state, and local regulations relevant to hazardous materials) as well as in accordance with SDG&E's *Water Quality Construction Best Management Practices Manual*. Also, dismantling of the South Bay substation and construction activities at transmission interconnection work areas could result in accidental spills or leaks of fuels, oils, and/or other hazardous materials used during construction, which could result in the exposure of workers and the public to hazardous substances. To minimize the potential for impacts associated with the routine transport, use, or disposal of hazardous materials during construction activities associated with the Bayside Site – Air Insulated Substation Alternative, APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, and HAZ-1c would be implemented and would reduce HAZ-1 impacts to a less-than-significant (Class II) level.

As mentioned in Section D.8.4.8, no open or closed cases indicating the releases of hazardous materials are identified at the Bayside site on the ENVIROSTOR and GeoTracker online

databases; however, both databases identify open and closed cleanup program sites and LUST case site records at the adjacent parcel to the east (referred to by the GeoTracker database as the Goodrich Aerostructures – North Campus Site) that may result in the migration of contaminants to the Bayside site. Due to the prevalence of contamination at adjacent parcels to the east and southeast, the potential for contamination of soils and/or groundwater underlying the Bayside site must be considered and is substantiated by the presence of two on-site monitoring wells (located immediately north of Sandpiper Way and west of Marina Parkway). Therefore, due to surrounding industrial uses in the area that have a record of hazardous material releases and due to ongoing remediation of hazardous conditions on adjacent parcels, there is potential for construction activities at the Bayside site to encounter contaminated soil or groundwater during grading or excavation. In regard to the remaining components of this alternative, the Phase I ESA conducted for the Proposed Project did not discover regulatory database listings for the South Bay Substation, and orphan sites occurring in the vicinity were determined to pose a minimal risk to the substation site; however, a REC was identified upgradient of the site, and soil and/or groundwater contamination could potentially occur during the removal of oil-containing equipment from the site. Similarly, the Phase I ESA conducted for the Proposed Project did not identify hazardous material sites within the anticipated work areas for the transmission interconnections of the Proposed Project (in addition to new work areas associated with the extra 2.9 miles of transmission corridor that would be required under this alternative, similar work areas identified for the Proposed Project are assumed under this alternative); however, sites were identified as occurring within a 1-mile radius of the South Bay Substation that could hypothetically have migrated to and impacted the SDG&E easement area. In addition, the intensity of hazardous materials release occurrences associated with past industrial operations on the adjacent parcel to the east (the GeoTracker online database identifies this site as both Rohr Industries Incorporated and Goodrich Aerostructures – North Campus Site) suggests that on-site contamination may have potentially migrated to the SDG&E transmission easement area. To minimize the potential for construction-related impacts associated with encountering previously unknown soil and/or groundwater contamination during subsurface activities (Impact HAZ-2), SDG&E would implement APM-HAZ-01 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, and HAZ-2. With implementation of identified APM and mitigation measures, HAZ-2 impacts would be reduced to less than significant (Class II).

Similar to the proposed Bay Boulevard Substation and all other Air Insulated Substation alternatives considered, seven transformers (three 230/69 kV transformers and four 69/12 kV transformers) containing an aggregate 80,000 gallons of mineral oil would be installed at the Bayside site substation facility. Soil or groundwater contamination could potentially occur during an accidental spill or leakage of oil from an improperly maintained transformer during substation operations; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, which both include spill prevention and

response measures, SDG&E would construct oil retention basins around each transformer to ensure that future leaks or spills would be fully contained. In addition to required plans and the construction of retention basins, SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b to further minimize the potential for accidental release of hazardous materials during operations. Therefore, with implementation of Mitigation Measures HAZ-1c, HAZ-3a and HAZ-3b, as well implementation of the site-specific SPCC and HMBP, and construction of transformer retention basins, HAZ-3 impacts would be reduced to less than significant (Class II). No operational impacts would occur at the existing South Bay Substation since the facility would be dismantled, and no operational activities would occur. Impact HAZ-3 is specific to substation operations, and therefore, transmission interconnections are not considered in the Impact HAZ-3 analysis.

Construction of the new substation facility would occur within the identified boundaries of Bayside site, and dismantling of the South Bay Substation would occur within the existing substation boundary; therefore, on-site construction activities are not anticipated to interfere with access to or movement through the immediate area that might impact or physically interfere with an emergency response plan or emergency evacuation routes. Work associated with transmission interconnections includes removal of existing transmission structures within the Bay Boulevard ROW (underground trenching in Bay Boulevard is not anticipated to be required under this alternative but may be required on the eastern portion of the Bayside site (or within H Street east of the transmission corridor) to facilitate an underground connection between transmission structures in the SDG&E transmission easement and the new substation facility); however, the closure of travel lanes on Bay Boulevard is not anticipated (H Street is closed/fenced east of the SDG&E transmission easement, and therefore, vehicular movement would not be affected by construction activities if they were to occur there). Construction activities would, however, increase traffic levels in the immediate area, which could result in delays or access restrictions to surrounding business; therefore, Mitigation Measure TRA-1 (Traffic Control Plan) would be implemented to reduce the potential impact to less than significant (Class II). Operational activities associated with the new substation facility and newly installed (and replaced) transmission infrastructure would not interfere with access to or affect any major transportation routes in the immediate area because these components would generate limited (and sporadic) traffic in the project area. Therefore, HAZ-4 impacts during construction would be less than significant (Class II) with implementation of Mitigation Measure TRA-1, and the potential for impacts during operations are considered less than significant (Class III).

Seven transformers (three 230/69 kV transformers and four 69/12 kV transformers) with an aggregate storage capacity of 80,000 gallons of mineral oil would be installed at the Bayside site substation facility, and maintenance activities would require the use of hazardous materials including fuels, oils, and lubricants. An accidental spill or leakage of hazardous materials could

potentially occur during facility operations; however, in addition to federal and state regulations that require preparation of a site-specific SPCC Plan and HMBP, oil retention basins would be constructed around transformers, and SDG&E would implement Mitigation Measures HAZ-1c, HAZ-3a, and HAZ-3b to further reduce the potential for accidental spills and/or leaks. Therefore, with implementation of the required SPCC and HMBP, installation of retention basins and implementation of applicable mitigation measures, impacts would be reduced to less than significant (Class II). Because the South Bay Substation would be dismantled, no operational activities would occur at the facility, and therefore, no HAZ-5 impacts would occur. Lastly, spills of hazardous materials could occur during normal operation of or during maintenance activities associated with the various transmission interconnection components, and to minimize the potential for impacts, SDG&E would implement APM-HAZ-01 and Mitigation Measure HAZ-1b. With implementation of these measures, HAZ-5 impacts associated with operation and maintenance of the transmission interconnections would be less than significant (Class II).

Although the alternative is not located in a wildlands area, heat or sparks from construction equipment and vehicles could potentially ignite vegetation at or near the Bayside site and start a fire that could spread to surrounding land uses. Implementation of Mitigation Measure HAZ-4 would ensure that wildfire impacts during construction would be less than significant (Class II). During operations of the substation facility, vegetation clearing would be conducted periodically to reduce the risk of fire, and a concrete masonry wall and a cleared area would be installed around the facility to reduce potential fuel load. Therefore, with implementation of the practices and design considerations described previously, wildland fire impacts associated with operation of the substation facility would be less than significant (Class III). Electrical arcing from power lines represents a potential fire hazard if the lines were to come into contact with vegetation or other flammable materials; however, overhead transmission line ROWs would be cleared of trees in accordance with the requirements of CPUC General Order 95, Rules for Overhead Electric Line Construction. Therefore, because transmission line structures and vegetation clearance procedures must meet the requirements of CPUC General Order 95 and because system protection features would be incorporated on the higher voltage lines, HAZ-6 impacts associated with transmission interconnections would be less than significant (Class III).

Comparison to the Proposed Project

Impacts HAZ-1 and HAZ-3 through HAZ-6 under the Bayside Site – Air Insulated Substation Alternative would be similar to Impacts HAZ-1 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. Due to the fact that several sites in the immediate vicinity are identified on regulatory databases and remediation efforts at some sites are ongoing, contamination in the immediate area may have migrated from the release point to the Bayside site and resulted in soil and/or groundwater contamination at the site. This alternative would be

required to implement the same APMs and mitigation measures as would be implemented by the Proposed Project to ensure that construction impacts (specifically, HAZ-2 impacts) are reduced to less-than-significant (Class II) levels; however, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater under this alternative than under the Proposed Project.

D.8.4.8.2 Bayside Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because construction activities associated with the substation facility, dismantling of the existing South Bay Substation, and transmission interconnection would occur in similar locations, and because construction schedules, equipment, vehicles, and hazardous materials used during construction and operational activities would be similar, HAZ-1 through HAZ-6 impacts would be similar to the impacts characterized in Section D.8.4.4.1 for the Bayside Site – Air Insulated Substation Alternative. Although the Gas Insulated Substation alternative would include the installation of substation transformers within buildings at the Bayside site, retention basins would likely be constructed around buildings for spill containment purposes (to minimize the potential for soil and/or groundwater contamination); therefore, all plans, BMPs, and mitigation measures discussed in Section D.8.4.4.1 within the analysis for Impacts HAZ-3 and HAZ-5 for the Bayside Site – Air Insulated Substation would also apply to the Bayside Site – Gas Insulated Substation Alternative.

Comparison to the Proposed Project

Impacts HAZ-1 and HAZ-3 through HAZ-6 under the Bayside Site – Gas Insulated Substation Alternative would be similar to Impacts HAZ-1 and HAZ-3 through HAZ-6 as discussed in Section D.8.3 for all components of the Proposed Project. Similar to the proposed Bay Boulevard Substation site, the Bayside site is not identified on any regulatory databases that would indicate known presence of hazardous materials (or past occurrences involving the release of hazardous materials); however, several sites in the immediate vicinity are identified on regulatory databases, and remediation efforts at some sites are ongoing. Therefore, known occurrences of contamination in the immediate area may have migrated from the release point to the Bayside site and resulted in soil and/or groundwater contamination at the site. This alternative would be required to implement the same APMs and mitigation measures as would be implemented by the Proposed Project to ensure that construction impacts (specifically, HAZ-2 impacts) are reduced to less-than-significant (Class II) levels; however, the potential for construction activities to encounter contaminated soils and/or groundwater during grading and excavation would be greater under this alternative than under the Proposed Project.

D.8.4.9 Environmental Impacts of the No Project Alternative

Under the No Project Alternative, none of the facilities associated with the Proposed Project would be constructed, and therefore, none of the impacts in this section would occur. The Bay Boulevard Substation would not be built, thereby requiring the existing South Bay Substation to remain in operation with the currently installed equipment. Under the No Project Alternative SDG&E may be required to develop additional transmission upgrades as described in Section C.7 of this EIR which would generate potential short-term construction-related impacts to public health and safety. However; it is anticipated that overall impacts to public health and safety would be reduced due to the elimination of demolition activities associated with the South Bay Substation, construction of the Bay Boulevard Substation, and construction of the transmission interconnections.

D.8.5 Electric and Magnetic Fields

Recognizing that there is a great deal of public interest and concern regarding potential health effects from exposure to electromagnetic fields (EMFs) from power lines, this EIR provides information regarding EMFs associated with electric utility facilities. The EIR does not consider EMFs in the context of CEQA for determination of environmental impact because there is no agreement among scientists that EMFs create a health risk and because there are no defined or adopted CEQA standards for defining health risks from EMFs. As a result, the following EMF information, as provided in the Detailed Magnetic Field Management Plan (Bennett 2010), is presented for the benefit of the public and decision makers.

D.8.5.1 Defining EMFs

Electric fields and magnetic fields are distinct phenomena that occur both naturally and as a result of human activity across a broad spectrum. Naturally occurring electric and magnetic fields are caused by atmospheric conditions and earth's geomagnetic field. The fields caused by human activity result from technological application of the electromagnetic spectrum for uses such as communications and appliances, as well as the generation, transmission, and local distribution of electricity. Electric and magnetic fields are vector quantities that have the properties of direction and amplitude (field strength).

Electric and magnetic fields of power lines have the additional property of frequency, which is determined by the rate at which electric and magnetic fields change their direction each second. The hertz (Hz) is the unit of frequency. For power lines in the United States, the frequency of change is 60 times per second, leading to the designation "60 Hz power." In Europe and many other countries, the frequency of electric power is 50 Hz. Radio and other communications systems operate at much higher frequencies, from approximately 500,000 Hz (500 kilohertz

(kHz)) to over 2,000,000,000 Hz (2 Gigahertz (GHz)), at which frequencies the fields share a mutual relationship in forming an EMF.

Electric power flows across transmission systems from generating sources to serve electrical loads within the community. The power flowing over a transmission line is determined by the transmission line 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 115,000 volt (115 kV) transmission line with 200 amperes of current would transmit approximately 40,000 kilowatts (kW), whereas a 230 kV transmission line requires only 100 amperes 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 field strength dependent directly on the voltage of the line creating it. Electric field strength is typically described in units of kilovolt per meter (kV/m). Electric field strength weakens rapidly as the distance from the source increases. Electric fields are reduced at many receptors because they are effectively shielded by 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 comes within the electric field, including the human body. Even trying to measure an electric field with electronic instruments is difficult because the devices themselves alter the levels recorded. Determining an individual's exposure to electric fields requires the understanding of many variables, including the electric field itself, how effectively a person is grounded, and a person's body surface area within the electric field.

Electric fields in the vicinity of power lines can cause phenomena similar to the static electricity experienced on a dry winter day, or when clothing has just been removed from a clothes dryer, and may result in 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 field strength, magnetic

field strength weakens rapidly with distance from the source. Unlike electric fields, however, magnetic fields are not mostly shielded by objects or materials.

Comparison of Electromagnetic and Electric Fields

The nature of electric and magnetic fields 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; an electric field is generated around the cord and appliance, but no magnetic field would be present. If the appliance is switched on, the electric field would still be present, and a magnetic field would 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.

D.8.5.2 EMFs in the Proposed Project Area

EMF exposure to the public in developed areas varies over a range of field intensities and durations due to sources in the home and work environments, electric power distribution, and infrequently, from proximity to transmission lines.

The project proposes the relocation of the existing South Bay Substation as well as existing transmission lines, including 69 kV, 138 kV, and 230 kV lines, all of which are current sources of EMFs in the project area. Nearby residences are not in close proximity to these facilities; however, bicyclists, pedestrians, and motorists would be located adjacent to the transmission lines proposed for relocation, and this would result in public exposure to EMFs when in the vicinity of electric transmission and distribution lines.

D.8.5.3 Scientific Background and Regulations Applicable to EMFs

EMF Research

For more than 30 years, researchers have questioned the potential effects that EMFs from power lines have had on the environment. Early studies focused primarily on interactions with the electric fields from power lines. The subject of magnetic field interactions began to receive additional public attention in the 1980s as research levels 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 EMFs 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. The electric currents induced by ELF fields commonly found in the

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 EMFs is easily grouped into three general categories: cellular level studies, animal and human experiments, and epidemiological studies. Epidemiological studies have provided mixed results, with some studies showing an apparent relationship between magnetic fields and health effects while other similar studies do not. Laboratory studies and studies investigating a possible mechanism for health effects (mechanistic studies) provide little or no evidence to support this link.

Since 1979, public interest and concern specifically regarding magnetic fields from power lines has increased. This origin of 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 greater Denver, Colorado, and the incidence of childhood cancer. Following publication of the Wertheimer and Leeper (1979) study, many epidemiological, laboratory, and animal studies regarding EMFs have been conducted. Table D.8-3 provides examples of field values for several home appliances.

Table D.8-3
Typical Electric Field Values for Appliances at 12 Inches

Appliance	Electric Field Strength (kV/m)
Electric blanket	0.25*
Broiler	0.13
Stereo	0.09
Refrigerator	0.06
Iron	0.06
Hand mixer	0.05
Phonograph	0.04
Coffee pot	0.03

Source: Wertheimer and Leeper 1979
Note: * 1 to 10 kV/m next to blanket wires

Research on ambient magnetic fields in homes and buildings in several western states found average magnetic field levels within rooms to be approximately 1 mG; in a room with appliances present, the measured values ranged from 9 to 20 mG (Severson et al. 1988; Silva et al. 1988). Immediately adjacent to appliances (within 12 inches), field values are much higher, as illustrated in Table D.8-4, Magnetic Field from Household Appliances. This table indicates typical sources and levels of electric and magnetic field exposure the general public experiences from appliances.

Table D.8-4
Magnetic Field from Household Appliances

Appliance	Magnetic Field (mG)	
	12-inch Distance	*Maximum*
Electric range	3 to 30	100 to 1,200
Electric oven	2 to 25	10 to 50
Garbage disposal	10 to 20	850 to 1,250
Refrigerator	0.3 to 3	4 to 15
Clothes washer	2 to 30	10 to 400
Clothes dryer	1 to 3	3 to 80
Coffee maker	0.8 to 1	15 to 250
Toaster	0.6 to 8	70 to 150
Crockpot	0.8 to 1	15 to 80
Iron	1 to 3	90 to 300
Can opener	35 to 250	10,000 to 20,000
Mixer	6 to 100	500 to 7,000
Blender, popper, processor	6 to 20	250 to 1,050
Vacuum cleaner	20 to 200	2,000 to 8,000
Portable heater	1 to 40	100 to 1,100
Fans/blowers	0.4 to 40	20 to 300
Hair dryer	1 to 70	60 to 20,000
Electric shaver	1 to 100	150 to 15,000
Color TV	9 to 20	150 to 500
Fluorescent fixture	2 to 40	140 to 2,000
Fluorescent desk lamp	6 to 20	400 to 3,500
Circular saws	10 to 250	2,000 to 10,000
Electric drill	25 to 35	4,000 to 8,000

Source: Gauger 1985

Methods to Reduce EMFs

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, requiring 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, 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), 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 above ground, 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 EMFs 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, 1987, 2001, 2007) 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 in the following, 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 EMFs and health effects (NIEHS 1999):

> Using criteria developed by the International Agency for Research on Cancer (IARC), none of the Working Groups 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 powerline frequency ELF-EMF is a possible carcinogen [emphasis added].

In June 2001, a scientific working group of IARC (an agency of WHO) reviewed studies related to the carcinogenicity of EMFs. 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 EMFs from power lines and potential health risks (Neutra et al. 2002). 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, 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 as follows (Neutra et al. 2002):

- 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 listed 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.

In addition to the uncertainty regarding the level of health risk posed by EMFs, 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 EMFs as a possible carcinogen (IARC 2002).

The 2007 WHO Environmental Health Criteria 238 report concluded that:

- Evidence for a link between Extremely Low Frequency (50–60 Hz) magnetic fields and health risks is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia. However, "…virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status…the evidence is not strong enough to be considered causal but sufficiently strong to remain a concern."
- "For other diseases, there is inadequate or no evidence of health effects at low exposure levels."

EMF health issues continue to be the subject of research and examination in the context of regulatory standards and guidelines. The Electric Power Research Institute (EPRI) describes itself as "the only organization in North America funding long-term, multidisciplinary EMF research" and sponsors research and scientific meetings in areas of current interest (EPRI 2010).

A recent European Commission report identified a research gap concerning the association of ELF-EMF exposures with neurodegenerative diseases and put the need for a multidisciplinary research as "very important and given high priority based on their relevance for fundamental understanding of the issue and/or their relevance for public health" (SCENIHR 2009, p. 4). The Australian Radiation Protection and Nuclear Safety Agency regulatory body issued draft EMF guidelines in 2006, and organizations such as International Commission on Non-Ionizing Radiation Protection (ICNIRP 1998) and International Committee on Electromagnetic Safety (ICES 2002) continue to review and refine their guidelines and standards.

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 EMFs as opposed to responding to the findings of any specific scientific research. Following is a brief summary of the guidelines and regulatory activity regarding EMFs.

International Guidelines

IRPA, in cooperation with the WHO, has published recommended guidelines 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. These organizations have neither 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 EPA has conducted investigations into EMFs related to power lines and health risks, no national standards have been established. There have been a number of studies sponsored by the EPA, the EPRI, and other institutions. Several bills addressing EMFs 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 EMFs and to explore ways to reduce the creation of magnetic fields around lines.

The American Conference of Governmental Industrial Hygienists (ACGIH) is not a governmental regulatory agency; it is a professional organization that provides technical knowledge, advice, and guidance on occupational health and safety. ACGIH (1991) has published the Occupational Threshold Limit Values for 60 Hz EMFs shown in Table D.8-5, Occupational Threshold Limit Values for 60 Hz EMFs. According to WHO, the vast majority of studies have been conducted on power-frequency (50 and 60 Hz) magnetic fields, and as stated previously, the results of these studies are inconclusive.

Table D.8-5
Occupational Threshold Limit Values for 60 Hz EMFs

Category	Electric Field (kV/m)	Magnetic Field* (G)
Occupational exposure should not exceed for longer than 2 hours	25	10
Exposure limit for workers	20	1
Prudence dictates the use of protective clothing	15	N/A

Note: * 1 G = 1,000 mG (100 µT).

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 and at the edge of the ROW, and cover a broad range of values. Table D.8-6, EMF Regulated Limits, lists the states regulating EMFs 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).

Table D.8-6
EMF Regulated Limits (by State)

State	Electric Field (kV/m)	Magnetic Field (mG)	Location	Application
500 kV Lines	10		In right of way	Single Circuits
Florida (codified)	2	200	Edge of right of way	Single Circuit
	2	250	Edge of right of way	Double Circuit
230 kV Lines or less	8	—	In right of way	—
Florida (codified)	2	150	Edge of right of way	230 kV Lines or less
Minnesota	8	—	In right of way	> 200 kV
Montana (codified)	1	—	Edge of right of way	> 69 kV
	7	—	In right of way	Road crossings
New Jersey	3	Under consideration	Edge of right of way	Guideline for complaints
New York	1.6	200	Edge of right of way	> 125 kV, > 1 mile

Table D.8-6
EMF Regulated Limits (by State)

State	Electric Field (kV/m)	Magnetic Field (mG)	Location	Application
	7	—	In right of way	Public roads
	11	—	In right of way	Public roads
	11.8	—	In right of way	Other terrain
North Dakota	9	—	In right of way	Informal
Oregon (codified)	9	—	In right of way	230 kV, 10 miles

Source: Public Utilities Commission of Texas 1992

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 EMFs are 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 grassroots efforts.

California Department of Education's 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 EMFs.

Exposures to power-frequency EMFs 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 as follows (CDE 2006).

Overhead transmission line easement setbacks:

- 100 feet for lines from 50 to 133 kV (interpreted by CDE as up to 200 kV)
- 150 feet for lines from 220 to 230 kV
- 350 feet for lines from 500 to 550 kV.

Underground transmission line easement setbacks:

- 25.0 feet for lines from 50 to 133 kV (interpreted by CDE as up to 200 kV)
- 37.5 feet for lines from 220 to 230 kV
- 87.5 feet for lines from 500 to 550 kV.

In order to underground existing overhead transmission lines as a mitigation measure, a setback exemption request would be necessary (CDE 2006). School districts with sites that do not meet CDE setbacks may still obtain construction approval from the state by submitting an EMF mitigation plan. The mitigation plan should consider possible reductions of EMFs 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 mitigation measures 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) (CPUC 1993) which requires that utilities use "low cost or no-cost" mitigation measures for facilities requiring certification under General Order 131-D (CPUC 1995). The decision directed the utilities to use a 4% benchmark for 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 previously. The CPUC did not adopt any specific numerical limits or regulation on EMF levels related to electric power facilities.

In Decision D.93-11-013, the CPUC addressed mitigation of EMFs of utility facilities and implemented the following recommendations (CPUC 1993):

- 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 4-year education program
- A 4-year nonexperimental and administrative research program
- An authorization of federal experimental research conducted under the National Energy Policy Act of 1992.

In 2006, the CPUC affirmed the low-cost/no-cost policy to mitigate EMF exposure from new utility transmission and substation projects (CPUC 2006a). This decision also adopted rules and policies to improve utility design guidelines for reducing EMFs that were issued in a separate report (CPUC 2006a). The CPUC stated that, "at this time we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences… As stated in the rulemaking initiating this proceeding, at this time we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences" (CPUC 2006a).

At this time, the CPUC has not implemented a general requirement that utilities include non-routine mitigation measures or other mitigation measures that are based on numeric values of EMF exposure, and has not adopted any specific limits or regulations on EMF levels related to electric power facilities. The CPUC may determine mitigation measures on a project-by-project basis.

D.8.5.4 Consideration of EMFs – Proposed Project

The specific EMF sources associated with the Proposed Project consist of the relocation of existing transmission lines and relocation of the South Bay Substation, described as follows:

Transmission line elements of the Proposed Project include:

- Construction of a 230 kV loop-in, an approximately 1,000-foot-long underground interconnection, and an approximately 300-foot-long overhead interconnection of the existing 230 kV tie-line, located east of the proposed Bay Boulevard Substation
- Relocation of six 69 kV transmission lines and associated communication cables to the proposed Bay Boulevard Substation, requiring the relocation of approximately 7,500 feet of overhead line and the construction of approximately 4,100 feet of underground line
- A 138 kV extension of an approximately 3,800-foot underground span and an approximately 200-foot overhead span from one new steel cable pole to an existing steel lattice structure.

Substation project components include:

- Demolition of the existing 138/69 kV South Bay Substation and construction of a new 230/69/12 kV substation (Bay Boulevard Substation). At substations, buswork, substation equipment, and transmission and distribution lines entering or exiting the site all contribute EMFs to the immediate environment. However, the most significant contributors to EMFs outside the substation fence are the associated overhead transmission and distribution lines.

Presently, there are no applicable regulations related to EMF levels from power lines; however, the CPUC has implemented a decision requiring utilities to incorporate low-cost or no-cost measures for managing EMFs from power lines (CPUC 2006a).

SDG&E's application for a permit to construct (SDG&E 2010c) includes a magnetic field management plan that describes techniques considered to further reduce magnetic fields associated with the project. The CPUC requires SDG&E to apply its EMF Design Guidelines for Electrical Facilities (SDG&E 2006) to all new electric transmission projects in order to reduce public exposure to EMFs. Consistent with the SDG&E guidelines, the Detailed Magnetic Field Management Plan prepared for the project (Bennett 2010) evaluated the effectiveness of phase arrangement as a field-reduction technique by calculating anticipated magnetic field values for a given phasing technique and comparing the values to the calculations for the design without the technique.

Upon consideration of available engineering options, SDG&E has proposed changing the phasing of the 69 kV conductor (TL 641) from the proposed Bay Boulevard Substation to its other termination at the Montgomery Substation. The recommended phasing is a low-cost implementation of CPUC policy that achieves the goal of significant magnetic field reduction. Altering the phasing arrangement for the 69 kV transmission line along both sides would provide optimal magnetic field reduction, resulting in an approximately 64% reduction in magnetic field strength on the left ROW and a 10% reduction on the right ROW.

D.8.5.5 EMF Issues Applicable to Alternatives

The EMF levels for alternatives evaluated in this EIR would be similar to those described for the Proposed Project in Section D.8.5.4. Because all the alternatives evaluated in this EIR would occur within substantially the same alignment as the Proposed Project, the EMF issues applicable to alternatives would not be significantly different from the Proposed Project.

D.8.5.6 Summary Regarding EMF

After several decades of study regarding potential public health risks from exposure to power line EMFs, research results remain inconclusive. Several national and international panels that have conducted reviews of data from multiple studies have stated that there is not sufficient evidence to conclude that EMFs cause cancer or other adverse health effects, but the evidence concerning childhood leukemia and perhaps other diseases also is not sufficient to dismiss the possibility of a causal relationship. In light of these uncertain conclusions, the International Agency for Research on Cancer (IARC) and the California Department of Health Services (DHS) both classified EMFs as a possible carcinogen. The preceding sections of this EIR identify existing EMF exposures within the community, which are widespread and cover a very

broad range of field intensities and duration, and provide specific information on the EMF levels estimated for the Proposed Project in order to evaluate the effectiveness of techniques for magnetic field exposure reduction. Presently, there are no applicable regulations related to EMF levels from power lines. However, the CPUC has implemented a decision requiring utilities to incorporate low-cost or no-cost measures for managing EMFs from power lines and is currently considering possible modifications to that decision. SDG&E's South Bay Substation Relocation Project incorporates low-cost and no-cost measures as mitigation for magnetic fields in a manner consistent with CPUC Decision D.93-11-013.

D.8.6 Other Field-Related Concerns

Other public concerns related to electric power facility projects include both safety and nuisance issues: radio/television/electronic equipment interference, induced currents and shock hazards, and potential effects on cardiac pacemakers. Each of these issues is described below.

Radio/Television/Electronic Equipment Interference

Although corona can generate high-frequency energy that may interfere with broadcast signals or electronic equipment, this is generally not a problem for transmission lines. The Institute of Electrical and Electronic Engineers has published a design guide (IEEE 1971) that is used to limit conductor surface gradients to avoid electronic interference.

Gap discharges or arcs can also be a source of high-frequency energy. Gap discharges occur when an arc forms across a gap in loose or worn line hardware. It is estimated that over 90% of interference problems from electric transmission lines are due to gap discharges. Line hardware is designed to be problem-free, but wind motion, corrosion, and other factors can create a gap-discharge condition. When identified, gap discharges can be located and remediated by utilities.

Electric fields from power lines do not typically pose interference problems for electronic equipment in businesses since the equipment is shielded by buildings and walls. However, magnetic fields can penetrate buildings and walls, thereby interacting with electronic equipment. Depending upon the sensitivity of equipment, magnetic fields can interfere with equipment operation. Review of this phenomenon in regard to the sensitivity of electrical equipment identifies a number of thresholds for magnetic field interference. Interference with typical cathode-ray tube (CRT) computer monitors can be detected at magnetic field levels of 10 mG and above, while large-screen or high-resolution CRT monitors can be susceptible to interference at levels as low as 5 mG. Other specialized equipment, such as medical equipment or testing equipment, can be sensitive at levels below 5 mG. Equipment that may be susceptible to very low magnetic field strengths is typically installed in specialized and

controlled environments, since even building wiring, lights, and other equipment can generate magnetic fields of 5 mG or higher.

The most common electronic equipment that can be susceptible to magnetic field interference is CRT-based computer monitors. Magnetic field interference results in disturbances to the image displayed on the monitor, often described as screen distortion, "jitter," or other visual defects. In most cases, it is annoying, and at its worst, it can prevent use of the monitor. This type of interference is a recognized problem in the CRT-video-monitor industry. As a result, there are manufacturers that specialize in monitor interference solutions and shielding of equipment. Possible solutions to this problem include: relocation of the monitor, use of magnetic shield enclosures, software programs, and replacement of CRT monitors with liquid-crystal displays that are not susceptible to magnetic field interference.

Induced Currents and Shock Hazards

Power line fields can induce voltages and currents on conductive objects, such as metal roofs or buildings, fences, and vehicles. When a person or animal comes in contact with a conductive object, a perceptible current or small secondary shock may occur. Secondary shocks cause no physiological harm; however, they may present a nuisance.

Wind and Earthquakes

Transmission line structures used to support overhead transmission lines must meet the requirements of CPUC General Order No. 95, Rules for Overhead Electric Line Construction. This design code and the National Electrical Safety Code include loading requirements related to wind conditions. Transmission support structures are designed to withstand different combinations of loading conditions, including extreme winds. These design requirements include use of safety factors that consider the type of loading as well as the type of material used (e.g., wood, steel, or concrete). Failures of transmission line support structures are extremely rare and are typically the result of anomalous loading conditions, such as tornadoes or ice storms.

Overhead transmission lines consist of a system of support structures and interconnecting wire that is inherently flexible. Industry experience has demonstrated that under earthquake conditions, structure and member vibrations generally do not occur or cause design problems. Overhead transmission lines are designed for dynamic loading under variable wind conditions that generally exceed earthquake loads. Underground transmission lines are susceptible to ground motion and displacements that may occur under earthquake loading. Earthquake conditions could result in damage or faults to underground transmission lines. The proposed underground transmission line segment uses solid dielectric cable, which does not present the environmental or fire hazards that may be associated with oil-filled cable types.

Cardiac Pacemakers

An area of concern related to electric fields from transmission lines is the possibility of interference with cardiac pacemakers. There are two general types of pacemakers: asynchronous and synchronous. The asynchronous pacemaker pulses at a predetermined rate. It is generally immune to interference because it has no sensing circuitry and is not exceptionally complex. The synchronous pacemaker, however, pulses only when its sensing circuitry determines that pacing is necessary. Interference from transmission line electric fields may cause a spurious signal on the pacemaker's sensing circuitry. However, when these pacemakers detect a spurious signal, such as a 60 Hz signal, they are programmed to revert to an asynchronous or fixed pacing mode of operation, returning to synchronous operation within a specified time after the signal is no longer detected. Cardiovascular specialists do not consider prolonged asynchronous pacing a problem, since some pacemakers are designed to operate that way. Periods of operation in this mode are commonly induced by cardiologists to check pacemaker performance. So, while transmission line electric fields may interfere with the normal operation of some of older-model pacemakers, the result of the interference is generally not harmful, and is of short duration (EPRI 1985, 1979).

Impacts related to audible noise from corona are discussed in Section D.12, Noise.

D.8.6.1 Definition and Use of Significance Criteria

Radio/Television/Electronic Equipment Interference

There are no local, state, or federal regulations with specific limits on high-frequency emissions from electric power facilities. Federal Communication Commission (FCC) regulations do not put limits on incidental radio frequency emissions (interference) from transmission lines, but harmful interference may be reported to the FCC Compliance and Information Bureau (47 CFR 15, Section 15.5).

Induced Currents and Shock Hazards

The National Electrical Safety Code (NESC) specifies that transmission lines be designed to limit short line current from vehicles or large objects near the line to no more than 5 milliampere (mA). CPUC General Order 95 and the NESC also address shock hazards to the public by providing guidelines on minimum clearances to be maintained for practical safeguarding of persons during the installation, operation, or maintenance of overhead transmission lines and their associated equipment.

Cardiac Pacemakers

It has been reported that synchronous pacemakers can be affected by electric fields between 2 kV/m and 9 kV/m (EPRI 1985, 1979). As described above, when a synchronous pacemaker is in a field in this range, a few older-model pacemakers may revert to an asynchronous mode.

Wind, Earthquake, and Fire Hazards

Transmission line structures used to support overhead transmission lines must meet the requirement of CPUC General Order No. 95, Rules for Overhead Electric Line Construction. This design code and the NESC include loading requirements related to wind conditions.

D.8.6.2 Environmental Impacts and Mitigation Measures – Safety and Non-Magnetic Field-Electric Power Field Issues

Impact PS-1 Radio and television interference.

No sensitive receptors exist in the immediate vicinity of the proposed South Bay Substation Relocation Project; therefore, electrical equipment interference is expected to be low and not significant (Class III).

The proposed South Bay Substation dismantling and dismantling of transmission interconnections would not add a new source of interference, and therefore, no radio or television interference would occur due to implementation of these project components.

Impact PS-2 Induced currents and shock hazards.

Substation equipment, including transformers, capacitors, reactors, switches, buses, and line breakers, would be located in a locked, fenced closure and, therefore, pose no significant shock hazards (Class III).

The proposed transmission interconnections as well as South Bay Substation Dismantling would not add a new source of shock hazards.

Impact PS-3 Electric fields could affect cardiac pacemakers.

The electric fields associated with the project's transmission lines may be of sufficient magnitude to impact operation of a few older model pacemakers, resulting in an asynchronous pacing of the unit. Cardiovascular specialists do not consider prolonged asynchronous pacing to be a problem; periods of operation in this mode are commonly induced by cardiologists to check pacemaker performance. Therefore, while the transmission line's electric field may impact

operation of some older model pacemakers, the result of the interference is of short duration and impacts would be considered less than significant (Class III).

Impact PS-4 Project structures could be affected by wind or lightning hazards.

SDG&E is required to design transmission lines in accordance with safety requirements of the CPUC's General Order 95 and other applicable requirements. Based on the conservative nature of these specifications, operation of transmission line towers, poles, and associated hardware would not pose a significant impact for hazards precipitated by high winds or fires initiated by arcing of downed conductors or lightning; therefore, identified impacts would be considered less than significant (Class III).

Substations have similar equipment and also transformers, capacitors, reactors, switches, buses, and line breakers that are located in a locked, fenced enclosure. Substation equipment impacts identified would be considered less than significant for these hazards (Class III).

Staging areas containing equipment fuel and petroleum products, construction activities, and routine operations and maintenance activities (including driving vehicles) would increase the potential risk of fire hazard in the area, however. Potential fire hazards are addressed in Section D.8.3.3, D.8.3.4 and D.8.3.5 (Impact HAZ-6).

D.8.6.3 Environmental Impacts and Mitigation Measures for Alternatives

Safety and non-EMF concerns for alternatives evaluated in this EIR would be similar to those described for the Proposed Project in Section D.8.6.2. As each alternative evaluated in this EIR would occur within substantially the same area as the Proposed Project, safety and non-EMF issues applicable to the alternatives would not differ significantly from the Proposed Project.

D.8.7 Other Field-Related Concerns Applicable to Alternatives

Safety and non-EMF concerns for alternatives evaluated in this EIR would be similar to those described for the Proposed Project in Section D.8.6.2. Because each alternative evaluated in this EIR would occur within substantially the same area as the Proposed Project, safety and non-EMF issues applicable to the alternatives would not differ significantly from the Proposed Project.

D.8.8 Mitigation Monitoring, Compliance, and Reporting

Table D.8-7 shows the mitigation monitoring, compliance, and reporting program (MMCRP) for public health and safety. The mitigation measures as well as the APM that SDG&E has made part of the Proposed Project are listed. Table D.8-7 indicates whether the measure is applicant proposed or agency recommended.

Table D.8-7
MMCRP for Public Health and Safety

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact HAZ-1: Impacts to soil or groundwater could result from an accidental spill or release of hazardous materials due to improper handling or storage of hazardous materials during construction activities. Impact HAZ-2: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation. Impact HAZ-5: Impacts to soil or groundwater could result from accidental spill or release of hazardous materials during operations and maintenance.	—	APM-HAZ-01	SDG&E would prepare and implement a project-specific Hazardous Substance Management and Emergency Response Plan during the construction period to reduce or avoid potentially hazardous materials for the purposes of worker safety, protection from groundwater contamination, and proper disposal of hazardous materials.	Plans to be submitted to CPUC, DTSC, and San Diego County Department of Environmental Health.	SDG&E to submit plans in order for CPUC, DTSC, and San Diego County DEH to verify. CPUC to verify and ensure that potential exposure of workers, the public or the environment to hazardous materials in contaminated soil and/or groundwater has been minimized.	Prior to construction and during construction.

Table D.8-7
MMCRP for Public Health and Safety

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact HAZ-1: Impacts to soil or groundwater could result from an accidental spill or release of hazardous materials due to improper handling or storage of hazardous materials during construction activities. Impact HAZ-2: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation.	HAZ-1a	—	Prior to construction, all SDG&E, contractor, and subcontractor project personnel would receive training regarding the appropriate work practices necessary to effectively implement hazardous materials procedures and protocols and to comply with the applicable environmental laws and regulations, including, without limitation, hazardous materials spill prevention and response measures. A sign-in sheet of contractor and subcontractor project personnel who have received training shall be provided to California Public Utilities Commission on a regular basis depending on the level of construction activity.	SDG&E to conduct training program as described and incorporate measure into construction contracts. SDG&E to provide documentation of contractor and subcontractor training to the CPUC.	SDG&E to submit evidence of training in order for CPUC to verify.	Prior to construction.
Impact HAZ-1: Impacts to soil or groundwater could result from an accidental spill or release of hazardous materials due to improper	HAZ-1b	—	The hazardous substance management and emergency response plan proposed by APM-HAZ-01 shall be reviewed and approved by the California Public Utilities Commission (CPUC), California Department of Toxic Substances Control, and San Diego County Department of Environmental Health (DEH), Hazardous Materials Division. The plan shall meet the requirements identified in California Health and Safety Code §Sections 25503.4,	Plans to be submitted to CPUC, DTSC, and San Diego County Department of Environmental Health.	SDG&E to submit plans in order for CPUC, DTSC, and San Diego County DEH to verify	Prior to construction.

Table D.8-7
MMCRP for Public Health and Safety

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
handling or storage of hazardous materials during construction activities. Impact HAZ-2: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation. Impact HAZ-5: Impacts to soil or groundwater could result from accidental spill or release of hazardous materials during operations and maintenance.			§25503.5, and §25504 and specifically addressed for the County of San Diego in the County of San Diego DEH, Hazardous Material Division guidance on Hazardous Materials Business Plans.			
Impact HAZ-1: Impacts to soil or groundwater could result from an accidental spill or release of hazardous materials	HAZ-1c	—	During removal of hazardous materials, SDG&E shall have an experienced environmental professional with 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training on site. This professional shall monitor the work site for contamination (including the subsurface) and shall ensure the implementation of mitigation measures needed to prevent	SDG&E to implement measure as defined and incorporate commitment into construction contracts	CPUC to inspect periodically and verify list of personnel to ensure that potential exposure of workers, the public or the	During construction where the transport, use, or disposal of hazardous materials occurs.

Table D.8-7
MMCRP for Public Health and Safety

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
due to improper handling or storage of hazardous materials during construction activities. Impact HAZ-2: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation. Impact HAZ-3: Release of Hazardous Materials during Substation Operation.			exposure to the workers or the public. These measures shall include signage and dust control.		environment to hazardous materials has been minimized.	
Impact HAZ-2: Previously unknown soil and/or groundwater contamination could be encountered during grading or excavation.	HAZ-2	—	As part of the final design, a site assessment shall be performed to augment and consolidate previous studies performed for the entire Proposed Project site to identify where hazardous materials or wastes may be encountered. The site assessment shall be submitted to the California Public Utilities Commission and the Department of Toxic Substances Control at least 60 days prior to construction activities. In the event that grading, construction, or operation of proposed facilities will	SDG&E to implement measure as defined and incorporate compliance requirements into construction contracts. SDG&E to prepare assessment and submit to CPUC and	SDG&E to submit plan (and, if necessary, hazardous materials disposal documentation) in order for CPUC to verify.	During final design.

Table D.8-7
MMCRP for Public Health and Safety

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
			encounter hazardous waste, SDG&E shall ensure compliance with the State of California CCR Title 23 Health and Safety Regulations as managed by the Department of Toxic Substances Control and San Diego County Department of Environmental Health (DEH). Excavated soils impacted by hazardous waste or materials will be characterized and disposed of in accordance with CCR Title 14 and Title 22, the Department of Toxic Substances Control, and the San Diego County DEH.	DTSC. SDG&E to submit documentation to CPUC and DTSC regarding compliance with applicable hazardous waste disposal regulations (if necessary).		
Impact HAZ-3: Release of Hazardous Materials during Substation Operation. Impact HAZ-5: Impacts to soil or groundwater could result from accidental spill or release of hazardous materials during operations and maintenance.	HAZ-3a and HAZ-3b	—	HAZ-3a - SDG&E shall prepare and submit a copy of the Spill Prevention, Control, and Countermeasure plan, as required by Title 40 CFR Section 112.7, to the California Public Utilities Commission for review and approval and to California Department of Toxic Substances Control for review at least 60 days before the start of operation of the Bay Boulevard Substation. HAZ-3b - No hazardous materials used by SDG&E for operations and maintenance of the proposed substation will be stored or disposed of on site, and their use or disposal will conform to applicable laws and regulations governing the use, management, and disposal of hazardous materials.	Plan to be submitted to CPUC and DTSC.	SDG&E to prepare plan and submit in order for CPUC and DTSC to verify.	Plan submitted 60 days prior to the start of operation of the Bay Boulevard Substation.
Impact HAZ-5: Impacts to soil or groundwater could result from	HAZ-3a and HAZ-3b	—				

Table D.8-7
MMCRP for Public Health and Safety

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
accidental spill or release of hazardous materials during operations and maintenance.						
Impact HAZ-6: 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.	HAZ-4	—	Wildfires shall be prevented or minimized by exercising care when operating utility vehicles within the right-of-way and access roads and by parking vehicles away from dry vegetation where hot catalytic converters can ignite a fire. In times of high fire hazard, it may be necessary for construction vehicles to carry water and shovels or fire extinguishers. Fire protective mats or shields would be used during grinding or welding to prevent or minimize the potential for fire.	SDG&E implement measure as defined and incorporate compliance requirements into construction contracts.	CPUC to verify through review of pre-construction plans. CPUC to verify in the field.	Prior to and during construction.

D.8.9 References

8 CCR 337–340. California Occupational Safety and Health Regulations (CAL/OSHA), Subchapter 1, Article 5, Hazardous Substances Information and Training.

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

19 CCR 2735.1 Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4.5, California Accidental Release Prevention (CalARP) Program.

22 CCR 66261.10–66261.9.5. California Department of Toxic Substances Control, Chapter 11. Identification and Listing of Hazardous Waste.

29 CFR 1910.119, Title 29 Labor, Chapter XVII, Occupational Safety and Health Administration, Department of Labor, Part 1910 – Occupational Safety and Health Standards.

40 CFR 112, Oil Pollution Prevention, Title 40, Protection of the Environment. Clean Water Act.

49 CFR 100–185, Title 49, Transportation, Chapter I – Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Subchapter A – Hazardous Material and Oil Transportation.

49 CFR 383. Title 49 Transportation, Chapter III, Federal Motor Carrier Safety Administration, Department of Transportation, Subchapter B – Federal Motor Carrier Safety Regulations, Part 383 – Commercial Driver's License Standards; Requirements and Penalties.

15 U.S.C. 2601. Toxic Substances Control Act of 1976.

42 U.S.C. 6901. Solid Waste Disposal Act 1976.

42 U.S.C. 9601–9675. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

42 U.S.C. 7401–7626. Clean Air Act (1970).

47 CFR 15. FCC Regulations: Telecommunication, Radio Frequency Devices.

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