

## D.15 Fire and Fuels Management – Contents

D.15.1	Introduction .....	D.15-1
D.15.2	Environmental Setting .....	D.15-5
D.15.3	Applicable Regulations, Plans, and Standards .....	D.15-54
<i>ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED PROJECT</i> .....		D.15-63
D.15.4	Significance Criteria and Approach to Impact Assessment .....	D.15-63
D.15.5	Imperial Valley Link and Eastern Anza-Borrego Link .....	D.15-71
D.15.6	PFS-1 Ranchita Fireshed .....	D.15-74
D.15.7	PFS-2 San Felipe Fireshed .....	D.15-91
D.15.8	PFS-3 Santa Ysabel Fireshed .....	D.15-101
D.15.9	PFS-4 Ramona Fireshed .....	D.15-111
D.15.10	PFS-5 Poway Fireshed .....	D.15-123
D.15.11	PFS-6 Peñasquitos Fireshed .....	D.15-134
D.15.12	Other System Upgrades – Impacts and Mitigation Measures .....	D.15-143
D.15.13	Future Transmission System Expansion .....	D.15-146
D.15.14	Connected Actions and Indirect Effects .....	D.15-156
D.15.15	Overall Fire and Fuels Management Impacts of Proposed Project .....	D.15-167
<i>ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES FOR ALTERNATIVES ALONG PROPOSED PROJECT ROUTE</i> .....		D.15-169
D.15.16	Imperial Valley Link Alternatives .....	D.15-172
D.15.17	Anza-Borrego Link Alternatives .....	D.15-177
D.15.18	Central Link Alternatives .....	D.15-195
D.15.19	Inland Valley Link Alternatives .....	D.15-214
D.15.20	Coastal Link Alternatives .....	D.15-229
D.15.21	Top of the World Substation Alternative .....	D.15-245
D.15.22	Mitigation Monitoring, Compliance, and Reporting Table .....	D.15-253
D.15.23	References .....	D.15-259



## D.15 Fire and Fuels Management

This section provides a discussion of the potential effects of the Proposed Project and alternatives as they relate to construction and operation of transmission lines in fire-prone landscapes. Damaging wildfires are common in the region. Agency and public scoping comments on the project and its alternatives have reinforced the need for wildfire considerations to be an integral piece of the environmental analysis of the Sunrise Powerlink Project. Consequences of wildfires include adverse impacts to communities, firefighters, and natural resources. This analysis uses wildland fire behavior model simulations, supported by field data, to assist in the evaluation of the project's impacts on wildfire occurrence and fire suppression activities.

This section describes the Proposed Project and alternatives along the Proposed Project route as they relate to fire and fuels management, and it is organized as follows. Section D.15.1 introduces the problem of fires caused by power lines and reviews the recent firestorms in San Diego County; Section D.15.2 defines the environmental setting for the Proposed Project; Section D.15.3 outlines applicable regulations, plans, and standards; Section D.15.4 defines the significance criteria and approach to impact assessment for the Proposed Project and alternatives; Sections D.15.5 through D.15.11 describe the firesheds along the Proposed Project route and present impacts and mitigation measures for the Proposed Project; Sections D.15.12 through D.15.14 present impacts and mitigation measures for other system upgrades, future transmission system expansion routes, and connected actions and indirect effects, respectively; Section D.15.15 summarizes the overall impacts of the Proposed Project. Sections D.15.16 through D.15.21 present impacts and mitigation measures for alternatives along the Proposed Project route; Section D.15.22 describes mitigation monitoring, compliance, and reporting procedures; and Section D.15.23 lists references. Appendix 3 contains information on data collection, modeling analyses, and reference documents related to fire and fuels management. Section E covers fire and fuels management for the southern route alternatives, non-wires alternatives, and system alternatives.

### D.15.1 Introduction

The Proposed Project would be routed through the eastern portion of Imperial County and across the northern and central portion of San Diego County. The fire risk in Imperial County is low due to its desert climate and low concentration of fuels; in contrast San Diego County is an extremely fire-prone landscape. San Diego County is dominated by a Mediterranean-type climate with mild, wet winters and hot, dry summers. The climate in central San Diego County supports dense, drought-adapted shrublands that are highly flammable, especially in the fall as fuel moistures reach very low levels. Most critically, winds originating from the Great Basin, locally known as Santa Anas, create extreme fire weather conditions characterized by low humidity, sustained high-speed winds, and extremely strong gusts. Santa Ana winds typically blow from the northeast over the Peninsular Range. As the air is forced through coastal mountain passes, wind speeds of 40 mph can be maintained for hours with gusts from 70 to 115 mph possible (Schroeder et al., 1964). Santa Ana winds create extremely dangerous fire conditions and have been the primary driver of most of California's catastrophic wildfires. Santa Ana winds are at their peak during fall and early winter months, which marks the height of fire season. Because of the presence of dense, dry fuels and periodic Santa Ana winds, southern California has been characterized as having one of the most fire-prone landscapes in the world. Figure D.15-1 presents a map of Imperial and San Diego Counties overlain with Fire Hazard Severity Zones, defined as a measure of the likelihood that an area will burn combined with the severity of burn behavior characteristics (such as intensity, speed, and embers produced).

As Figure D.15-1 shows, the fire risk in Imperial County is low due to its desert climate and low concentration of fuels. During wet years, however, non-native, invasive grasses can create a continuous fine fuel bed within desert plant communities that can propagate fires. The native vegetation type within the non-desert portions of the Proposed Project and alternative project areas is predominantly chaparral and related shrublands. Accumulation of fuels in these shrubland systems is a natural process. However in the past century, human wildfire ignitions have had a greater influence on the shrubland fire frequency due to the steep population rise in southern California (Keeley and Fotheringham, 2003). This is especially evident at lower elevations where agricultural expansion followed by rapid urban growth has extended into wildland areas, introducing more ignitions and increasing the number of wildfires across the landscape. These land-use changes and fire frequency increases have led to vegetation type conversion<sup>1</sup> of the native shrubland systems into primarily non-native grasslands in many areas of San Diego County. These non-native grassland systems dry out earlier in the season and are more easily ignited than native shrublands, thus their presence increases the potential for fire occurrence and fire frequency even as they may locally reduce fire intensity by replacing hot, woody fuels with cool, fast-burning fuels.

Computer models that predict burn probability, simulate wildfire behavior, and evaluate project conflicts with firefighting tactics and objectives are used in the Fire and Fuels Management section to determine project-related wildfire impacts. Field data on local fuel conditions, and archival data on local climate and ignition sources are used to support the best available modeling techniques to determine the potential for damaging impacts to occur as a result of a project-caused wildfire. Along the Proposed Project and alternative routes, 16 distinct firesheds are identified, and these serve as the foundation for the spatial and landscape-level wildfire analysis. Firesheds are regional landscapes that are delineated based on fire history, fire regime, vegetation, topography, and potential wildfire behavior. A fireshed approach is taken in this section in lieu of the Proposed Project links approach used in other sections. Firesheds are useful assessment tools for identifying high fire risk areas and predicting future fire behavior with the objective of reducing fire risk and protecting communities. Section D.15.4.3 provides an explanation of how fireshed boundaries were delineated and presents a detailed description of the computer models and data inputs, and Appendices 3A and 3B present detailed information on field data collection techniques and data coding protocols.

### D.15.1.1 Fires Caused By Power Lines

Fires can be started by power lines in the following ways:

- Vegetation contact with conductors
- Exploding hardware such as transformers and capacitors
- Floating or wind-blown debris contact with conductors or insulators
- Conductor-to-conductor contact
- Wood support poles being blown down in high winds
- Dust or dirt on insulators
- Bullet, airplane, and helicopter contact with conductors or support structures.

SDG&E data for the last three years (2004-2006) demonstrate that, of the power line ignitions in the SDG&E service area, 91% (87 ignitions) were distribution system ignitions, and 9% (9 ignitions) were transmission system ignitions. Of the transmission system ignitions, eight were associated with 69 kV

---

<sup>1</sup> Type conversion occurs when the dominant vegetation community is gradually replaced with a new community. Section D.2.5 presents a further discussion of vegetation type conversion.

lines, one was associated with a 230 kV line, and none was associated with a 500 kV line (MGRA, 2007). Distribution system ignitions resulted in a total of 352 acres burned, and transmission system ignitions resulted in a total of 30 acres burned (MGRA, 2007). The causes of the nine transmission system fires include Mylar balloons contacting conductors (2), conductor-to-conductor contact (1), dust on insulators (1), wire down due to corrosion (1), kite tail into insulators (1), wire down due to a gun shot (1), and wire down due to heavy wind (2, including the sole 230 kV ignition). Detailed data prior to 2004 are unavailable (SDG&E, 2007a).

There is a public perception that all power lines can be a direct cause of wildfire ignitions, but power line-caused fires are much more prevalent for distribution and lower-voltage transmission lines compared with higher-voltage transmission lines such as the Proposed Project. The energized conductors on distribution and lower-voltage transmission lines are much closer together (as close as 2 feet) compared with higher-voltage transmission lines (17 to 35 feet for 500 kV, depending on structure type; 18 to 21 feet for 230 kV, depending on structure type). Fallen or wind-blown tree limbs and debris can more easily come into contact with and bridge two distribution conductor phases<sup>2</sup>, which can cause electrical arcs<sup>3</sup> that can set fire to woody debris. Because higher voltage transmission line conductors are spaced much further apart, this phenomenon is extremely rare on 230 and 500 kV transmission lines. Arcing from a single conductor to ground through vegetation contact can also occur, but conductors are generally much further from the ground than they are from one another, and therefore arcing between conductor phases is more likely than between a conductor and the ground.

Transmission lines at voltages of 69 kV are subject to conductor-to-conductor contact, also known as “mid-line slap” hazard, which occurs when extremely high winds force two conductors on a single pole to oscillate so excessively that they contact one another. This can result in sparks that can ignite nearby vegetation. Transmission lines at this voltage are often supported by wood poles, which can typically withstand a lower level of wind loading compared with steel monopoles and lattice steel towers. Wood poles have a higher potential for structural failure during extreme wind events like Santa Ana events. Multiple wood pole failures on a single 69 kV line can result in conductors contacting the ground and igniting nearby vegetation or the wood poles themselves. Other transmission line-related ignition sources may include airborne debris (Mylar balloons, kites) coming into contact with conductors or insulators, dust or dirt on insulators, and accidents related to guns, airplanes, and helicopters coming into contact with conductors, poles, and towers.

Transmission line protection and control systems are designed to detect faults (such as arcing from debris contacting the line) and rapidly shut off power flow in 1/60 to 3/60 of a second. Distribution systems are designed to be more tolerant to line faults. In an effort to “keep the lights on,” distribution line protection and control systems allow faults to last longer and are sometimes set to automatically re-energize a faulted line after a very brief delay (a second or so) in the event that the fault has cleared. If a fault is related to debris tangled in the conductors, immediate re-energizing can cause repeated sparks and ignite nearby vegetation. Because higher voltage lines are designed to be more sensitive to faults, they are typically mounted on very tall structures to provide adequate distance from vegetation.

---

<sup>2</sup> Multiple conducting wires on a single transmission or distribution line are clustered in groups of three wires that carry currents alternating at different phases. This arrangement has the safety effect of cancelling the electromagnetic field that would otherwise be created. See Section D.10 for more on electromagnetic fields.

<sup>3</sup> Electrical arcing is an electric discharge that occurs when electrons are able to jump a gap in a circuit.

Distribution lines are mounted with devices, such as transformers and capacitors, that may fail in an explosive manner resulting in an ignition of nearby vegetation. Transmission lines are not mounted with these devices because transmission lines are not used to directly serve customer loads.

Both distribution and transmission systems are designed to withstand high winds, and it is extremely rare for higher-voltage transmission structures to blow over. When this rare event does occur, the protection system on a transmission line is designed to shut off power flow in a fraction of a second. Distribution structure failures are also infrequent but due to their placement in narrower corridors in close proximity to trees and other tall vegetation they may be pushed down in storms by wind-blown trees. Assisted by high winds, distribution line ignitions have caused three of the 20 largest wildfires (measured by acreage burned) in California's history from 1932 to 2006 (CAL FIRE, 2006). These fires were the Clampitt (1970), Laguna (1970), and Campbell Complex (1990) fires. In the case of the Clampitt Fire, high winds blew down a section of the distribution line, and the Laguna and Campbell Complex Fires were ignited when trees fell across the distribution lines. The Witch Fire (2007) has been determined by California Department of Forestry and Fire Protection (CAL FIRE) to have been ignited by a power line; however, the details of the ongoing investigation are currently unavailable, and it is not known whether a distribution or a transmission line was at fault.

Wildfires related to power lines can also be ignited by wildlife, the main culprit being large birds. Bird-caused flashovers<sup>4</sup> are possible on low-voltage distribution and transmission lines where conductors are closely spaced. Birds perched on power poles or flying between poles can simultaneously contact two conductors, causing an electrical flashover. This electrocutes the bird and occasionally causes the feathers to catch fire. The bird may fall to the ground and ignite nearby vegetation. However, bird-caused flashovers are highly unlikely for the Proposed Project, which includes energized 500 kV conductors at minimum distances of 17.3 vertical feet and 18 horizontal feet apart and 230 kV conductors at minimum distances of 18 vertical feet and 19 horizontal feet apart. These distances are at least 9.3 feet greater than the wingspan of the largest bird species in the project vicinity (see Section D.2 for a complete discussion of the risk of bird electrocutions).

The primary ignition threats associated with higher-voltage transmission lines like the Proposed Project are indirect, consisting of human-caused accidents during construction and maintenance activities and as a result of increased access to wildlands. Construction and maintenance activities that may ignite fires include blasting, the use of equipment such as chainsaws, and the presence of personnel who may inadvertently ignite fires while smoking. The introduction of transmission line access roads can provide increased access to wildlands by members of the public, which may increase ignitions from smoking, campfires, and arson.

Failure to trim or remove trees located very close to transmission line conductors can result in wildfire ignitions when trees or branches are blown onto conductors. California law requires minimum clearances for high-voltage transmission lines; these clearance requirements are discussed in Section D.15.3.1.

### D.15.1.2 Description of the 2003 and 2007 San Diego County Wildfires

Residents in the Proposed Project area have expressed extreme concern over the impacts of the Sunrise Powerlink (SRPL) on wildfire occurrence and wildfire suppression. These concerns result in part from their experiences during catastrophic fires over the last five years that ravaged southern California.

---

<sup>4</sup> A flashover is an unintended electric arc.

Within San Diego County, these fires include the Paradise, Otay, Cedar, Witch, Harris, and Poomacha fires. Figure D.15-2 presents areas burned in the 2003 and 2007 San Diego County fires relative to the Proposed Project and alternatives. Extreme weather conditions in the height of fire season drove the wildfires to expand rapidly into major events.

The human-caused **Cedar Fire** started on October 25, 2003 in Cleveland National Forest when a lost hunter set a signal fire. It is considered the largest fire in California within the past century, burning over 273,000 acres. The Cedar Fire burned through parts of the Proposed Project and alternative routes. For a detailed description of the Cedar Fire location in relation to the Proposed Project and alternative routes, refer to Sections D.15.2.5 through D.15.2.9, and Sections E.1.15.1, E.3.15.1, and E.4.15.1, respectively.

The **Paradise Fire** was an equipment-caused fire started in the Valley Center area to the east-northeast of the City of Escondido. The Paradise Fire destroyed approximately 56,700 acres overall. The area burned in the Paradise Fire would not be directly affected by the Proposed Project, but would be traversed by the transmission lines considered in Section D.15.13, Future Transmission System Expansion.

The **Otay Fire** burned more than 46,000 acres in the area east of the City of Chula Vista, south of Jamul, and west of Dulzura. This fire was located south and west of the Sunrise Powerlink proposed and alternative routes considered in this EIR/EIS. The cause of the Otay Fire has not been determined.

The power line-ignited **Witch fire** started in the community of Witch Creek on SR78. The fire burned 197,990 acres. As of December 2007 the voltage of the power line and the details of the ignition are unknown. For a detailed description of the Witch Fire location in relation to the Proposed Project and alternative routes, refer to Sections D.15.2.5 through D.15.2.8 and Sections E.1.15.1 and E.3.15.1, respectively.

The **Harris fire** started at Harris Ranch Road and Highway 94 in Potrero in San Diego County. The cause of this fire is undetermined as of December 2007. This fire burned 90,440 acres. For a detailed description of the Harris Fire location in relation to alternative project routes, refer to Section E.4.15.1.

The human-caused **Poomacha fire** started as a structure fire on the La Jolla Indian Reservation, along Highway 76. It burned 49,410 acres. The Poomacha Fire joined with the Witch Fire to the south.

Section D.15.2.1 describes San Diego County's 50-year wildfire history and the effects of large fires on natural resources.

## D.15.2 Environmental Setting

A fireshed approach is taken in this section in lieu of the Proposed Project links approach used in other sections. Firesheds are useful assessment tools for identifying high fire risk areas and predicting future fire behavior with the objective of reducing fire risk and protecting communities. Figure D.15-3, Sunrise Powerlink Proposed Project and Alternative Routes Firesheds, shows the boundaries of the firesheds relative to the Proposed Project, project links, and alternative routes. Figure E.7.1.15-1 (in Section E.7.1) shows the fireshed boundaries relative to the system alternatives.

This section presents the fire- and fuels-related environmental setting for the Proposed Project. A discussion of wildfire history and effects and fire suppression techniques and capabilities in San Diego and Imperial Counties is followed by detailed settings for each of the six Proposed Project firesheds plus the Imperial Valley Link and Eastern Anza-Borrego Link. Subsections include the following:

- Section D.15.2.1 – Wildfire History and Effects of Fires
- Section D.15.2.2 – Fire Suppression and Firefighting
- Section D.15.2.3 – Imperial Valley Link and Eastern Anza-Borrego Link
- Section D.15.2.4 – PFS-1 Ranchita Fireshed
- Section D.15.2.5 – PFS-2 San Felipe Fireshed
- Section D.15.2.6 – PFS-3 Santa Ysabel Fireshed
- Section D.15.2.7 – PFS-4 Ramona Fireshed
- Section D.15.2.8 – PFS-5 Poway Fireshed
- Section D.15.2.9 – PFS-6 Peñasquitos Fireshed

Figure D.15-1. Regional Fire Hazard Severity Zones  
[CLICK HERE TO VIEW](#)

Figure D.15-2. 2003 and 2007 San Diego County Fires  
[CLICK HERE TO VIEW](#)

Figure D.15-3. Sunrise Powerlink Proposed Project and Alternative Firesheds  
[CLICK HERE TO VIEW](#)

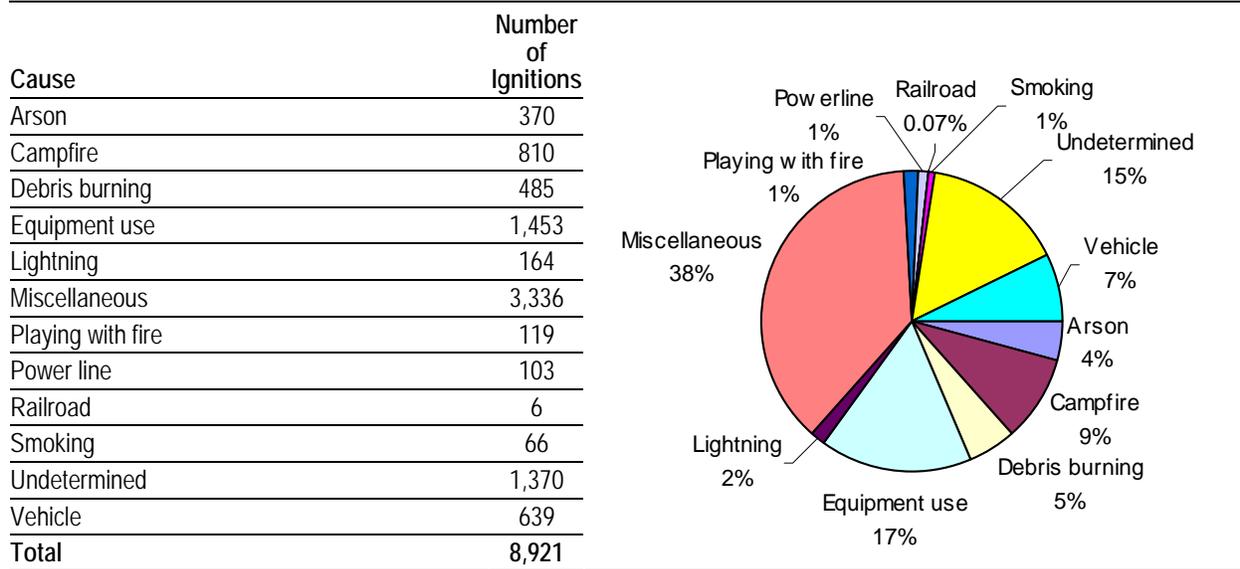
*This page intentionally blank.*

### D.15.2.1 Wildfire History and Effects of Fires

Large, high-intensity wildfires are a natural feature of chaparral landscapes, occurring prior to Euro-American settlement. The October 2003 Cedar Fire was the largest in California since official fire records have been kept; however, historical accounts in newspapers during the 19th century describe even larger events in southern California. Only in the latter half of the 20th century did these large fires routinely result in major loss of property and lives (Keeley and Fotheringham, 2006). Over the last 50 years there has been more than a threefold population increase from 900,400 to 2,941,454 people in San Diego County (U.S. Census Bureau, 2006). Human influence on wildfire ignitions is increasing at the expanding wildland-urban interface (WUI) where large populations have grown and are situated adjacent to fuel-laden wildlands, thereby increasing both wildfire ignitions and the loss of life and property during large wildfires.

Humans are the primary wildfire ignition source in San Diego County. Ignition data for the County compiled by both federal and State fire agencies over the past 13 years of record keeping show that 83% of wildfires are directly or indirectly started by humans, 15% of the causes are undetermined and most likely human-related, and only 2% are natural (lightning). One percent (1%) of recorded ignitions in the County over the last 13 years are power line ignitions. Table D.15-1 presents a summary of ignitions in San Diego County.

Table D.15-1. San Diego County 13-Year Wildfire Ignition History

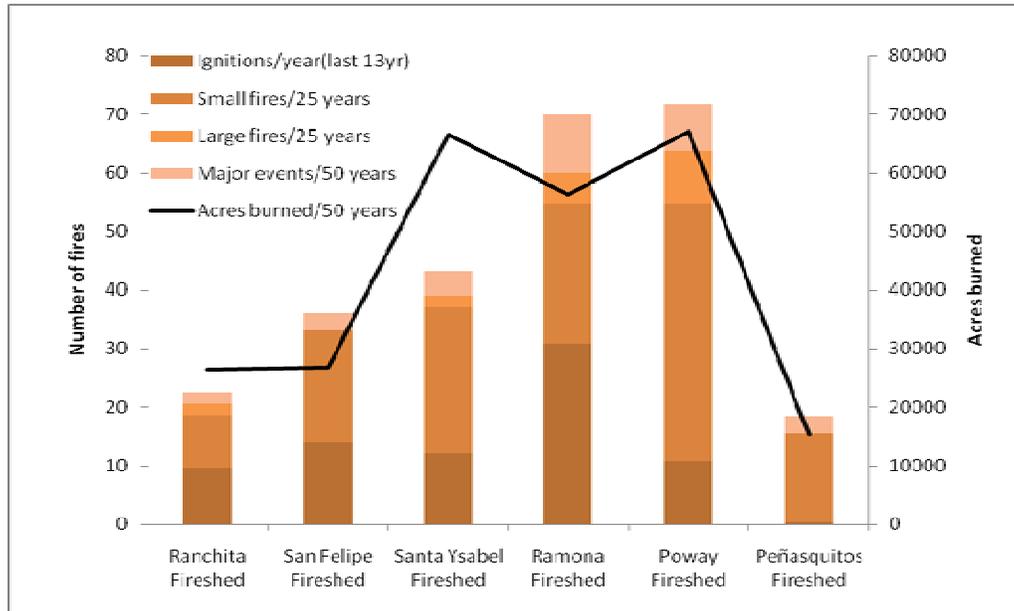


Source: CAL FIRE - FRAP 13-year San Diego County Ignition data, through 2006.

Development at the WUI situates homes, businesses, and infrastructure in harm's way, requiring a direction of firefighting resources for structure protection and evacuation during wildfires that consequently diverts firefighting resources away from direct fire suppression and containment. California Public Resources Code (PRC) 4291 requires that all buildings in the WUI have 100 feet of defensible space maintained around them (see Section D.15.3.2) in an effort to increase firefighting effectiveness and decrease property damage at the WUI; however, State-wide noncompliance with PRC 4291 is estimated to be between 50 and 80 percent (CAL FIRE, 2005; USFS, 2002).

Figure D.15-4 presents a graphical depiction of the wildfire history of the six Proposed Project firesheds through San Diego County. The influence of the WUI is evident through these firesheds, where the least populated and developed firesheds (Ranchita and San Felipe) have experienced a

Figure D.15-4. Proposed Project Fireshed Wildfire History



Source: Forester's Co-Op Fire Atlas Data.

relatively low number of ignitions, small and large fires, major events, and acres burned compared with the firesheds with the most development adjacent to wildland areas (Ramona and Poway). The primarily urban fireshed (Peñasquitos) with the fewest developments situated adjacent to wildlands has the lowest fire history numbers of all.

Although fires are a natural process in the chaparral ecosystems in San Diego County, wildfires can have damaging effects on natural resources including air quality, biological resources, and water quality. These effects are being exacerbated as the frequency of large wildland fires increases under human influence.

### Air Quality

**Emissions from Fires.** Smoke from a wildfire is made up of carbon dioxide, water vapor, carbon monoxide, particulate matter, hydrocarbons and other organics, nitrogen oxides, ozone, and trace minerals. The composition of smoke varies with fuel type: different types of vegetation are composed of varying amounts of cellulose, lignin, tannins and other polyphenolics, oils, fats, resins, waxes, and starches that produce different compounds when burned. Hazardous air pollutants and toxic air contaminants are also present in smoke, the most common being acrolein, benzene, and formaldehyde. In general, particulate matter is the major pollutant of concern from wildfire smoke (Thierrault, 2001; USDA, 2002).

Particulate matter is a general term for a mixture of solid particles and liquid droplets found in the air. See Section D.11.1.2, Existing Air Quality, for a description of particulate matter and the existing ambient air quality setting for particulate matter less than ten microns in diameter (PM10) and fine

particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>). Particulate distribution from smoke tends to be highest at two diameters: around 10 microns (ash and partially burned plant matter) and around 0.3 microns (carbon, tar, and liquids). See Section D.11.1.3, Air Quality, Existing Emission Inventory, for estimates of the emissions historically caused by wildfires in the San Diego area.

Emissions from wildfires depend on the quantity of wildland fuels, meteorological conditions, and topographic features that interact to modify the burning behavior as the fire spreads. Variability in fuel type, fuel loading, and moisture content affects the combustibility of fuels. Emission quantities are probably directly related to the intensity and direction (relative to the wind) of the wildfire and indirectly related to the rate at which the fire spreads; however, much of these data are obtained from laboratory experiments because of the difficulties in safely monitoring emissions close to a wildfire (U.S. EPA, 1996). It is not known whether these laboratory conditions correspond to field conditions.

Fires release large quantities of pollutants over very short time periods. Air quality during major events is often reduced to hazardous levels, and air quality can sometimes remain impaired for many days after an event. Levels of PM<sub>10</sub> and PM<sub>2.5</sub> were above the ambient air quality standard for the San Diego County basin as firestorms raged between October 22 and October 28, 2007, and peak concentrations of PM<sub>2.5</sub> climbed over 320 µg/m<sup>3</sup> at Escondido during brief one-hour periods on the afternoon of October 22 and early morning October 23, 2007 (CARB, 2007). For a 24-hour period, concentrations of PM<sub>2.5</sub> at Escondido were 146 µg/m<sup>3</sup>, compared with the National Ambient Air Quality Standard of 35 µg/m<sup>3</sup> (see Table D.11-6 in Section D.11). The San Diego Air Pollution Control District intends to declare the 2007 firestorm as an “exceptional event” that will be excluded when determining whether the region attains the ambient air quality standards (SDAPCD, 2007).

The effects on air quality from fires have become worse as fire extent and frequency have increased, emitting larger quantities of pollutants over shorter periods of time, and increasing the number of days of poor air quality in the air basin. The high concentrations of pollutants would lead to adverse health effects and diminished visibility. The Proposed Project is expected to increase the extent of fires by interfering with firefighting operations (Impact F-3, Presence of the overhead transmission line would reduce the effectiveness of firefighting); and, it is expected to increase the frequency of fires through ignitions related to construction, operation, and maintenance activities (Impacts F-1, Construction and maintenance activities would significantly increase the probability of a wildfire, and F-2, Presence of the overhead transmission line would increase the probability of a wildfire).

**Greenhouse Gases.** In California, the annual averaged level of carbon dioxide (CO<sub>2</sub>) emissions from fires is approximately 24 million metric tons CO<sub>2</sub> (MMTCO<sub>2</sub>) per year or about 6% of the fossil fuel burning emission estimates for the State. This wildfire emission rate is subject to large seasonal variation, with the ratio of carbon dioxide emissions from wildfire to emissions from fossil fuel burning in September and October reaching 50% in many years (Wiedinmyer and Neff, 2007).

The large short-term release of carbon dioxide is offset over longer time scales (decades) by the uptake of atmospheric carbon associated with forest regrowth (Wiedinmyer and Neff, 2007). Fires and fossil fuel emissions therefore have entirely different effects on atmospheric carbon dioxide levels, as the short-term rise carbon dioxide levels from fires are counteracted by CO<sub>2</sub> sequestered by plants and trees over the long-term through post-fire forest regrowth. In contrast, carbon emissions from fossil fuels results in a net increase in atmospheric carbon over these time scales. Increased fire frequency, however, can postpone carbon sequestration by cutting short forest regrowth, resulting in a net increase in atmospheric carbon from fire over many decades.

## Biological Resources

Chaparral shrublands that dominate San Diego County are acclimated to frequent large wildfires; however, increasingly frequent large fires have resulted in impacts to biological resources in recent decades.

**Flora.** Chaparral is highly tolerant to the disturbance fire provides, and will generally dominate a burned site several decades after a fire. Early successional plant species, including native and non-native grasses and herbs will generally dominate a burned site for the first several years after a fire. Therefore, increased fire frequency on the same site tends to favor vegetative type conversion to early successional species such as native and non-native grasses and herbs (Johnson et al., 2006). Changes in dominant vegetation communities dramatically affect habitats for plant and animal species, and may impact special status species. For example, the coastal California gnatcatcher is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the gnatcatcher. See Section D.2, Biological Resources, for further discussion of the impacts of fire on habitat loss.

**Fauna.** Despite the perception by the general public that wildland fire is devastating to animals, fires generally kill and injure a relatively small proportion of wild animal populations. The habitat changes caused by fire affect faunal populations and communities much more profoundly than fire itself. Fires often cause a short-term increase in productivity, availability, or nutrient content of forage and browse. These changes can contribute to substantial increases in herbivore populations, but potential increases are moderated by animals' ability to thrive in the altered, often simplified, structure of the post-fire environment. Large, high-intensity fires that denude a landscape of many shrubs and trees reduce habitat quality for species that require dense cover and improve it for species that prefer open sites. (USDA, 2000). See Section D.2, Biological Resources, for further discussion of the impacts of fire on habitat loss.

**Desert Ecosystems.** In many desert and semi-desert habitats where fire historically burned infrequently because of sparse fuels, invasion of weedy species has changed the vegetation so that burns occur much more frequently. Many animals in these ecosystems are poorly adapted to avoid fire or use resources in post-fire communities (USDA, 2000).

## Water Quality

Water quality can be impacted as a result of the occurrence of fire through increased rates of erosion and sedimentation from denuded hillsides, increased water temperature from decreased vegetative stream shade, changes in water chemistry and increases in chemical pollutants, and impacts to aquatic biota as a result of the use of fire retardants in fire suppression. These impacts have become more severe as fire extent and frequency have increased.

**Erosion and sedimentation.** Watersheds that have been severely denuded of vegetation by wildfire are vulnerable to accelerated rates of soil erosion and, therefore, can yield large amounts of post-fire sediment. Post-fire increases in suspended sediment concentrations and turbidity can result from erosion and overland flow, channel scouring because of the increased streamflow discharge, and creep accumulations in stream channels after a fire. Post-fire turbidity levels in stream water are affected by the steepness of the burned watershed, with steeper slopes depositing higher sediment levels (USDA, 2005).

**Water Temperature.** The removal of streambank vegetation by burning can cause water temperature to rise, causing thermal pollution to occur. When riparian (streamside) vegetation is removed by fire or other means, the stream surface is exposed to direct solar radiation, and stream temperatures increase (USFS, 2005).

**Water Chemistry.** The acidity of water can be affected by ash depositions immediately after a fire, sometimes to levels that violate water quality standards. Dissolved nitrogen can increase after fires due to accelerated mineralization and nitrification, but the level of nitrogen is generally low and does not generally violate water quality standards. Low but increased levels of dissolved phosphorus, sulfur, chloride, and total dissolved solids can also follow fires, but studies have shown no violations of water quality standards where standards exist (USFS, 2005).

**Fire Retardant.** The water quality impacts of fire retardant are not a direct result of fire, but the use of fire retardant to suppress wildfires in an effort to protect communities is commonplace in San Diego County. Ammonium-based fire retardants used in fire suppression efforts (diammonium phosphate, monoammonium phosphate, ammonium sulfate, or ammonium polyphosphate) can affect water quality and be toxic to aquatic biota (USFS, 2005).

### D.15.2.2 Fire Suppression and Firefighting

Wildfire control is dependent on a number of variables including weather, topography, fuel conditions (structure, volume, and moisture content), access, and timing of ignition. Most fires occur within early to middle afternoon hours when ambient temperature and fuel moisture levels are conducive to ignition. The first attempt at control and suppression is called the *initial attack*. If fires are not controlled within the first 2 or 3 hours, additional firefighting resources are usually called in, beginning the *extended attack* phase. With the onset of evening, fire intensity is typically reduced, assisting firefighters in containing the fire within a *single burning period*. When extended attack fails and thousands of acres burn, the incident is classified as a *major event*. As experienced in the 2003 Cedar and 2007 Witch Fires, an incident can become a major event within a matter of hours during severe fire weather conditions.

Fires controlled during either the initial or extended attack phase almost always occur during moderate fire weather conditions, often during the summer. Major events that involve thousands of acres and do the most damage usually occur between October and January during severe weather conditions involving Santa Ana winds. Another peak in Santa Ana winds can occur in late February through early April. Wind-driven major events typically run their course until weather conditions change as they are so difficult to contain regardless of firefighting resources. Since wind-driven embers can travel a mile or more in front of the head of a fire, multiple spot fires ignite and increase the rate of spread dramatically in high winds. Fire suppression activities during this time are usually only effective along the flanks, or sides of the fire.

CAL FIRE has a goal of containing 95% of all wildland fires at 10 acres or less. While this is generally achieved within San Diego County, nearly all of the Proposed Project and alternative route firesheds have experienced at least 10 fires over the past 25 years that have exceeded 25 acres. Efficient wildfire suppression is dependent upon a quick and aggressive initial attack, which is ultimately dependent on the availability of firefighting resources, success in coordination among responding fire agencies, the existence of defensive fuel breaks across the landscape, and—most critically—weather conditions.

Wildland fire suppression operations are extremely complex and expensive. Fire suppression in the WUI typically involve a multi-agency firefighting response that involves hundreds of firefighters participating in coordinated air and ground operations. The firefighting capabilities of the agencies that could

be involved in firefighting in the area of the Proposed Project and alternatives are described in this section. During the fire season, the availability and response time for these resources may vary according to the number of other emergencies in the area and the availability of volunteer firefighters.

Helicopters and airplanes are often the fastest resources to reach a wildfire. Almost anywhere in California, a firefighting aircraft can reach a wildfire within 20 minutes, (CAL FIRE, 2007a) depending on wind conditions that can ground aircraft if too strong. It can take an hour or more for fire engines to reach a wildland fire, especially in remote areas. Aerial attacks principally work in conjunction with firefighters on the ground. Aerial firefighting attacks are effective during initial attacks for extinguishing small fires and protecting homes (AHSFA, 2007). On large fires, aerial attacks are used for specific tactical suppression objectives such as reinforcing an established fire line. Identifying and extinguishing spot fires outside the fire line is another critical job done by aircraft. Spot fires can start miles away from the head fire under extreme wind conditions as experienced during the 2003 and 2007 Santa Ana wind driven fires in southern California. Where overhead power lines are present, aerial and ground attacks are restricted. Aerial operations are complicated by the risk of aircrafts and/or water buckets colliding with towers or conductors during smoky, reduced-visibility conditions. Conditions are especially hazardous when transmission lines are placed on ridge tops, reducing the proximity of fire retardant and water drops that aerial firefighting crews can achieve safely.

During a wildland fire, it is recommended that ground attacks not be made within at least 500 feet of a power line conductor and ground-based firefighters maintain a clearance from downed, energized power lines equal to the distance between two towers (NIOSH, 2002). This is a firefighting safety rule of thumb across all jurisdictions to ensure firefighter safety (CAL FIRE, 2007b; USFS, 2007). The distance between Proposed Project towers ranges from 425 feet to 1,705 feet (see Table B-1, Section B).

Wildland firefighters working around energized power lines are exposed to electrical shock hazards including: direct contact with downed power lines, contact with electrically charged materials and equipment due to broken lines, contact with smoke that can conduct electricity between lines, and the use of solid-stream water applications around energized lines. Between 1980 and 1999 in the U.S., there were 10 firefighter fatalities due to electrical structure contact during wildfire suppression (NFPA, 2001). Maintaining a minimum 500-foot safety buffer greatly reduces the risk of electrical structure contact, and it also reduces the effectiveness of ground-based frontal attacks.

Fire suppression and firefighting capabilities, by jurisdiction, are described below.

#### Bureau of Land Management : California Desert District Palm Springs–South Coast–El Centro Fire Management Zone

Bureau of Land Management (BLM) lands include thousands of acres in San Diego and Imperial Counties. BLM Fire and Aviation provides significant funding through Community Assistance Grants to the San Diego communities and assists in the development of community Fire Safe Councils. Rural Fire Assistance and the Ready Reserve Program have provided thousands of dollars in grants and wildland firefighter training to volunteer fire departments that respond to fires on BLM lands in San Diego and Imperial Counties. BLM lands in San Diego County are under a Direct Protection Agreement with CAL FIRE under which fire suppression and fire investigations to recover suppression costs are the responsibility of CAL FIRE.

BLM Fire and Aviation staffs a Fire Mitigation Education Specialist who responds as a federal firefighting Incident Commander for Imperial County. The Mitigation Specialist responds as an Agency Representative and Resource Advisor to all fire-related events on or within 1.5 miles of BLM lands in San Diego County.

BLM retains the responsibility for prevention, mitigation, fuels management, law enforcement, and land management activities. BLM lands in Imperial County are Federal Responsibility Areas (FRA). FRAs are those areas for which fire suppression and prevention activities are the responsibility of a federal agency. Reported fires on BLM land in Imperial County are so few as to not justify BLM Fire and Aviation Initial Attack resources. Imperial County fire departments respond to fires under a mutual aid agreement with BLM Fire and Aviation. Large fires often result in BLM and local fire departments operating under a Unified Command organization.

### Cleveland National Forest

The U.S. Forest Service (USFS) has primary wildland fire suppression responsibility on federal and private lands within the congressional boundary of the Cleveland National Forest. In the Proposed Project area, USFS firefighting facilities can be co-located with firefighting operations of other jurisdictions such as CAL FIRE and San Diego and Imperial Counties in order to share resources. An example of this is the joint CAL FIRE and USFS Firefighting Air Attack Base in Ramona that is operated May through November. During extended attack of wildland fires, federal resources may be mobilized from across the nation in support of these incidents. Cleveland National Forest resources include:

- 28 fire engine companies
- 3 'Hotshot' hand crews
- 1 medium sized helicopter
- 1 type-1 helicopter (heli-tanker)
- Access to air tankers jointly used by Angeles National Forest and San Bernardino National Forest

### California Department of Forestry and Fire Protection (CAL FIRE) San Diego Unit

The San Diego Unit of CAL FIRE is comprised of San Diego County and portions of Imperial County located in the southwest corner of California. This area is bordered by the Republic of Mexico to the south and the Pacific Ocean to the west. Riverside and Orange Counties make up its border to the north and Imperial County to the east. San Diego County spans over 4,200 square miles and its population has grown to 2.9 million people, which ranks as the second most populous county in the State. The CAL FIRE San Diego Unit is responsible for protecting 1,237,201 acres of State Responsibility Areas (SRA). SRAs are those areas outside of incorporated cities and those portions of fire protection districts that are the wildland fire responsibility of CAL FIRE. These include 301,130 acres of cooperative direct protection responsibility lands, and four local government full-service fire protection agreements. The San Diego Unit resources include:

- 18 CAL FIRE's fire stations, 26 CAL FIRE's fire engines
- 7 local government stations, 11 fire engines
- 4 CAL FIRE / CDC Conservation Camps, 19 hand crews
- 1 CAL FIRE / USFS air attack base
- 1 CAL FIRE OV-10 air attack aircraft
- 2 CAL FIRE S-2T air tankers
- 2 San Diego County Sheriff/CAL FIRE type-2 helicopters
- 4 CAL FIRE bulldozers
- 1 CAL FIRE / USFS Interagency Command Center, Monte Vista Headquarters

## Anza-Borrego Desert State Park

Within Anza-Borrego Desert State Park (ABDSP), wildland fire oversight is provided by CAL FIRE in the SRAs. The Cooperative Fire Protection Agreement and Operating Plan between ABDSP and CAL FIRE is in place to ensure pre-fire planning, coordinated wildfire responses and communication during fire suppression in order to minimize impacts to Listed Threatened and Endangered Species and archaeological sites. Under the agreement, ABDSP has the responsibility for post-fire rehabilitation and evaluation on the park lands. Borrego Springs is a Local Responsibility Area (LRA) within ABDSP that receives fire suppression services from Borrego Springs Fire Protection District (see below) under a mutual aid agreement with CAL FIRE. LRAs are areas for which fire prevention and suppression responsibility rests with a local or regional fire agency. The State Park owns a single fire engine in Borrego Springs that is used as a reserve when CAL FIRE resources are committed elsewhere. The Borrego Springs Incident Commander, in conjunction with the ABDSP Representative, has the option to deploy limited or no fire suppression resources in the event of a wildfire in this low-fire-risk LRA. The goal of the Fire Management Plan in the State of California Department of Parks and Recreation Operation Manual (Section 0313.2) is to ensure public safety and maintain park resource objectives when wildfires occur in park lands. Prescribed burning is implemented as a tool for fire prevention and ecological enhancement in the form of a multi-year program that is first reviewed under CEQA for environmental compliance.

## County of San Diego

The County of San Diego does not have its own individual oversight fire department. Rather, fire protection throughout the County is broken down into dozens of city and district fire departments, with broad fire protection resources depending on locality and need. Incorporated cities are responsible for wildfire suppression in their jurisdictions. In the unincorporated areas of San Diego County there are Local Responsibility Areas where fire protection is provided by Fire Protection Districts. County Service Areas are staffed with some volunteer Fire Departments, their primary responsibility being other than wildfire. FRAs within the county are largely under the jurisdiction of the U.S. Forest Service, but include military agency, civilian-managed fire departments on those bases that have wildlands. Fire Marshal building and planning activities in the unincorporated areas are under San Diego County's Department of Planning and Land Use. There are a number of Fire Safe Councils (volunteer groups that liaison with fire agencies, often made up of former firefighters) in various San Diego County communities that assist with fuel reduction projects and fire safety education. Since the 2003 Cedar Fire there has been an active effort to consolidate the various fire districts into one unified county fire department.

## County of Imperial

The County of Imperial Fire Department is comprised of four stations in El Centro and Calexico. Fire protection throughout the County is coordinated with nine additional city and district fire departments, with broad fire protection resources depending on locality and need. Imperial County also has coordinated protection efforts with CAL FIRE and Bureau of Land Management in Federal Responsibility Areas. The Imperial County Unit resources include:

- 10 fire departments
- 19 fire stations, with associated equipment and engines
- 113 career firefighters
- 106 paid-per-call firefighters
- 62 volunteer firefighters.

## City of San Diego

Serving the eighth largest city in the United States and the second largest city in California, San Diego Fire-Rescue Department is a multi-faceted organization that provides city residents with fire and life-saving services including fire protection, emergency medical services, and lifeguard protection at San Diego beaches. The department is comprised of 1,153 uniformed personnel and 126 civilian personnel. The area served is 331 square miles, and includes a population of 1,294,000 people. City of San Diego resources include:

- 46 fire stations
- 46 engines, 14 reserve engines
- 12 aerial trucks, 7 reserve aerials
- 2 light & air, 1 reserve light & air
- 2 hazardous material (hazmat) response, 1 reserve hazmat response
- 1 environmental response
- 1 explosive ordinance
- 1 heavy rescue
- 11 brush engines
- 2 water tenders
- 1 foam tender
- 6 airport rescue firefighting
- 2 chemical pickups
- 1 mobile communication
- 1 mobile canteen
- 46 Emergency Medical Services (EMS) ambulances
- 1 type-1 heavy rescue rig
- 1 type-2 helicopter
- 27 non-emergency ambulances
- 11 wheelchair vans
- 2 fleet repair vehicles
- Various lifeguard and water rescue boats and equipment.

## City of Poway

The City of Poway is located in the north inland area of San Diego County. The City's size is approximately 40 square miles with a population of nearly 50,000. The mission of the Department of Safety Services is to reduce the loss of life and property from fire, medical, and environmental emergencies through education, hazard reduction, and response. The Director of Safety Services accomplishes this mission through four functional divisions which include: Fire Suppression, Fire Prevention, EMS, and Law Enforcement Services. Collectively, these divisions provide a comprehensive approach to meeting the Department's stated mission. City of Poway firefighting resources include:

- 3 staffed fire stations
- Reserve firefighter program
- 2 1,500-gpm pumper engine
- 1 1,500-gallon pumper, 500 gallon water tank engine
- 1 reserve engine
- 2 500-gpm brush rig, 600 gallon water tank
- 2 medic ambulances and a reserve medic ambulance
- 1 water tender.

## Borrego Springs Fire Protection District

The Borrego Springs Fire Protection District maintains a fire station in Borrego Springs and also responds to fire emergencies in the nearby desert. Borrego Springs Fire Protection District resources include:

- 12 paid firefighters
- 21 reserve firefighters
- 2 engines
- 1 water tender
- 3 ambulances.

### D.15.2.3 Imperial Valley Link and Eastern Anza-Borrego Link

The first segment of the Proposed Project consists of the entire 60.9 miles of the Imperial Valley Link and the eastern 9.1 miles of the Anza-Borrego Link. This segment includes the entire Imperial County portion and the San Diego County portion up to the existing Narrows Substation. The proposed SRPL would begin at the Imperial Valley Substation, located five miles southwest of the center of the City of El Centro. It would be on BLM and private land, following about four miles of the existing 500 kV Southwest Powerlink (SWPL) transmission line to the northwest, then turning north, following the eastern edge of BLM land adjacent to agricultural lands. The 500 kV line would approach ABDSP from the east along the Old Cane Springs Road, where it would enter ABDSP and continue 9.1 miles to the eastern boundary of the Ranchita Fireshed PFS-1, described in Section D.15.2.4, below.

The project region of the Imperial Valley Link and eastern Anza-Borrego Link located in Imperial County and eastern San Diego County does not warrant fireshed evaluation due to a low potential for wildfire occurrence in this desert landscape. Fire risk is very low in the Imperial Valley Link and Eastern Anza-Borrego Link because of low fire intensities in the sparse desert vegetation that is present, resulting in minimal threats to the scattered population centers. A search of State and federal wildfire data centers yielded a finding of 6 wildfire initial attack and suppression efforts over the past 15 years of archived records for this portion of the project area. Comparatively, fireshed assessment areas for the remainder of the Proposed Project segments averaged 47 initial attack and suppression fires per year. The rocky surfaces and dry, desert climate of the Imperial Valley and Eastern Anza-Borrego region does not promote fast-growing woody vegetation communities such as chaparral, oak woodlands, and coniferous forests that allow for the accumulation of heavy fuels that sustain wildfire outbreaks in the remainder of the Proposed Project study area. Furthermore, the very low population density in the region minimizes the occurrence of human-caused ignition sources. The criteria used to establish Proposed Project and alternative route firesheds for analysis in this Section are outlined in Section D.15.4.3, Approach to Data Collection and Analysis, and Appendix 3.

Although this region does not possess the required elements for fire and fuel management impact evaluations, fast-spreading surface wildfires have occasionally occurred in western Imperial County. These fires generally occur after high precipitation years have allowed for a flush of vegetation growth that in turn provides a fuel source for wildfires. Generally these fires do not possess the heat intensities associated with the damaging impacts of chaparral and forest wildfires; however, they can sometimes ignite structures when present.

### D.15.2.4 PFS-1 Ranchita Fireshed

**Total Assessment Area: 113,918.1 acres**

The Ranchita Fireshed would include 21 miles of overhead 500 kV and 1.7 miles of overhead 230 kV transmission line and the proposed Central East Substation. In addition, the existing 69 kV corridor would be expanded to accommodate new 230 kV and 500 kV lines, and the existing 69 kV transmission line would be placed underground for approximately five miles, would be underbuilt with the proposed

500 kV line for approximately 16 miles, and would diverge from the proposed 500 kV line near the Central East Substation. Approximately 17 miles of existing wood poles would be removed, but for approximately four miles, the existing wood poles would remain adjacent to the 500 kV line to support existing distribution circuits.

The Ranchita Fireshed is bordered to the north by County Road S22 and includes the community of Ranchita. The eastern portion includes The Narrows on SR78 and Blair Valley, both within ABDSP. County Road S2 bisects the fireshed from northwest to southeast and includes the northeastern face of the Volcan Mountains and the community of Shelter Valley. The Proposed Project would cross the Pacific Crest Trail near County Road S2 within the boundaries of the fireshed. The elevation in this fireshed ranges from 2,255 feet in Banner to 6,147 feet at the peak of San Ysidro Mountain. Figure D.15-5 depicts the Ranchita Fireshed boundary, public land ownership boundaries, and the Proposed Project and alternative routes.

Table D.15-2. Land Ownership Summary of PFS-1 Ranchita Fireshed

Ownership	Acres	Portion of Fireshed
City of San Diego	0	0%
County of San Diego	373	<1%
BLM	6,506	6%
USFS	0	0%
Military	0	0%
Native American Reservation	178	<1%
State of CA (ABDSP)	88,049	77%
SDG&E	353	<1%
Private	18,459	16%
<b>Total</b>	<b>113,918</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

Rainfall within the Ranchita Fireshed is minimal as the Volcan Mountains create a rain shadow, or barrier to precipitation from the west. Rainfall increases westward with elevation, from a low of 3.5 inches annually in the Anza-Borrego desert where vegetation is sparse due to the limited precipitation. Climbing the mountain from the desert floor, rainfall increases from 22.5 inches on the Banner Grade to 27.5 in the Volcan Mountains. This area receives adequate precipitation to support dense but patchy chaparral and scrub oak on north facing slopes. The arid climate matched with the Santa Ana winds blowing early summer through winter can create severe to extreme wildfire weather.

The vast majority of the land within the Ranchita Fireshed is under the public ownership and management of ABDSP. Table D.15-2 summarizes land ownership in the Ranchita Fireshed. The Proposed Project route would bisect ABDSP running from east to west. The BLM manages the San Felipe Hills Wilderness Study Area and the San Ysidro Wilderness that make up 6% of the fireshed. The Proposed Project route would follow the eastern edge of these federally designated wilderness areas. In this sparsely populated fireshed, private land makes up only 16% of the area. The average private parcel size is 16 acres, indicating a high potential for future development within the fireshed. The population density within the private lands is 71 people per square mile. Future population growth within the fireshed would be concentrated within these private landholdings, which are bordered by extensive public wildlands. The expected result of this concentrated human influence on the fuel-laden wildlands is a corresponding increase in human ignitions and wildfires, and increasing property damages when fires do occur.

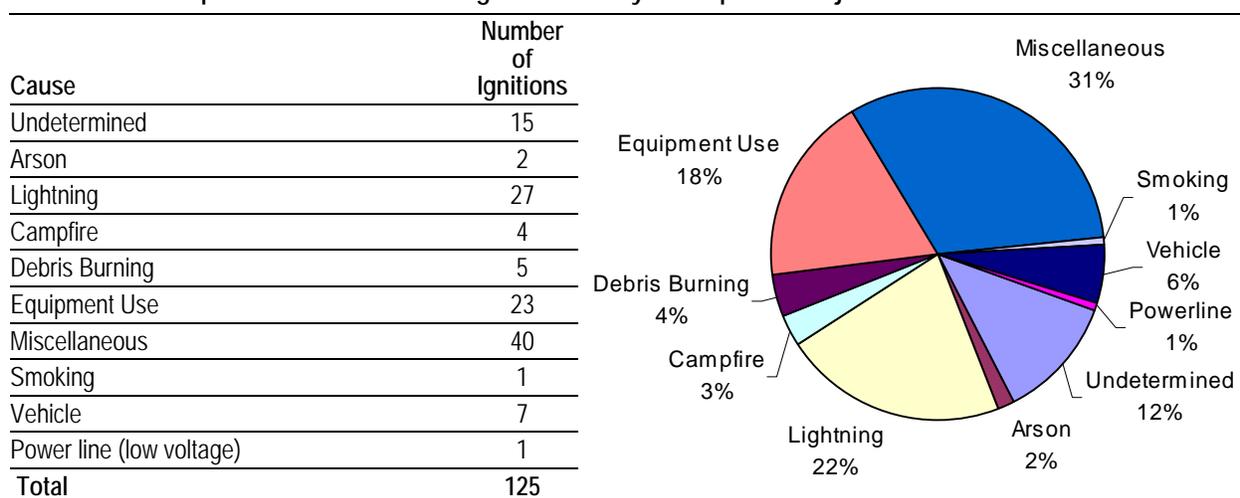
### Fire History

- **Fire Frequency: 13 recorded fires/50 years**
- **Extended Attack between 500 and 1,000 acres: 2 fires/50 years**
- **Major Events (over 1,000 acres): 2 fire/50 years**
- **Total acres burned: 26,500 acres/50 years**

The 2002 Pines Fire was the largest fire to burn within the Ranchita Fireshed, burning 21,708 acres through the western portion adjacent to Fireshed PFS-2. The Pines Fire started along Banner Grade just outside the fireshed when a power line was struck by a California National Guard helicopter. All other fires in the last 25 years ranged from 45 to 417 acres with an average of 275 acres burned (when 3 smaller fires less than 26 acres are excluded). The 2003 Cedar Fire did not burn within this fireshed. The cumulative number of acres burned over the past 50 years is 26,500 acres, a relatively small number compared with the Ramona Fireshed, at 55,700 acres, and the Poway Fireshed, at 66,000 acres.

The predominant cause of ignitions in this fireshed (22%) is lightning. This is more than double the frequency of the next highest lightning ignition rate, found in the San Felipe Fireshed, within the Proposed Project area. Equipment use ignitions are also substantial (18%), frequently occurring near Highway 78 and County Road 2. Table D.15-3 summarizes sources of wildfire ignition in the Ranchita Fireshed.

Table D.15-3. Reported 13-Year Wildfire Ignition History in Proposed Project Fireshed PFS-1



Source: Forester's Co-Op Fire Atlas Data.

The Ranchita Fireshed wildfire history indicates that relatively few fires have occurred over the past 50 years compared with the most recent decade, during which there has been an increase in both fire frequency and area burned per decade. The average wildfire burn area is based on a 50-year fire history (for methods see Section D.15.4.3). An average of 5% or 5,696 acres burned per decade in the Ranchita Fireshed (Figure D.15-6). The comparatively high proportion burned during the 1997-2007 decade is attributed to the 2002 Pines Fire, which burned 20% of the fireshed.

The level of human influence within this fireshed is a key indicator of future ignitions and fire frequency. Humans are responsible for 66% of the wildfire ignitions over the past 13 years as compared to 22% of the ignitions naturally occurring from lightning. The random occurrence of lightning ignitions is expected to remain constant throughout the landscape. However, population increases and development pressures will increase the number of human-caused ignitions in the future. Any ignitions that occur during extreme Santa Ana weather conditions will spread quickly, causing initial attack escapes and an increased potential for major wildfire events. Over the 50-year wildfire history, humans started 6 of the 12 wildfires that burned within the fireshed, there were three lightning started fires, and the rest of the wildfire sources are undetermined. The high number of undetermined wildfire sources may be attributed to historical wildfire reporting and source identification practices, which have become more accurate in recent times. The level of human wildfire influence is expected to increase within this WUI fireshed in the future due to a high development potential on private lands.

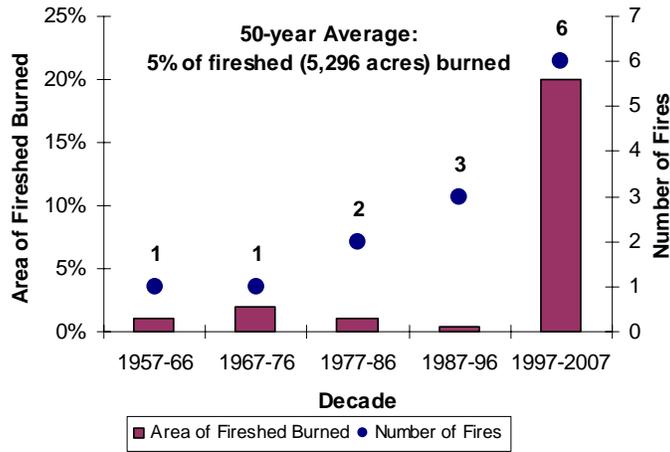
Figure D.15-5. PFS-1 Ranchita Fireshed Boundary and Proposed Project and Alternative Project Routes

[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

The presence of continuous public wildlands intermingled with development indicate that the Ranchita Fireshed is an Intermix WUI<sup>5</sup> fire-shed. Intermix WUI areas have an elevated risk of wildfires due to the intermediate scale of development that has fragmented the wildlands, but not enough to disrupt the spread of wildfires (Syphard et al., 2007). In other words, wildlands are sufficiently contiguous to provide continuous fuels, which makes this fire-shed prone to large fires. Because development is interspersed so extensively with wildland areas, human ignitions are more frequent than in rural areas, and fires sweeping through this fire-shed have a high potential to be damaging to the intermixed community. The intermixed community is developed at a relatively low density (28-250 persons/square mile) compared with Interface WUI communities (250+ persons/square mile; see Section D.15.2.7, Ramona Fire-shed for a description of an Interface WUI).

Figure D.15-6. Ranchita Fire-shed Wildfire History



Source: Forester's Co-Op Fire Atlas Data.

### Vegetation

The Ranchita Fire-shed is largely within the rain shadow of the Volcan Mountains, which capture most of the precipitation that comes from the west. Within the fire-shed, the vegetation consists of sparse chaparral ranging into desert scrub heading farther east. On the east slope of the mountains the vegetation consists of patchy but dense chaparral and scrub oak. Juniper woodlands can be found throughout the north central portions of the fire-shed. Heading east into ABDSP the dominant vegetation community is desert scrub consisting mostly of sparse creosote bush, sage and yucca. Table D.15-4 summarizes vegetation communities found within the Ranchita Fire-shed.

Table D.15-4. Vegetation Composition of Fire-shed PFS-1

Vegetation Type	Acres	Cover
Chaparral	4,583	35%
Live Oak	531	4%
Desert Wash Woodland	915	7%
Desert Scrub	6,162	47%
Juniper Woodland	976	7%
Out Area	61	<1%
<b>Total</b>	<b>13,228</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

Desert scrub is the predominant vegetation type within the Ranchita Fire-shed, followed by chaparral. There is a significant invasion of cheatgrass (*Bromus tectorum*) and other non-native grass species within both the desert and chaparral plant communities. The presence of these invasive, non-native grasses increases the risk of wildfire during years of above-average rainfall. These grasses create fine fuels that catch fire easily and spread quickly, creating a continuum between sparse shrubs. The spread of cheatgrass within chaparral ecosystems can increase the frequency and extent of wildfires, which can lead to vegetation type conversion.

The chaparral plant community growing over the Pines Fire scar is currently in its fifth year of recovery. It will likely create a closed canopy within 12-18 years and achieve extreme fuel loading within 25-30

<sup>5</sup> Intermix WUI: where structures are scattered throughout a wildland area and wildland fuels are continuous outside of and within developed areas (population density of 28-250 people per square mile; USDA/USDI 2001).

years if rainfall is adequate, disturbances are absent, and another fire does not occur. Fires and/or vegetation management activities within this period will compromise the recovery process and will lead to type-conversion whereby chaparral is replaced by non-native species. The Proposed Project would pass over a portion of this fire scar.

### Fire Prevention Practices and Resources

This is primarily an SRA, so fire protection for the area is conducted by CAL FIRE; this includes most of ABDSP. The BLM manages the San Ysidro Mountain Wilderness Study Area. The Santa Ysabel Reservation and BLM's San Felipe Hills Wilderness Study Area are under CAL FIRE Direct Protection and Assistance by Hire Agreement between CAL FIRE and BIA on Reservation land. The eastern half of ABDSP is considered a Local Responsibility Area (LRA) which receives fire suppression services from Borrego Springs Fire Protection District under a mutual aid agreement with CAL FIRE. Regulations and requirements applicable to fire suppression and prevention are described in Section D.15.3, and SDG&E policies are described in Appendix 3D.

There are two volunteer fire stations, one at Ranchita and the other in Shelter Valley. The long distance of this fireshed from a permanently staffed fire station increases the risk of wildfire spread. There are water resources outside of this fireshed that could be used for fire suppression, but there is no major water supply locally for immediate fire containment within the fireshed due to the arid nature of the area. Some, but not all, of the isolated homes have water tanks. The Ranchita Fireshed is rural with development limited to scattered homes and ranches with the exception of Shelter Valley and Ranchita. In 2004, the USFS administered fuel reduction treatments and fuel breaks on 595 acres throughout the fireshed.

#### D.15.2.5 PFS-2 San Felipe Fireshed

##### **Total Assessment Area: 50,315.2 Acres**

The San Felipe Fireshed would include 16.9 miles of overhead 230 kV transmission corridor. The existing 69 kV transmission line would remain on wood poles parallel to the proposed 230 kV transmission line for approximately 2.6 miles, would be placed parallel to the proposed 230 kV transmission line on new tubular steel poles for approximately 9.2 miles, and would deviate from the proposed 230 kV line just before the San Felipe Fireshed boundary.

The San Felipe Fireshed is bordered to the west by the Palomar Ranger District of the Cleveland National Forest, and includes the northern portion of the southwestern slope of the Volcan Mountains, the 3,500-acre Mesa Grande Indian Reservation, the Santa Ysabel Valley, and Whale Mountain northeast of Ramona. A significant portion of the fireshed is part of the San Dieguito River/Santa Ysabel Creek watershed, including the Lake Henshaw and Sutherland Lake reservoirs. The Mataguay Boy Scout camp is off of SR79, and its access road would be crossed by the Proposed Project corridor. Elevation in the San Felipe Fireshed ranges from 2,058 feet at Lake Sutherland to approximately 5,500 feet in the Volcan Mountains. Figure D.15-7 depicts the San Felipe Fireshed boundary, public land ownership boundaries, and the Proposed Project and alternative routes.

In the rolling oak woodlands and grassland of Santa Ysabel Valley the average annual rainfall ranges from 22.5 to 27.5 inches. In the central section of the fireshed are the Volcan Mountains which receive an average annual rainfall of 32.5 inches. This ample amount of precipitation contributes to dense growth of the chaparral, scrub oak and chamise plant communities. Moving down the steep northeastern slope of the mountains into the San Felipe Valley, the rainfall range is similar to that of the Santa Ysabel

Figure D.15-7. PFS-2 San Felipe Fireshed Boundary and Proposed Project and Alternative Project Routes

[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

Valley area. The very northeast corner of the fireshed is in the rain shadow of the mountains receiving on average 18 inches of rainfall annually. The vegetation is composed mostly of dense chaparral. The thick vegetation creates a hazardous fuel load especially with severe to extreme fire weather conditions created by the Santa Ana winds

The fireshed consists mostly of scattered rural developments, livestock grazing land and wildland preserves. The majority of land within this fireshed is privately owned (61%). The private utility company, Vista Irrigation District, owns land in the northeastern part of the fireshed including land surrounding the southern part of Lake Henshaw. Private ranches are the main landholdings throughout the Santa Ysabel and San Felipe Valleys. The conservation lands that are managed by the non-profit San Dieguito River Valley Conservancy (SDRVC) are also included in this category. The SDRVC manages the

5,400-acre Santa Ysabel Ranch and part of Corral Mountain, north of Lake Sutherland, these are both part of the San Dieguito River Park planning area and watershed. The Mesa Grande and Santa Ysabel Reservations make up the second largest land holdings within the firesheds. The County of San Diego owns smaller sections of land consisting of the Santa Ysabel Open Space Preserve and other regional parks. The only U.S. Forest Service (USFS) land within the fireshed is a small portion of the Cleveland National Forest that borders Lake Sutherland to the west. BLM manages several small pieces of land totaling 1% of the fireshed. The towns of Santa Ysabel and Morettis are small population centers. The average private parcel size is 48 acres, which indicates that this is a rural fireshed where structures are generally dispersed across the landscape.<sup>6</sup> The population density on private lands is 21 people per square mile. Extensive grazing has occurred in the Santa Ysabel Valley and portions of the Mesa Grande Indian Reservation. If grazing continues, the area will remain dominated by grasses. Grasslands are a major source of easily ignited, rapidly burning fuels. These fuels matched with the Santa Ana winds create a serious wildfire threat. Table D.15-5 summarizes land ownership in the San Felipe Fireshed.

Table D.15-5. Land Ownership Summary of  
PFS-2 San Felipe Fireshed

Ownership	Acres	Portion of Fireshed
City of San Diego	1,958	4%
County of San Diego	2,649	5%
BLM	524	1%
USFS	286	1%
Military	0	0%
Native American Reservation	14,291	28%
State of CA	139	<1%
SDG&E	37	<1%
Other (private, etc.)	30,672	61%
<b>Total</b>	<b>50,556</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

### Fire History

- **Fire Frequency: 21 recorded fires/50 years**
- **Extended Attack between 500 and 1,000 acres: 0 fires/50 years**
- **Major Events (over 1,000 acres): 3 fires/50 years**
- **Total acres burned: 26,700 acres/50 years**

There have been 21 fires in the past 50 years within the San Felipe Fireshed. Three of these, the Mataquay (2004: 8,867 acres), the Morettis (1990: 3,314 acres), and the Witch (2007: 12,600 acres) became major events. The 2007 Witch Fire burned 12,600 acres, or 25% of the fireshed. The 2003 Cedar Fire burned only 258 acres, or 1% of the fireshed. All other fires remained below 500 acres with an average of 108 acres burned. The cumulative number of acres burned over the past 50 years is 26,700 acres, a

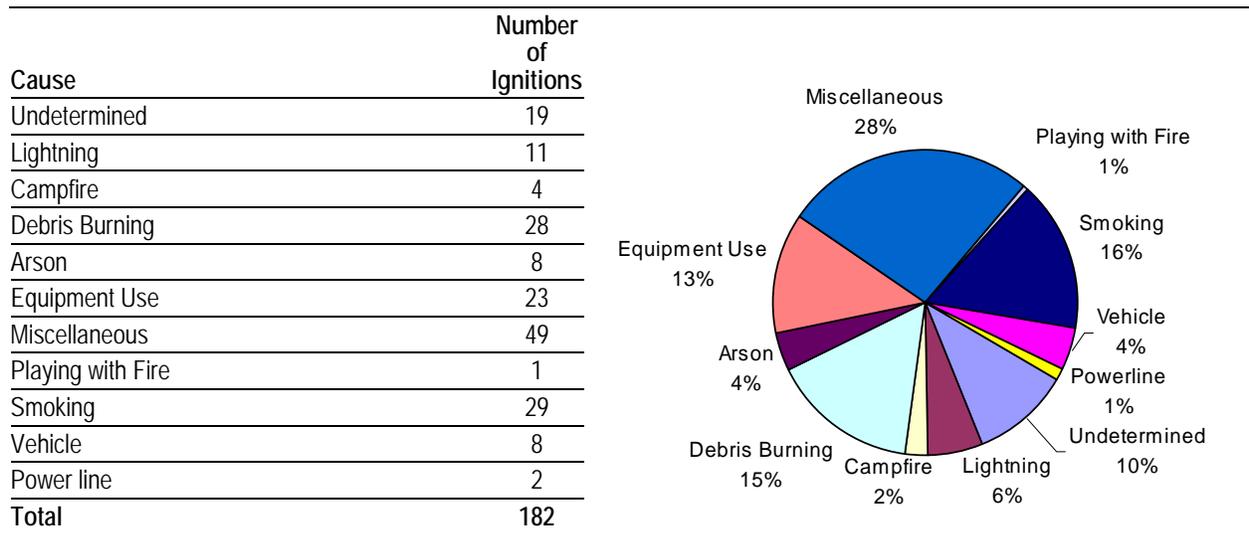
<sup>6</sup> Rural: population density of 28 people or less per square mile where structures are located on parcels of 40 acres or more (Federal Register (USDA/USDI 2001)).

relatively small number compared with the Ramona Fireshed, at 56,300 acres, and the Poway Fireshed, at 67,100 acres.

The largest fire to burn within the fireshed was the 2007 Witch Fire, which was started by a power line and is currently under investigation. The 1990 Morettis and the 2004 Mataguay Fires were started by arson. Both the Mataguay and Morettis Fires were in the northern portion of the fireshed near Lake Henshaw, and the Witch Fire burned in the southwestern portion of the fireshed. The 2003 Cedar Fire burned only 258 acres, or 1% of the fireshed.

The primary identified causes of ignitions in this fireshed over the last 13 years are smoking, debris burning, and equipment use (44%). This fireshed has the highest instance of smoking-caused wildfire ignitions out of all the Proposed Project firesheds. Naturally occurring fires caused by lightning represent 6% of the ignitions, the second highest level in the six proposed firesheds. Only the Ranchita Fireshed, which experiences frequent lightning storms, has a higher number of natural ignitions. See Table D.15-6 for historical sources of wildfire ignition.

Table D.15-6. Reported 13-Year Wildfire Ignition History in Proposed Project Fireshed PFS-2



Source: Forester's Co-Op Fire Atlas Data.

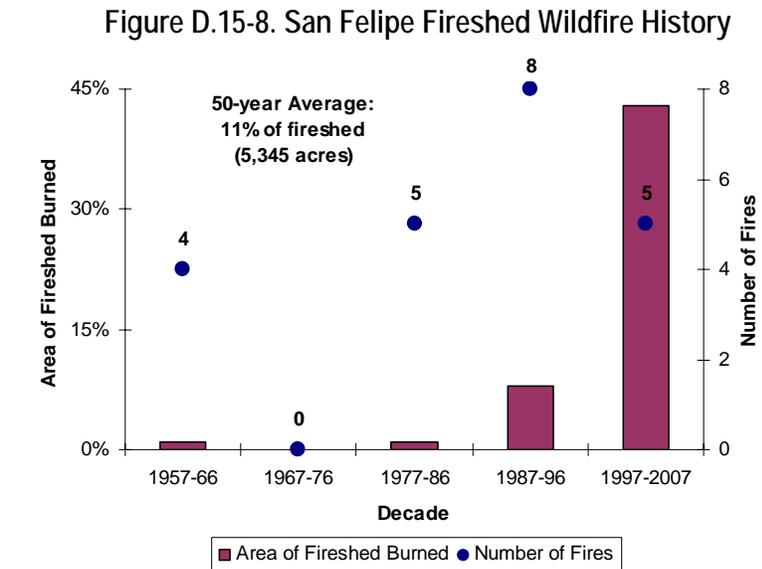
An average of 11% or 5,345 acres burned per decade in the San Felipe Fireshed based on the 50-year fire records (Figure D.15-8; for methods see Section D.15.4.3). The upward trend in acreage burned over the past two decades is attributed to the 1990 Morettis, 2004 Mataguay, and 2007 Witch Fires. During the 1987-96 decade, there were the greatest number of wildfires, but according to the amount of area burned these fires probably started under normal weather conditions and were contained to relatively small areas. In the past decade (1997-2007), half the number of wildfires burned compared with the previous decade but four times the area burned due to wildfires starting during extreme Santa Ana weather conditions.

The level of human influence within this fireshed is a key indicator of future wildfire ignitions. Humans are responsible for 84% of the wildfire ignitions over the past 13 years as compared to 6% of the ignitions naturally occurring from lightning. The random occurrence of lightning ignitions is expected to remain constant throughout the landscape. Over the 50-year wildfire history, humans started 15 of the 21 wildfires that burned within the fireshed, there was one lightning fire and the rest of the wildfire

sources were undetermined. The high number of historically undetermined wildfire sources may be attributed to outdated wildfire reporting and source identification practices, which have become more accurate in recent times. The level of human influence is expected to increase within this rural fireshed in the future due to high development potential on private lands.

### Vegetation

Vegetation in the San Felipe Fire-shed is a rich mosaic of old-growth, mixed chaparral on north and western facing slopes and old-growth chamise chaparral on several eastern facing slopes near Lake Sutherland, on Whale Mountain, and on the southwestern slope of the Volcan Mountains. Coastal sage scrub is found on many southern facing slopes intermixed with grassland areas. Open grasslands are present in the Santa Ysabel Valley and nearby areas. Dense Engelmann oak/coast live oak woodlands surround Lake Sutherland on northern facing slopes and along drainages. Open coast live oak woodlands with a grass understory are present east of Lake Sutherland and within the Santa Ysabel Valley.



Source: Forester's Co-Op Fire Atlas Data.

The southwestern portion of the San Felipe fireshed represents one of the last remaining areas in San Diego County with extensive stands of old-growth chaparral. Consequently, it represents a valuable natural resource to the region. The Lake Sutherland area in particular includes scattered rare concentrations of 3- to 5-meter-tall big-berry Manzanita (*Arctostaphylos glauca*) on north and western facing slopes. Old-growth chamise chaparral stands (*Adenostoma fasciculatum*) on selected eastern slopes have a rich assemblage of lichens on dead stems. Several dense groves of Engelmann oak (*Quercus engelmannii*) are present around Lake Sutherland as well. Southern facing slopes have a sparse sage scrub assemblage of California sage brush (*Artemisa californica*) and white sage (*Salvia apiana*). The dense nature of the vegetation on the western side of SR78 to Lake Sutherland and into the Cleveland National Forest will make fire suppression difficult under moderate fire weather conditions. Under severe fire weather conditions, fire suppression efforts will have minimal impact. This will be especially true for the portion of the Proposed Project that runs along Mesa Grande Road, through Santa Ysabel Valley, and east of SR78. The importance of the Santa Ysabel area during fire suppression activities was demonstrated during the November 30, 2006 Open Fire. Firefighters estimated they had 10-minute window to control this fire while it was shielded from 40 mph winds by local mountains. Six air tankers and four helicopters, along with on-the-ground firefighters, were able to contain the fire to less than 300 acres and keep it from spreading further.

The middle portion of the Proposed Project in the San Felipe Fireshed would pass through the Santa Ysabel Valley, which is covered primarily by grassland and coast live oak woodland. The northern portion the Proposed Project in this fireshed would pass through the 2004 Mataguay Fire scar, which is dominated by recovering mixed chaparral. The Witch Fire of 2007 burned 12,632 acres of the western portion of the fireshed in areas around Lake Sutherland. Dense and abundant fuels were quickly consumed in the first days of the Witch Creek Fire allowing for severe fire intensities and rapid fire expansion. Fuel load levels within both of these fire scars that account for approximately 43% of the San Felipe Fireshed will be minimal over the next three to five years having been mostly consumed by these events. As the native chaparral recovers climatic wild-fire fuel load levels will be reached once again within the next 25 to 30 years with adequate rainfall and no additional disturbances. Despite these two large recent fires, well over 50% of the fireshed remains undisturbed by fire during the past 50 years and has been inventoried in the field to contain some of the highest fuel loads of the six Proposed Project firesheds. Table D.15-7 summarizes the vegetation communities present in the San Felipe Fireshed just prior to the 2007 Witch Fire.

Table D.15-7. Vegetation Composition of PFS-2 San Felipe Fireshed

Vegetation Type	Acres	Cover
Chaparral	3,305	41%
Live Oak	686	9%
Scrub	148	2%
Oak Woodland	2,442	31%
Out Area	1,383	17%
<b>Total</b>	<b>7,964</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

### Fire Prevention Practices and Resources

A major portion of the San Felipe Fireshed is part of the San Dieguito River Park Planning Area, and many areas have been purchased by the San Dieguito River Valley Conservancy to protect them as public open spaces. At the present time, a fire management plan does not exist for this entity. Most of the fireshed is an SRA, so fire protection is primarily conducted by CAL FIRE. The Santa Ysabel and Mesa Grande Indian Reservations are Federal Responsibility Areas. Regulations and requirements applicable to fire suppression and prevention are described in Section D.15.3, and SDG&E policies are described in Appendix 3D.

There is currently one fire station within this fireshed, North County Reservation Fire which is staffed part time. Significant water resources for firefighting are available at Lake Henshaw and Lake Sutherland. Some, but not all, of the isolated homes have water tanks. The San Felipe Fireshed is mostly rural with development limited to scattered homes and ranches. The small community of Santa Ysabel (population 1,175) represents the only significant concentration of business activity. Mesa Grande and Santa Ysabel are federally registered communities at risk of wildland fire.

### D.15.2.6 PFS-3 Santa Ysabel Fireshed

**Total Assessment Area: 38,410 acres**

The Santa Ysabel Fireshed would include 7.8 miles of overhead and 1.3 miles of underground transmission corridor. The proposed 230 kV overhead line would parallel the existing 69 kV line for approximately 6.4 miles, and the existing 69 kV line would remain on wood poles along this segment.

The fireshed is bordered to the north by the edge of Whale Mountain, and it includes a portion of San Diego Country Estates at its southern border. The southeastern portion is bounded by Mt. Gower at an elevation of 3,103 feet. The town of Ramona is outside of the fireshed to the west. The fireshed is oriented on the west slope of the Volcan Mountains and includes the area of Santa Ysabel. The western half of Fireshed PFS-3 receives an annual average rainfall of 22.5 inches. As the elevation rises up the west

slope, the average annual rainfall increases to 27.5 for the east side of the fireshed. This moderate amount of precipitation is sufficient to support dense chaparral plant communities on north-facing slopes. The arid summer and fall climate creates very dry fuels that are easily ignited. The Santa Ana winds can create severe to extreme fire weather in this fireshed from early fall through spring. Figure D.15-9 depicts the Santa Ysabel Fireshed boundary, public land ownership boundaries, and the Proposed Project and alternative routes.

There is an extensive WUI throughout this fireshed. More than half of The Santa Ysabel Fireshed is privately owned (57%); this includes San Diego Country Estates and all of the surrounding rural communities. The average private parcel size is 13 acres, which indicates a high potential for future development through subdivision of parcels within the fireshed. The population density on private lands is 188 people per square mile. Future population growth within the fireshed will be concentrated within these private landholdings, which are bordered by extensive public wildlands. The result of this growing, concentrated human influence on the surrounding fuel-laden wildlands will be a corresponding increase in human ignitions and wildfires. The Cleveland National Forest covers 30% of the fireshed, extending through to the south and east. BLM land accounts for 11% of landholdings. Mount Gower Open Space Preserve is operated on BLM land under agreement for future patent by the County of San Diego. These large portions of public wildlands paired with active urban development have proven to be volatile according to the wildfire ignition history. See the Fire History section for a summary of wildfire ignitions within the fireshed. The Proposed Project would bisect BLM land in the western part of the fireshed. Table D.15-8 summarizes land ownership in the Santa Ysabel Fireshed.

Table D.15-8. Land Ownership Summary of PFS-3 Santa Ysabel Fireshed

Ownership	Acres	Portion of Fireshed
City of San Diego	0.012	<1%
County of San Diego	190	<1%
BLM	4,082	11%
USFS	11,438	30%
Military	0	0%
Native American Reservation	606	2%
State of California	41	<1%
SDG&E	0	0%
Other (private, etc.)	22,053	57%
<b>Total</b>	<b>38,410</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data

### Fire History

- **Fire Frequency: 30 recorded fires/50 years**
- **Extended Attack between 500 and 1,000 acres: 2 fire/50 years**
- **Major Events (over 1,000 acres): 4 fires/50 years**
- **Total acres burned: 66,700 acres/50 years**

There have been 31 fires in the past 50 years within this fireshed. The 2007 Witch Fire burned 33,000 acres or 86% of the fireshed. The cause of the Witch Fire was a power line, and the case is currently under investigation. The 2003 Cedar Fire started approximately 3.5 miles to the east of the fireshed and burned 64% of the fireshed's total area. Another major fire event was the 1993 Eagle Fire that burned 2,703 acres within the fireshed. Two other large fires have burned much of this fireshed, one in 1928 and the other in 1956. The cumulative number of acres burned over the past 50 years is 66,700 acres, compared with the Ramona Fireshed, at 56,300 acres, and the Poway Fireshed, at 67,100 acres.

Fire History

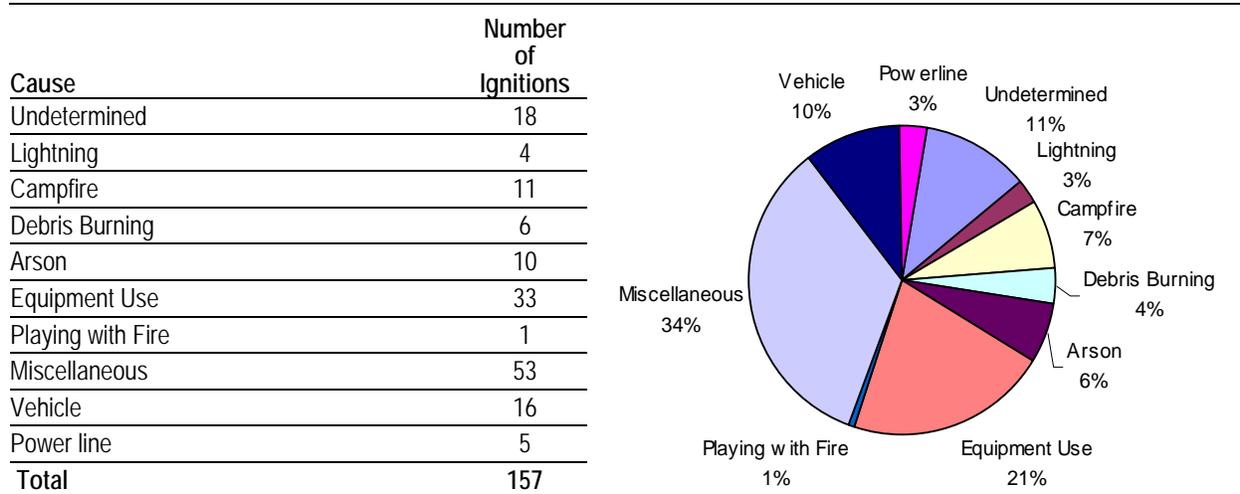
- **Fire Frequency: 30 recorded fires/50 years**
- **Extended Attack between 500 and 1,000 acres: 2 fire/50 years**
- **Major Events (over 1,000 acres): 4 fires/50 years**
- **Total acres burned: 66,700 acres/50 years**

There have been 31 fires in the past 50 years within this fireshed. The 2007 Witch Fire burned 33,000 acres or 86% of the fireshed. The cause of the Witch Fire was a power line, and the case is currently under investigation. The 2003 Cedar Fire started approximately 3.5 miles to the east of the fireshed and burned 64% of the fireshed's total area. Another major fire event was the 1993 Eagle Fire that burned 2,703 acres within the fireshed. Two other large fires have burned much of this fireshed, one in 1928 and the other in 1956. The cumulative number of acres burned over the past 50 years is 66,700 acres, compared with the Ramona Fireshed, at 56,300 acres, and the Poway Fireshed, at 67,100 acres.

A portion of the Proposed Project route (MP 109 to MP 115) parallels the northwestern rim of the San Diego River Canyon which was a strategic topographical fuel break utilized to contain the Cedar Fire. This was an area of intensive bombardment of fire retardant by aerial tankers in order to stop the Cedar Fire from moving further north toward SR78 and into the Sutherland Lake area.

The predominant causes of ignitions in this fireshed are equipment use (21%) and vehicles (10%). The high frequency of these types of ignitions, coupled with a history of large fires, indicates this fireshed is at high risk for continued wildfires. Table D.15-9 summarizes wildfire ignition history in the Santa Ysabel Fireshed.

Table D.15-9. Reported 13-Year Wildfire Ignition History in Proposed Project Fireshed PFS-3



Source: Forester's Co-Op Fire Atlas Data.

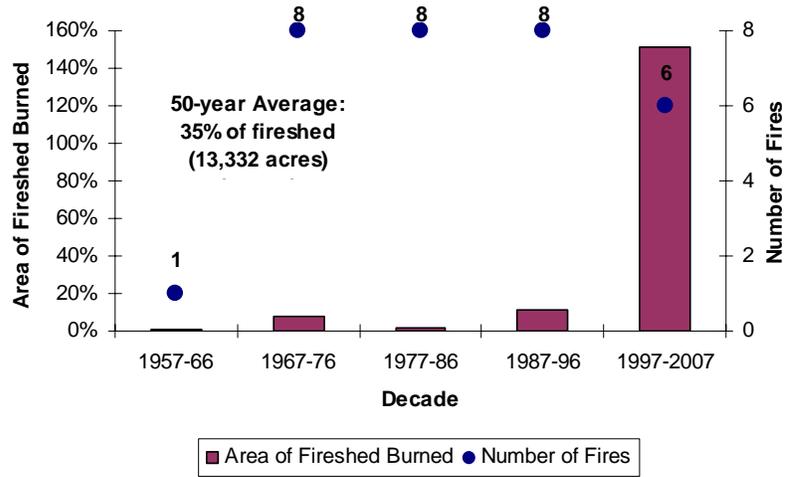
Figure D.15-9. PFS-3 Santa Ysabel Fireshed Boundary and Proposed Project and Alternative Project Routes

[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

An average of 35% or 13,332 acres burned per decade in the Santa Ysabel Fireshed based on the 50-year fire records (Figure D.15-10; for methods see Section D.15.1.2). The dramatic upward trend in the 1997-2007 decade is attributed to the 2007 Witch Fire and the 2003 Cedar Fire, which burned 33,000 acres and 24,772 acres within the fireshed, respectively. This is 6.5 times the cumulative area burned over the previous 40 years. Wildfires during those previous four decades probably occurred during normal weather conditions.

Figure D.15-10. Santa Ysabel Fireshed Wildfire History



Source: Forester's Co-Op Fire Atlas Data

The level of human influence within this fireshed is a key indicator of the number of future wildfires. Humans are responsible for 86% of wildfire ignitions over the past 13 years as compared to 3% of the ignitions naturally occurring from lightning. The random occurrence of lightning ignitions is expected to remain constant throughout the landscape. Over the 50-year wildfire history, humans started 22 of the 30 wildfires that burned within the fireshed, there were two lightning-ignited fires, and the rest of the wildfire sources were undetermined. The high number of historically undetermined wildfire sources is attributable to outdated wildfire reporting and source identification practices, which have become more accurate in recent times. The level of human influence is expected to increase within this WUI fireshed in the future due to development potential on the private lands.

The extensive public wildlands in relationship to the current population density and potential for development indicate that the Santa Ysabel Fireshed is an Intermix WUI fireshed. Intermix WUI<sup>7</sup> regions are documented to have an elevated risk of wildfires due to the level of human activity and the intermediate scale of development that has fragmented the wildlands, but not enough to disrupt the spread of wildfires (Syphard et al., 2007). Additional human ignition sources result in elevated fire frequencies occurring adjacent to the continuous, fuel-laden wildlands where larger areas burn during wildfire events. These consequences of increased human impacts within and around the wildlands will be amplified in the future through population growth.

## Vegetation

Combined with development, grazing, and other agricultural activities, repeated fires within this fireshed have eliminated much of the native shrub communities and replaced them with non-native grasses. A large portion (64%) of this fireshed burned during the 2003 Cedar Fire, and the scar was recovering, but the disturbance of the recent Witch Fire is likely to further contribute to a dominant vegetation community of non-native grasses. Table D.15-10 summarizes the vegetation communities present in the Santa Ysabel Fireshed just prior to the fires of 2007.

<sup>7</sup> Intermix WUI: where structures are scattered throughout a wildland area and wildland fuels are continuous outside of and within developed areas (population density of 28-250 people per square mile). (Federal Register (USDA/USDI 2001))

### Fire Prevention Practices and Resources

Most of the Santa Ysabel Fireshed is a SRA with some Federal Responsibility Areas in the southeastern portion. Fire Services for the Ramona area are provided through a Schedule A contract with CAL FIRE. Regulations and requirements applicable to fire suppression and prevention are described in Section D.15.3, and SDG&E policies are described in Appendix 3D.

Table D.15-10. Vegetation Composition of PFS-3 Santa Ysabel Fireshed

Vegetation Type	Acres	Percentage
Chaparral	1,982	38%
Live Oak	642	12%
Scrub	1,078	21%
Oak Woodland	860	16%
Out Area	669	13%
<b>Total</b>	<b>5,231</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

Water resources for firefighting include hydrants within San Diego Country Estates. Some, but not all, of the isolated homes in the rural areas have water tanks. The northern portion of this fireshed is rural with development limited to scattered homes and ranches within the Pine Hill Egg Ranch adjacent to SR78. El Capitan Reservoir to the south of the fireshed is a large water resource that can be used for fire suppression. There is a seasonal CAL FIRE station off SR78 at Witch Creek and an intermountain volunteer fire station near the Pine Hill Egg Ranch on SR78.

#### D.15.2.7 PFS-4 Ramona Fireshed

##### **Total Assessment Area: 32,902 acres**

The Ramona Fireshed would include 9.3 miles of overhead and 3.5 miles of underground transmission line. For approximately 1.4 miles, the proposed 230 kV overhead transmission line would not be collocated with the existing 69 kV line in this fireshed. For approximately 8.2 miles, however, the proposed 230 kV overhead transmission line would be collocated with the 69 kV line, which would remain on wood poles.

The fireshed stretches from the San Diego Country Estates southwest to the San Vicente Reservoir. It includes Iron Mountain east of Poway and a portion of SR67 in the southwest corner. Just outside of the fireshed boundary is the town of Ramona located to the north where SR67 joins SR78. The elevation within the fireshed ranges from 2,696 feet at Iron Mountain to 650 feet at San Vicente Reservoir. On the eastern side of the fireshed, San Diego Country Estates is at 1,520 feet elevation. The terrain is variable with rolling oak woodlands, small creek canyons, grasslands and shrublands. Although the elevation varies within the fireshed, the whole area receives an average of 18 inches of rainfall annually. The Santa Ana winds create the potential for severe to extreme fire weather from early fall through the spring. Figure D.15-11 depicts the Ramona Fireshed boundary, public land ownership boundaries, and the Proposed Project and alternative routes.

The fireshed contains a mixture of public wildlands and private land most of which burned in the 2003 Cedar Fire. Throughout the fireshed there is a substantial WUI that has proven to be a major source of wild-fire ignitions. For a full summary of historical wildfire ignition sources see the Fire History section. More than half of this fireshed is privately owned, most of which is urban development (53%). The public wildlands are interspersed throughout these growing developments. The average private parcel size is two acres, which indicates that there is a high future development potential within the fireshed. The population density within the private lands is 457 people per square mile. Future population growth

Figure D.15-11. PFS-4 Ramona Fireshed Boundary and Proposed Project and Alternative Project Routes

[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

within the fireshed will be concentrated in these private landholdings, which are bordered by public wildlands. The result of this concentrated human influence on the fuel-laden wildlands will be a corresponding increase in human ignitions and wildfires. A small portion of Cleveland National Forest borders San Diego Country Estates which is a federally registered community at risk of wildland fire. Some of the public wildlands within the fireshed include the Oak Oasis and El Capitan County Open Spaces and San Vicente Highlands Open Space Preserve in the southern part of the fireshed. All of these are surrounded by communities. The Proposed Project route passes through some of these wildlands. The City of San Diego manages San Vicente Reservoir in the southwestern part of the fireshed which is a water source for the greater San Diego area. Table D.15-11 summarizes land ownership in the Ramona Fireshed.

Table D.15-11. Land Ownership Summary of PFS-4 Ramona Fireshed

Ownership	Acres	Portion of Fireshed
Cities of San Diego and Poway	3,775	11%
County of San Diego	3,260	10%
BLM	310	1%
USFS	574	2%
Military	3,868	12%
Native American Reservation	2,092	6%
State of CA	1,422	4%
SDG&E	9	<1%
Other (private, etc.)	17,593	53%
<b>Total</b>	<b>32,903</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

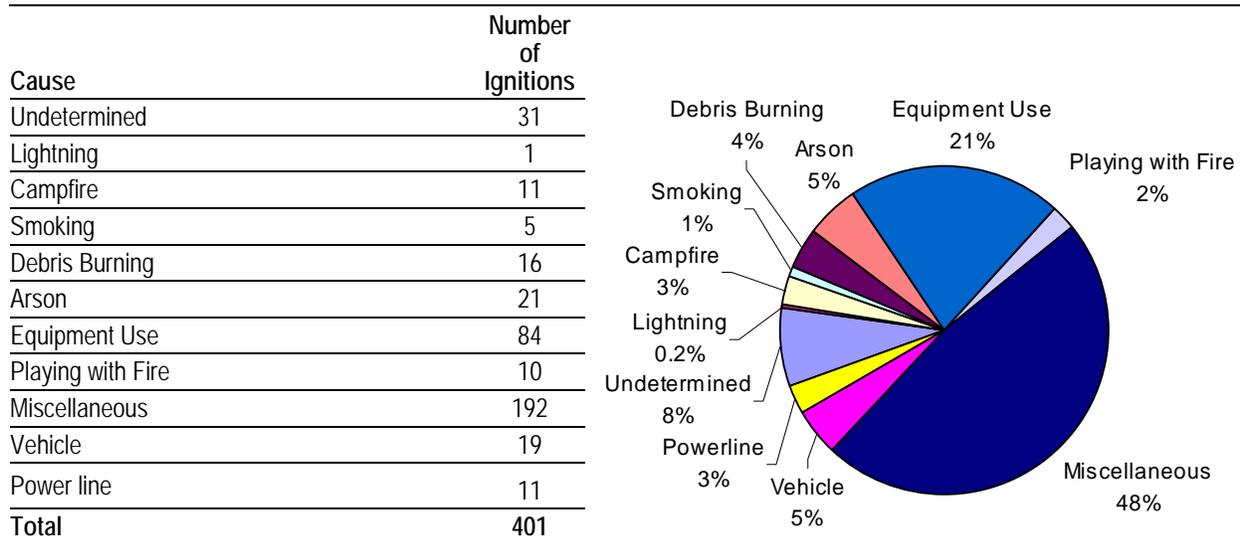
### Fire History

- **Fire Frequency: 38 recorded fires/50 years**
- **Extended Attack between 500 and 1,000 acres: 5 fires/50 years**
- **Major Events (over 1,000 acres): 10 fires/50 years**
- **Total acres burned: 56,300 acres/50 years**

Of all the proposed firesheds, this was the most heavily impacted by the 2003 Cedar Fire; 98% of the area was burned. The 2007 Witch Fire burned 670 acres or 2% of the fireshed. This area can be considered a high-risk "fire corridor" because historical wildfires have repeatedly followed similar paths and it is especially prone to wildfires driven by Santa Ana winds. The Barona Speedway area was also the location where the leading head of the Cedar Fire split in two, with one front moving southwest to Scripps Ranch, the other moving further south toward Lakeside and Harbison Canyon. Homes along Mussey Grade and Wildcat Canyon are especially vulnerable to wildfire because of their location. Many burned during the Cedar Fire. The Proposed Project would run through the center of this high-risk fire corridor.

This area has the highest ignition frequency of all the other Proposed Project firesheds (401 ignitions/13 years). Similar to the Poway Fireshed, the predominant causes of ignitions in this fireshed are equipment use (30%) and arson (18%). This likely reflects the rural nature of the area. The abundance of fine, weedy fuels may be a contributing factor as well. These fine fuels dry out earlier in the season and are easier to ignite than native shrubs. The high frequency of ignitions within the fireshed, coupled with it being identified as a historical fire corridor, indicates this area is at high risk for continued wildfires. See Table D.15-12 for historical sources of wildfire ignition.

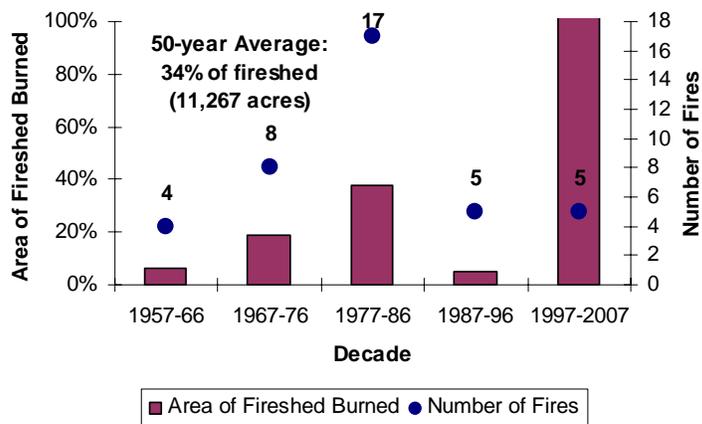
Table D.15-12. Reported 13-Year Wildfire Ignition History in Proposed Project Fireshed PFS-4



Source: Forester's Co-Op Fire Atlas Data.

The Ramona Fireshed wildfire history indicates that a relatively high number of wildfires have occurred in this region over the past 50 years and 100% of the area burned in wildfire events during the past decade. An average of 34% or 11,267 acres burned per decade in the Ramona Fireshed (Figure D.15-12). The recent dramatic upward trend documents that larger more damaging wildfires, such as the Cedar Fire have occurred in the past decade (1997-2007), burning more than in the previous combined 40 years of recorded fire history (for methods see Section D.15.1.2). From 1977-1986, there was a peak in the number of wildfires that burned within the fireshed, a majority of which (11 of 17) were contained in the initial attack phase (10-500 acres). The cumulative number of acres burned over the past 50 years in the Ramona Fireshed is 55,700 acres. This number is second only to the Poway Fireshed, at 66,000 acres burned.

Figure D.15-12. Ramona Fireshed Wildfire History



Source: Forester's Co-Op Fire Atlas Data.

The level of human influence within this fireshed is a key indicator of the number of future wildfires. Humans are responsible for 92% of the wildfire ignitions over the past 13 years as compared to 0.2% of the ignitions naturally occurring from lightning. Over the 50-year wildfire history, humans started 27 of the 38 wildfires that burned within the fireshed, there were no lightning-ignited fires, and the rest of the wildfire sources were undetermined. The high number of historically undetermined wildfire ignitions is attributable to outdated wildfire reporting and source identification practices, which have become more accurate in recent times. The level of human wildfire influence is expected to increase within this WUI fireshed in the future due to a high development potential on private lands.

The extensive public wildlands in relationship to the current population density and potential for development indicate that the Ramona Fireshed is an Interface WUI fireshed. Interface WUI<sup>8</sup> regions are documented to have a high wildfire risk due to the large scale of current and future urban sprawl that increases the population density around islands of wildlands, such as the San Vicente Highlands, Oak Oasis, and Barnett Ranch Open Space Preserves (Syphard et al., 2007). When development reaches a level such that these wildlands are completely isolated in a sea of urban development (as is occurring in the Poway Fireshed and as has occurred in the Peñasquitos Fireshed, see Sections D.15.2.8 and D.15.2.9, respectively), wildfire spread may be limited to these areas depending on the fuels present within the surrounding developments. In contrast, the increased human influence at the Cleveland National Forest interface presents a higher fire risk due to the continuity of the wildland fuels. Where the WUI interfaces with contiguous wildland areas, wildfires have the potential to be very large. Due to the smaller parcel size (and higher population density) in an Interface WUI fireshed compared with an Intermix WUI fireshed, wildfires have an extremely high potential to have devastating effects on adjacent developments simply because the number of structures at the wildland's edge is substantially higher, placing more assets at risk. Even a very small increase in wildfire frequency can have enormously damaging consequences to the community at the Wildland-Urban interface in an Intermix WUI fireshed like the Ramona Fireshed.

### Vegetation

Historically much of the western portion of this area was likely covered by mixed chaparral with some coastal sage shrub components such as white sage and California sagebrush. Current lack of fire-cued species such as wild lilac and chamise and high percentage of invasive species such as mustard, filaree, and wild oats, in addition to significant gopher activity, suggests much of area near SR67 has been type converted (possibly by historical grazing and burning activity) to a degraded laurel sumac shrubland/grassland. Based on the dominant plant species the site will likely remain relatively open in the foreseeable future on xeric slopes with invasive species creating fine fuels between scattered laurel sumac specimens. On more mesic slopes, subshrubs such as sage will likely fill in the gaps between larger laurel sumac specimens within the next 10 to 15 years.

The terrain northeast of San Vicente Reservoir is much more pristine with oak woodlands in drainages and dense chaparral stands on north facing slopes. The native plant communities within this area should be able to recover from the Cedar Fire within 15 to 20 years by replacing most of their canopies providing there is adequate rainfall and without additional disturbances. Table D.15-13 summarizes vegetation communities in the Ramona Fireshed.

Table D.15-13. Vegetation Composition  
of PFS-4 Ramona  
Fireshed

Vegetation Type	Acres	Cover
Chaparral	3,272	55%
Live Oak	562	10%
Scrub	1,394	24%
Out Area	669	11%
<b>Total</b>	<b>5,897</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

### Fire Prevention Practices and Resources

Most of this fireshed is a SRA. Fire Services for the Ramona area are provided through a Schedule A contract with CAL FIRE. The Ramona Airport houses the joint CALFIRE and USFS Firefighting Air Attack Base that is operated May through November. Regulations and requirements applicable to fire suppression and prevention are described in Section D.15.3, and SDG&E policies are described in Appendix 3D.

<sup>8</sup> Interface WUI: there is a clear delineation between development and wildland fuels (population density of 250 or more people per square mile). (Federal Register (USDA/USDI 2001))

There is a full-time CAL FIRE's fire station within the San Diego Country Estates area and a full-time fire station on the Barona Indian Reservation. Extensive water resources for firefighting are available at San Vicente Reservoir. Hydrants are available within San Diego Country Estates. Some, but not all, of the isolated homes in the rural areas have water tanks.

### D.15.2.8 PFS-5 Poway Fireshed

**Total Assessment Area: 53,019 acres**

The Poway Fireshed would include 11.1 miles of overhead 230 kV transmission line, 0.5 miles of underground 230 kV transmission line, and upgrades to the existing Sycamore Canyon Substation. For approximately 4.8 miles in this fireshed, the proposed 230 kV overhead line would parallel the existing 69 kV transmission line, which would remain on wood poles. For approximately 6 miles, the existing 69 kV, 138 kV, and 230 kV lines are and would be located on tubular steel poles or lattice steel towers.

This fireshed is located between SR67 and Interstate 15, excluding the Scripps Ranch community and a portion of the MCAS Miramar Air Base. The elevation ranges from 503 feet in Poway to 200 feet in Eucalyptus Hills. Most of the northern portion of the fireshed has been developed in the past 30 years, increasing the human impact in the remaining wildlands. Figure D.15-13 depicts the Poway Fireshed boundary, public land ownership boundaries, and the Proposed Project and alternative routes.

The climate on the coastal plain in the western portion of the Poway Fireshed lessens as the elevation increases to the west slope of the Peninsular Ranges. The western and southern portions of the fireshed receive an average of 13 inches of rainfall annually. The central part of the fireshed experiences slightly more precipitation. The east side of the fireshed is higher in elevation and receives an annual average of 18 inches of rainfall. With the slight humidity and rainfall, there is enough moisture to support chaparral and coastal sage scrub communities. The Santa Ana winds create a potential for severe to extreme fire weather in this fireshed during early fall through spring.

The fireshed is largely developed and intermixed with preserved wildlands adjacent to urban areas. A substantial majority of Fireshed PFS-5 is privately owned (79%). This includes the urban sprawl areas of Poway, Santee, and Eucalyptus Hills. The average private parcel size is 1.8 acres which illustrates the present level of urban development. The population density within the private lands is 1627 people per square mile, indicating the high level of human activity within this urbanized fireshed. The densely populated areas paired with the WUI have caused this fireshed to experience more fires than any other along the Proposed Project route. See the Fire History section

Table D.15-14. Land Ownership Summary of PFS-5 Poway Fireshed

Ownership	Acres	Portion of Fireshed
Cities of San Diego and Poway	290	1%
County of San Diego	3,442	6%
BLM	3,071	6%
USFS	0	0%
Military (Miramar)	3,868	7%
Native American Reservation	0	0%
State of California	632	1%
SDG&E	0	0%
Other (private, etc.)	41,717	79%
<b>Total</b>	<b>53,020</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

Figure D.15-13. PFS-5 Poway Fireshed Boundary and Proposed Project and Alternative Project Routes

[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

for more details on historical fires within the fireshed. The Sycamore Canyon County Open Space Preserve, BLM land, Blue Sky Canyon Ecological Reserve, and Lake Poway Recreation Area are some of the intermingled wildlands within this fireshed. MCAS Miramar extends into the central portion of the fireshed, covering 7% of the area, most of which is wildlands. The Proposed Project would pass by Sycamore Canyon Preserve and follow the northern edge of MCAS Miramar. Table D.15-14 summarizes land ownership in the Poway Fireshed.

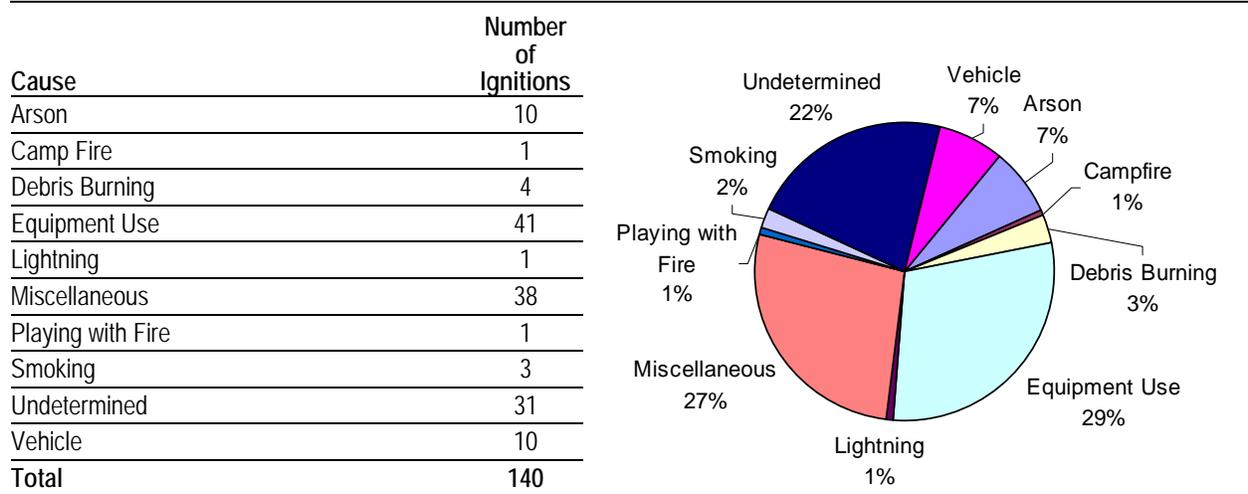
**Fire History**

- **Fire Frequency: 60 recorded fires/50 years**
- **Extended Attack between 500 and 1,000 acres: 9 fires/50 years**
- **Major Events (over 1,000 acres): 10 fires/50 years**
- **Total acres burned: 67,100 acres/50 years**

Nearly all of the wildlands within the Poway Fireshed were burned during the 2003 Cedar Fire. This area has the highest number of recorded fires of all the Proposed Project firesheds. Most fires were under 500 acres, but three ranged from 1,400 to 3,200 acres. The likely cause for the elevated number of small fires is the large population adjoining and intermixing with extensive wildlands. Population growth along a WUI generally increases wildfire frequency (Syphard et al., 2007).

Equipment use has been the source of the greatest number of identified ignitions (29%) in this fireshed. There were no power line-related fires during the 13-year period. This large quantity of ignitions is consistent with the level of active development and high population density adjoining wildlands. Table D.15-15 summarizes historical wildfire ignitions in the Poway Fireshed. Much of this region has been developed over the past 30 years, especially the northern portion. However, a significant amount of wildland exists within the Sycamore Canyon Preserve and MCAS Miramar. Areas around and within the Preserve have burned multiple times over the past 20 years. Due to past weather and wind behavior, most wildland fires that occur within the preserve would make contact with the Proposed Project as flanking fires (moving parallel to the line).

**Table D.15-15. Reported 13-Year Wildfire Ignition History in Proposed Project Fireshed PFS-5**

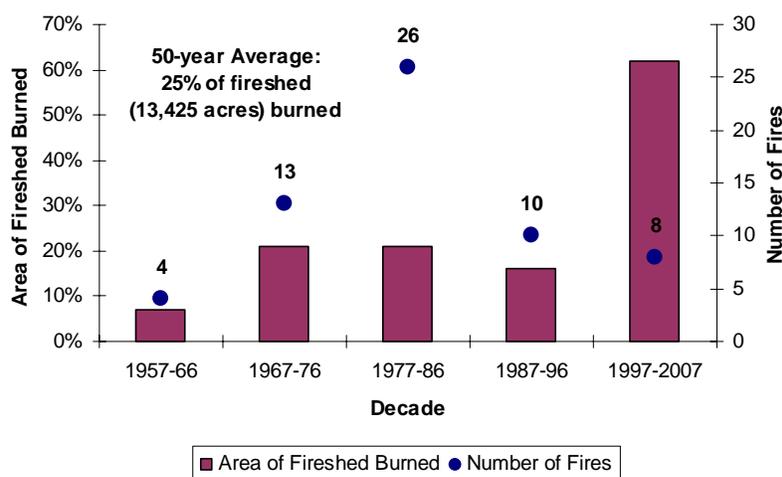


Source: Forester's Co-Op Fire Atlas Data.

An average of 25% or 13,425 acres burned per decade in the Poway Fireshed based on the 50-year fire records (Figure D.15-14; for methods see Section D.15.1.2). The recent upward trend in the area burned during the 1997-2007 decade is attributed to the 2003 Cedar Fire which burned 58% of the fireshed. The area burned in the past decade is equivalent to the amount of acreage burned in the previous combined 40 years of recorded fire history. Wildfires started during those previous four decades were probably contained within the initial or extended attack phases before they were allowed to become major events. A cumulative total of 66,000 acres burned over the past 50 years in the Poway Fireshed, which is the highest number of acres burned per fireshed along the Proposed Project route, seconded by the Santa Ysabel Fireshed at 66,700 acres.

The level of human influence within this fireshed is a key indicator of the future wildfire ignitions. Humans are responsible for 77% of the wildfire ignitions over the past 13 years as compared to 1% of the ignitions naturally occurring from lightning. The random occurrence of lightning is expected to remain constant, contributing a minimal source of ignitions throughout the landscape. Any ignitions that occur during extreme Santa Ana weather conditions will spread quickly, causing initial attack escapes and an increased potential for major wildfire events. Over the 50-year wildfire history, humans started 33 of the 60 wildfires that burned within the fireshed, there were no lightning started fires, and the remaining causes were undetermined. The high number of historically undetermined wildfire sources may be attributed to outdated reporting and source identification practices, which have become more accurate in recent times. The level of human wildfire influence is expected to remain constant in the near future within the WUI areas of this densely populated urban fireshed.

Figure D.15-14. Poway Fireshed Wildfire History



Source: Forester's Co-Op Fire Atlas Data.

The spatial arrangement of urban developments within the Poway Fireshed indicates that there is an Interface WUI adjacent to the remaining wildlands but that the majority of the fireshed is urbanized. Interface WUI<sup>9</sup> regions are documented to have a high wildfire risk due to the large scale of current and future urban sprawl that will increase the population density around islands of wildlands, such as Sycamore Canyon and MCAS Miramar (Syphard et al., 2007). With the current rate of development, these wildlands will soon be completely isolated by high density, urban developments, which will limit the spread of wildfires to these fragmented wildlands. In general, urban areas have a lower fire risk due to the absence of wildland fuels. In addition, fire resource availability and response times are shorter in developed areas. The consequence of increased human impacts adjacent to the wildlands will be an elevated fire risk in this immediate area, but with the continued level of development, this fire risk will decrease over time when development restricts the spread of wildfires to within the remaining wildlands.

<sup>9</sup> Interface WUI: there is a clear delineation between development and wildland fuels (population density of 250 or more people per square mile). (Federal Register (USDA/USDI 2001))

## Vegetation

On the mesa tops in the Poway Fireshed, relatively sparse chamise chaparral dominates. Some of the last remaining vernal pools in San Diego County exist in bare zones between the shrubs. On north facing canyon slopes, thicker stands of mixed chaparral are present. South facing canyon slopes have a mixture of coastal sage scrub and non-native grasses. All of these vegetation communities burned during the 2003 Cedar Fire and will require at least another 15 to 20 years without disturbance in order to resist type-conversion to non-native grasslands. Since a large portion of this fireshed has a history of grazing, many native vegetation communities have already been invaded by non-native weeds, creating an increased fire risk. Table D.15-16 summarizes vegetation communities in the Poway Fireshed.

Table D.15-16. Vegetation Composition of PFS-5 Poway Fireshed

Vegetation Type	Acres	Cover
Chaparral	3,536	49%
Live Oak	128	2%
Scrub	1,160	16%
Out Area	2,381	33%
<b>Total</b>	<b>7,205</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

## Fire Prevention Practices and Resources

A contiguous wildland area in the southern half of the Poway Fireshed falls within the Sycamore Canyon Preserve and MCAS Miramar. Immediate responsibility for fire suppression in this area includes the federal fire service on MCAS Miramar, which is a Federal Responsibility Area, and CAL FIRE in SRAs west and east of SR67. Lakeside Fire Protection District is responsible for the southeast portion of the fireshed and operates the only full-time station in the southern half.

The northern portion is primarily urban with islands of native shrublands on granitic outcrops and hills. There are four full-time fire stations in this section, two with San Diego City Fire and two with Poway Fire. Poway and San Diego City Fire Departments have the immediate responsibility for fire suppression in this area. Poway is a federally designated community at risk of wildland fire.

Extensive water resources for firefighting are available at Miramar Lake in the Peñasquitos Fireshed and San Vicente Reservoir in the Ramona Fireshed. Within the Poway is the smaller Lake Poway that could also be used as a wildfire suppression resource. Hydrants are available throughout the community of Poway. Nearly all development is restricted to urban areas.

Regulations and requirements applicable to fire suppression and prevention are described in Section D.15.3, and SDG&E policies are described in Appendix 3D.

### D.15.2.9 PFS-6 Peñasquitos Fireshed

#### **Total Assessment Area: 58,458 Acres**

The Peñasquitos Fireshed would include 3.3 miles of overhead 230 kV transmission line, 3.5 miles of underground 230 kV transmission line, and modifications to the existing Peñasquitos Substation. For approximately 3.3 miles, the proposed 230 kV overhead transmission line would parallel existing 69 kV and 138 kV transmission lines that are supported on lattice steel towers and an additional existing 69 kV line that is supported on wood H-frame structures. The latter 69 kV line would be underbuilt onto steel structures with the proposed 230 kV line, and the wood structures would be removed.

This fireshed would encompass the westernmost portion of the Proposed Project and includes Scripps Ranch on the east side of Interstate 15 and Rancho Peñasquitos between SR56 to the north and Interstate

805 to the south. This is the most heavily developed and urbanized fireshed along the Proposed Project route. The elevation ranges from sea level to 510 feet at Scripps Ranch. Figure D.15-15 depicts the Peñasquitos Fireshed boundary, public land ownership boundaries, and the Proposed Project and alternative routes.

The San Diego coast receives a significant amount of its moisture from coastal fog. The western half of the Peñasquitos Fireshed receives an average annual rainfall of 11 inches. With a slight elevation gain heading inland, the eastern side of the fireshed experiences slightly more precipitation with an average of 13 inches annually. This humid environment enables prolific shrub growth that can be found in the remnant wildlands. The possible impact of coastal weather patterns on fire fuels was demonstrated with the abrupt halt of the 2003 Cedar Fire when it reached these humid shrub communities and interacted with the marine air mass influences near the junction of State Highway 52 and Interstate Highway 15. However, under the drier environmental conditions that frequently occur, wildfires could easily burn through these coastal fuels and travel along San Clemente Canyon to Mt. Soledad impacting the community of La Jolla.

The coast of San Diego County is thoroughly developed with urban and commercial areas. The majority of the Peñasquitos Fireshed is privately owned (65%). The average private parcel size is 1.5 acres. The population density within the private lands is 4892 people per square mile, indicating a high concentration of human activity within this urbanized fireshed. The City of San Diego owns the second-largest landholding within the fireshed (15%), consisting mostly of municipal utilities, parks and preserves. Los Peñasquitos Canyon Preserve encompasses 4,000 acres south of State SR56 and is jointly owned by the City and County of San Diego. The high fuel loading of chaparral and weedy non-natives within the preserve pose a wildfire ignition threat when combined with high human activity in the area. The Proposed Project route from MP 146.5-149.9 would follow the northern edge of Los Peñasquitos Canyon. MCAS Miramar Air Base extends throughout the central and eastern portion of the fireshed. Miramar is one of the largest contiguous pieces of open wildland covering 8% of this fireshed and the eastern portion of the Poway Fireshed. Table D.15-17 summarizes land ownership in the Peñasquitos Fireshed.

Table D.15-17. Land Ownership Summary of PFS-6 Peñasquitos Fireshed

Ownership	Acres	Portion of Fireshed
City of San Diego	8,615	15%
County of San Diego	267	<1%
BLM	5,438	9%
USFS	0	0%
Military (Miramar)	4,703	8%
Native American Reservation	0	0%
State of California	1,006	2%
SDG&E	187	<1%
Other (private, etc.)	38,243	65%
<b>Total</b>	<b>58,459</b>	<b>100%</b>

Source: Forester's Co-Op Fire Atlas Data.

### Fire History

- **Fire frequency: 18 recorded fires/25 years**
- **Extended attack between 500 and 1,000 acres: 0 fires/25 years**
- **Major events (over 1,000 acres): 3 fire/50 years**
- **Total acres burned: 15,300 acres/50 years**

Excluding the Cedar Fire, all of the fires within the past 25 years have occurred in the northern part of this fireshed, specifically within the northern Los Peñasquitos and Del Mar Mesa region where the last remnants of native open space exists. The total recorded fire history for this area includes several small fires that burned in 1971, 1982, 1983, 1986, 1987, and a large 1,483-acre fire that burned in 1989.

Figure D.15-15. PFS-6 Peñasquitos Fireshed Boundary and Proposed Project and Alternative Project Routes

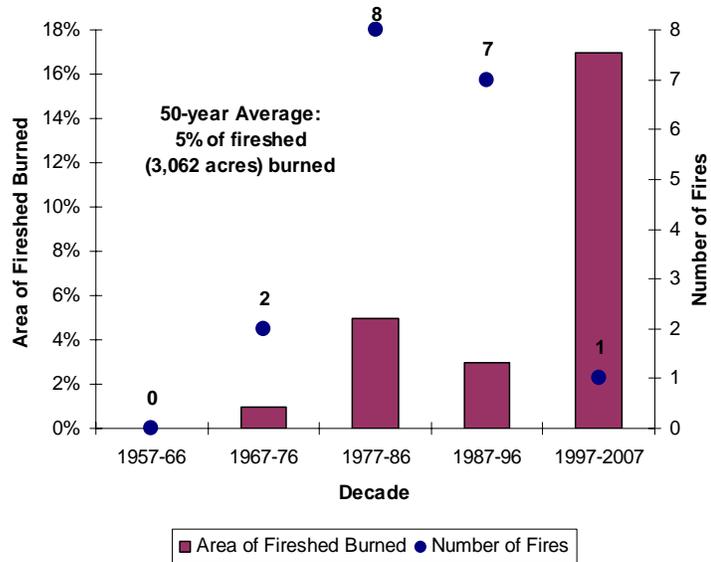
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

The southern portion contains MCAS Miramar where the Cedar Fire burned and finally ended its westward march in 2003. Reflecting the urbanized nature of this fire, a relatively small wildland area, and its nearness to moist, coastal influences, only five wildfire ignitions have occurred within the past 13 years. The sources of these wildfire ignitions include equipment use (2), miscellaneous (2), and undetermined sources (1). The cumulative number of acres burned over the past 50 years is 15,300 acres, a relatively small number compared with the Ramona Fire, at 56,300 acres, and the Poway Fire, at 67,100 acres.

Figure D.15-16 presents fire history data for the Peñasquitos Fire. An average of 5% or 2,923 acres burned per decade in the Peñasquitos Fire based on the 50-year fire records (for methods see Section D.15.1.2). The recent upward trend in the past decade (1997-2007) documents that the Cedar Fire has had the greatest influence on fire history, burning more acreage than in the previous combined 40 years. Future wildfires in this fire will most likely originate in public lands (City of San Diego, BLM, and or MCAS Miramar) at random intervals.

Figure D.15-16. Peñasquitos Fire Wildfire History



Source: Forester's Co-Op Fire Atlas Data.

The level of human influence within this fire is a key indicator of future wildfire ignitions. Humans are responsible for 40% (2 ignitions) of the wildfire ignitions over the past 13 years, and the remaining ignition sources are miscellaneous or undetermined (3 ignitions). Any ignitions that occur during extreme Santa Ana weather conditions will spread quickly, causing initial attack escapes and an increased potential for major wildfire events. The level of human wildfire influence is expected to remain constant within this densely populated urban fire due to the complete isolation of wildland fuels within Los Peñasquitos Canyon Preserve and MCAS Miramar. Wildfire spread will be limited to these wildlands due to the general lack of wildland fuels within the surrounding urban areas. Due to the very high population density surrounding these wildlands, numerous assets would be at risk during a Santa Ana wind-driven fire. In addition, wildfires that start within this developed fire have the potential to be quickly contained due to fire resource availability and rapid response times.

Vegetation

The dominant feature in this fire is the protected Los Peñasquitos Canyon Preserve through which the Proposed Project would run underground for a portion, and then overhead on the mesas to the north. The canyon and adjoining mesas create the topological features that determine the vegetation types. The dominant vegetation type on the mesa tops between canyons is chamise chaparral interspersed with some of the last remaining vernal pools in the region. On north-facing canyon walls, dense mixed chaparral occurs. On south-facing canyon walls and scattered within the floor of the canyon are coastal sage scrub communities with various levels of invasive grasses and herbs. Many areas within the canyon have been overwhelmed by weedy non-natives, creating a fine, flashy fuel load.

The general nature of the chaparral that exists in this fireshed is unique in that it has a specialized mix of species that is not found further inland, and has thus been designated as *maritime chaparral*. Nuttall’s scrub oak and warty-stemmed ceanothus are two characteristic species within this plant community. In addition, there are numerous endemic species, including Del Mar Manzanita, that reflect the unique quality of the chaparral in this area. Table D.15-18 summarizes vegetation communities in the Peñasquitos Fireshed.

Table D.15-18. Vegetation Composition of PFS-6 Peñasquitos Fireshed

Vegetation Type	Acres	Cover
Chaparral	703	28%
Live Oak	150	6%
Scrub	772	31%
Out Area	893	35%
Total	2,518	100%

Source: Forester’s Co-Op Fire Atlas Data.

### Fire Prevention Practices and Resources

Fire suppression and prevention in the Peñasquitos Fireshed is primarily the responsibility of the San Diego City Fire Department. There are currently eight full-time fire stations with another planned. MCAS Miramar is a Federal Responsibility Area. Extensive water resources for firefighting are available at Miramar Lake. Hydrants are available throughout the urbanized areas. Regulations and requirements applicable to fire suppression and prevention are described in Section D.15.3, and SDG&E policies are described in Appendix 3D.

## D.15.3 Applicable Regulations, Plans, and Standards

This section summarizes federal, State and local regulations, plans and standards relevant to fire suppression and fire prevention. Fire prevention around transmission lines is focused on vegetation management and clearance of nearby trees and branches. These requirements are summarized here.

### D.15.3.1 Federal Clearance Requirements for Transmission Lines

This section provides a description of the regulations and guidance pertinent to the management of vegetation as they relate to the reliability of electric transmission systems. As described in the following sections, a wide-ranging variety of clearance standards are used throughout the industry.

According to a 2004 Federal Energy Regulatory Commission (FERC) report (2006), the vast majority of transmission owners follow the National Electrical Safety Code (NESC) rules or American National Standards Institute (ANSI) guidelines, or both when managing vegetation around transmission system equipment. The NESC deals with electric safety rules, including transmission wire clearance standards, whereas the applicable ANSI code deals with the practice of pruning and removal of vegetation. However, in California, the CPUC has adopted General Order (GO) 95 rather than NESC as the key electric safety standard for the state.

The following standards, guidelines, rules and regulations identify requirements and suggested practices for vegetation management in transmission line corridors.

#### *National Electric Safety Code 1977, 2006*

The NESC is a national code covering a variety of basic provisions regarding electric supply stations, overhead electric supply and communication lines, and underground electric supply and communication lines. It contains work rules for construction, maintenance, and operation of electric supply and com-

munication lines and equipment. The NESC must be adopted by states, and the State of California has adopted its own standard (GO 95; discussed in Section D.15.3.2) governing overhead transmission lines in the State. The NESC is not discussed further.

***North American Electric Reliability Council Standards***

NERC is a nonprofit corporation whose members are ten regional reliability councils. NERC’s function is to maintain and improve the reliability of the North American integrated electric transmission system, including preventing outages from vegetation located on transmission ROWs, minimizing outages from vegetation located adjacent to ROWs and maintaining clearances between transmission lines and vegetation on and along transmission ROWs. As a result of the recommendations following the August 14, 2003 black-outs on the East Coast, NERC was charged with developing a vegetation management standard that would be applicable to all utilities and that would provide greater specificity than the NESC and ANSI standards.

Standard FAC-003-1, Transmission Vegetation Management Program, became effective April 7, 2006 and mandatory for all utilities, pursuant to Section 1211 of the Energy Policy Act of 2005. This standard applies to all transmission lines operated at 200 kV and above and to any lower voltage lines considered critical to the reliability of the electric system in the region. The transmission owner must prepare, and keep current, a formal transmission vegetation management program (TVMP). The TVMP must identify and document clearances between vegetation and overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperatures on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Minimum clearance distances must be no less than those set forth in IEEE Standard 516-2003.

Clearance 1 requirements are defined as the appropriate clearance distances to be achieved at the time of transmission vegetation management. Clearance 2 requirements are the specific radial clearances to be maintained between the vegetation and conductors under all rated electrical operating conditions.

***Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003***

The Institute of Electrical and Electronics Engineers (IEEE) is a leading authority in setting standards for the electric power industry. Standard 516-2003, Guide for Maintenance Methods on Energized Power Lines, provides minimum vegetation-to-conductor clearances to maintain electrical integrity (see Table D.15-19).

Table D.15-19. IEEE Standard 516-2003: Minimum Vegetation-to-Conductor Distances

Voltage (kV)	Distance (ft)	Distance (m)
500	19	5.7
230	13	3.9

**National Fire Plan, Forest Land Management Plan, and Forest Fire Management Plan**

There are no specific directions in the National Fire Plan, CNF Land Management Plan, or CNF Fire Management Plan to special use holders on their responsibilities for Forest management activities.

***USFS – Cleveland National Forest Land Management Plan, Part 2***

If a Sunrise Powerlink route is approved that crosses the Cleveland National Forest, a Special Use Authorization would be required. Special Use Authorizations require compliance with all federal, State, and local laws and regulations. In addition, the project’s compliance with the Forest’s Land Management Plan is evaluated in this EIR/EIS (see Section D.17).

The primary goal of the CNF Land Management Plan is to enhance the sustainability and health of the national forest. The strategic direction of these land management practices is outlined in Part 2 where varying management practices are focused within WUI to reduce wildfire ignitions and large-scale damage due to catastrophic wildfires. The management plan focuses on the following:

- Fire Prevention
  - Preventing wildfire ignitions within the WUI
  - Continue to implement the Border Fire Prevention Program to reduce human caused wildfires related to immigration
  - Prohibit campfires outside of developed recreation areas
  - Implement activity restrictions and access to National Forest System lands dependent upon fuel and weather conditions and the availability of fire suppression resources
- Direct Community Protection
  - Ongoing effort to reducing the amount of high to moderate fire risk areas within the WUI by mechanical or prescribed burning of hazardous fuels
  - Promote the removal of diseased and dying trees adjacent to structures and access/evacuation routes
- Fire Suppression Emphasis
  - Improve wildland fire suppression capability within the WUI by promoting coordination with other fire agencies
  - During periods of limited firefighting resource availability, communities within the national forest direct protection area should be given highest priority for initial attack
- Firefighter and Public Safety
  - Integrate fire management activities with other fire agencies in a cost effective manner
  - Conduct inspections that ensure defensible space requirements (PRC 4291) are met around structures within CNF jurisdiction.
  - Coordinate with local Fire Safe Councils to support evacuation and community fire protection plans
- Fuelbreaks and Indirect Community Protection
  - Maintain system of fuel breaks to minimize fire size
  - Pre-plan fire suppression activities to avoid further disruption of sensitive areas and the spread of noxious weeds.

### D.15.3.2 California Requirements

#### California Public Utilities Commission

##### *General Order 95: Rules for Overhead Electric Line Construction*

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2006. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, and vegetation clearance requirements. The latter, governed by rule 35, is summarized here.

GO 95: Rule 35, Tree Trimming, defines minimum vegetation clearances around power lines. Rule 35 guidelines require:

- 4 feet radial clearances are required for any conductor of a line operating at 2,400 Volts or more, but less than 72,000 Volts
- 6 feet radial clearances are required for any conductor of a line operating at 72,000 Volts or more, but less than 110,000 Volts
- 10 feet radial clearances are required for any conductor of a line operating at 10,000 Volts or more, but less than 300,000 Volts (this would apply to the proposed 230 kV line segments)
- 15 feet radial clearances are required for any conductor of a line operating at 300,000 Volts or more (this would apply to the proposed 500 kV line segments).

GO 95 has been periodically updated over the last six decades. Under Public Utilities Code Section 1708.5, any person may petition the Commission to amend the regulation. SDG&E submitted a petition to CPUC dated November 6, 2007 requesting that the Commission issue an Order Instituting Rule-making (OIR) to determine whether additional rules should be adopted or GO 95 amended to cover disaster preparedness, including preparedness for Santa Ana wind-driven firestorms. The petition requests that the Commission consider the following:

- Whether to operate rural electrical lines differently during severe fire weather
- Whether to underground rural lines, to use steel poles in place of wood, and/or to shorten spans or otherwise redesign rural electrical lines to mitigate potential hazards
- How best to coordinate disaster management efforts among agencies, municipalities, local jurisdictions, and utilities
- Whether to maintain electrical line ROWs free of vegetation, and
- Whether a State-wide Disaster Management Plan should be adopted.

#### California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE has a primary objective of reducing wildfire occurrence and enforcing fire hazard clearance standards around structures and utilities in order to protect the public from loss of life property and resources. Within CAL FIRE jurisdiction areas, the LE-38 Fire Safety Inspection Program is implemented for community outreach enforcement of fire safe codes. These laws include the California Public Resources Codes (PRC) 4291, 4292, and 4293 that define defensible space clearance requirements around private structures and aboveground power lines. California Code of Regulations (CCR) Title 14 Section 1254 applies to minimum clearances around utility poles. CAL FIRE inspections of utility facilities entail making notes on violations and defects in the infrastructure. Joint inspections of electrical facilities by CAL FIRE and the utility company are encouraged for the mutual benefit of fire prevention on the part of each entity. Identified violations identified during inspections must be brought into compliance before the utility follow-up inspections otherwise the responsible party could face misdemeanor charges for violating fire safety laws. In the event that a fire safety violation results in a fire, the inspection records can be used later in fire-cause investigations to determine the liable party. The responsible party could pay for the resulting damage of the wildfire through the CAL FIRE Civil Cost Recovery Program, described below. In the section of southern California where the Sunrise Powerlink is proposed, the power line hazard reduction standards are applicable year round due to the scope of the fire season. Refer to the CAL FIRE Power Line Fire Prevention Field Guide in Appendix 3C for descriptions of the applicable codes and regulations and images of exempt and non-exempt power line structures.

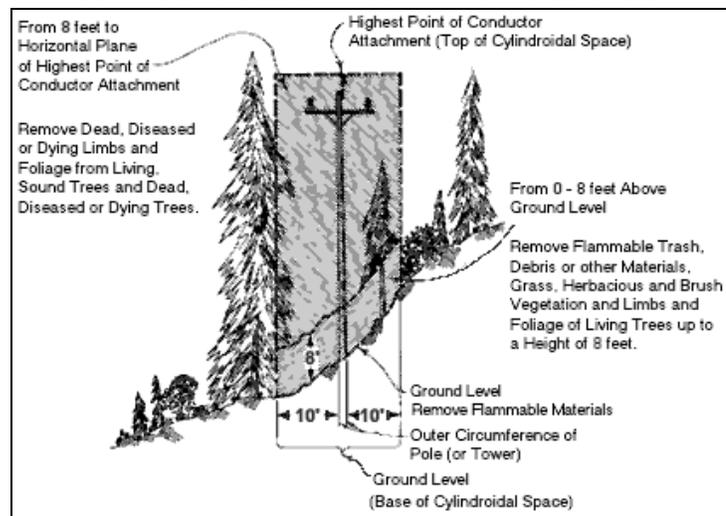
- **PRC 4291, Reduction of Fire Hazards Around Buildings**, requires 100 feet of vegetation management around all structures, and is the primary mechanism for conducting fire prevention activities on private property within CAL FIRE jurisdiction.
- **PRC 4292, Powerline Hazard Reduction**, requires a 10-foot clearance of any tree branches or ground vegetation from around the base of power poles carrying more than 110 kV.
- **PRC 4293, Powerline Clearance Required** presents guidelines for line clearance.
- **California Code of Regulations (CCR) Title 14 Section 1254** presents guidelines for minimum clearance requirements around utility poles.

#### California Code of Regulations (CCR) Title 14 Section 1254

Figure D.15-17 is a graphical representation of Section 1254 showing the minimum clearances required around a non-exempt utility pole.

The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14, CCR, 1255 or PRC 4296. The Proposed Project structures would be primarily exempt from the clearance requirements set forth in PRC 4292 with the exception of cable poles and dead-end structures. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

Figure D.15-17.  
CCR Title 14 Section 1254 Minimum Clearances



- At ground level – remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire
- From 0 to 2.4 m (0 to 8 feet) above ground level remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 m (8 feet).
- From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment remove dead, diseased or dying limbs and foliage from living sound trees and any dead, diseased or dying trees in their entirety.

California Code of Regulations (CCR) Title 14, Forest Practice Rules Article 8, Rule #918 Fire Protection

The requirements of Title 14, Chapter 918 applies to all vegetation operations in SRAs.

***918.1 Fire Protection (Coast, Northern, Southern)***

When burning permits are required pursuant to Public Resource Code 4423, operators shall:

- (a) Observe the fire prevention and control rules within this article, and
- (b) Submit each year, either before April 1 or before the start of timber operations, a fire suppression resources inventory to the Department as required by the rules.

***918.2 Fire Suppression Resource Inventory (All Districts)***

The Fire Suppression Resource Inventory shall include, as a minimum, the following information:

- (a) Name, address and 24-hour telephone number of an individual and an alternate who has authority to respond to Department requests for resources to suppress fires.
- (b) Number of individuals available for firefighting duty and their skills.
- (c) Equipment available for firefighting. The Fire Suppression Resource Inventory shall be submitted to the ranger unit headquarters office of the Department having jurisdiction for the timber operation.

***918.3 Roads to be Kept Passable (All Districts)***

Timber operators shall keep all logging truck roads in a passable condition during the dry season for fire truck travel until snag and slash disposal has been completed.

***918.4 Smoking and Matches (All Districts)***

Subject to any law or ordinance prohibiting or otherwise regulating smoking, smoking by persons engaged in timber operations shall be limited to occasions where they are not moving about and are confined to cleared landings and areas of bare soil at least three feet (0.914m) in diameter. Burning material shall be extinguished in such areas of bare soil before discarding. The timber operator shall specify procedures to guide actions of his employees or other persons in his employment consistent with this subsection.

***918.5 Lunch and Warming Fires (All Districts)***

Subject to any law or ordinance regulating or prohibiting fires, warming fires or other fires used for the comfort or convenience of employees or other persons engaged in timber operations shall be limited to the following condition:

1. There shall be a clearance of 10 feet (3.05m) or more from the perimeter of such fires and flammable vegetation or other substances conducive to the spread of fire.
2. Warming fire shall be built in a depression in the soil to hold the ash created by such fires.
3. The timber operator shall establish procedures to guide actions of his employees or other persons in their employment regarding the setting, maintenance, or use of such fires that are consistent with (a) and (b) of this subsection.

***918.6 Posting Procedures (All Districts)***

Timber operators shall post notices with set forth lists of procedures that they have established consistent with Sections 918.4 (938.4, 958.4) and 918.5 (938.5, 958.5). Such notices shall be posted in sufficient quantity and location throughout their logging areas so that all employees, or other persons employed by them to work, shall be informed of such procedures. Timber operators shall provide for diligent supervision (Southern: and enforcement) of such procedures throughout their operations.

***918.7 Blasting and Welding (All Districts)***

Timber operators shall provide for a diligent fire watch service at the scene of any blasting or welding operations conducted on their logging areas to prevent and extinguish fires resulting from such operations.

***918.8 Inspection for Fire (All Districts)***

The timber operator or his/her agent shall conduct a diligent aerial or ground inspection within the first two hours after cessation of felling, yarding, or loading operations each day during the dry period when fire is likely to spread. The person conducting the inspection shall have adequate communication available for prompt reporting of any fire that may be detected.

***918.10 Cable Blocks (All Districts)***

During the period when burning permits are required, all tail and side blocks on a cable setting shall be located in the center of an area that is either cleared to mineral soil or covered with a fireproof blanket that is at least 15 ft. in diameter. A shovel and an operational full five-gallon back pump or a fire extinguisher bearing a label showing at least a 4A rating must be located within 25 feet of each such block before yarding.

**CAL FIRE Civil Cost Recovery Program**

Because wildland fires cost taxpayers millions of dollars every year, the California Legislature has ruled that taxpayers should not be responsible for the costs associated with suppressing fires caused by an act of human carelessness. The CAL FIRE Civil Cost Recovery Program was established to recover the cost of fighting fires caused by people (or entities) that violate the law or were negligent in their actions. For overhead electric lines, these violations are generally related to non-compliance with vegetation clearance requirements. Three examples of cost recovery related to transmission lines are the following:

- In 1996, Southern California Edison was billed \$7.9 million for fire suppression costs for the Calabasas Fire. This cost was reduced to \$6.55 million in a settlement negotiated just prior to trial in 2003. CAL FIRE determined that the fire was caused when a eucalyptus branch was bent by the wind into a lightening arrester.
- The largest amount ever billed by CAL FIRE to date was to Pacific Gas & Electric in 1990 for \$8.2 million. The Campbell Fire burned over 125,000 acres and destroyed 27 structures in Tehama County. CAL FIRE determined that the fire was caused by a tree limb that made contact with a 500 kV power line. PG&E had not maintained the 10-foot clearance around the power line as required by law. PG&E eventually agreed to a negotiated settlement of \$5 million.
- In Nevada County, PG&E was the first utility to face criminal prosecution for violating the 1963 State statute requiring utility companies to maintain power line clearances up to 10 feet around high-voltage power lines. PG&E's failure to maintain clearance around facilities caused the 1994 Trauner Fire. Five percent of PG&E's overhead lines were consequently surveyed in 1995, and 5,093 instances of 'tree-line contact' in which branches were directly touching or within four feet of the power lines were documented.

### D.15.3.3 Regional and Local Requirements and Agencies

#### CAL FIRE San Diego Unit “Pre-Fire Management Plan 2005” and Southwest Powerlink MOU

As directed by the California State Fire Plan, the CAL FIRE San Diego Unit has prepared a “Pre-fire Management Plan” that encompasses 1,237,201 acres of SRA within San Diego County and Western portions of Imperial County. This document is listed in Appendix 3D and was last updated in 2005. Of particular concern to the unit is the continuation of drought induced tree and vegetation mortalities caused by bark beetle infestations. By proclamation of the Governor, CAL FIRE has taken steps to reduce the fire hazard by allowing the immediate removal of dead and dying trees from landowners’ properties. This proclamation also directs CAL FIRE to protect public safety by clearing effective evacuation and emergency response routes and by establishing fire safe evacuation centers. In order to facilitate these projects, CAL FIRE San Diego is to coordinate and cooperate with all agencies involved. Areas of high priority that will be focused on for future fire prevention activities will be determined based on ignition trends and fire history. The overall goal of the San Diego Pre-Fire Management Plan is to protect public safety and assets by reducing wildfire ignitions and increasing initial attack successes.

The CAL FIRE San Diego Unit has an established history with SDG&E in conducting fire-prevention activities along the SWPL. A collaborative SWPL fire prevention Memorandum of Understanding (MOU) has been agreed to by the parties. One important component of the MOU is in conducting fire safety inspections and implementing fire hazard reduction in coordination with SDG&E maintenance activities along the Southwest Powerlink (SWPL). These joint LE-38 inspections of utility infrastructure and surrounding vegetation occur on an as needed basis as outlined in the MOU between the two organizations. See Appendix 3D for the entire CAL FIRE/SDG&E MOU document. When utility violations are located in the field, the utility issues corrective work orders to bring the potential violation into compliance thereby reducing the potential for a utility-ignited wildfire.

#### Border Agency Fire Council

The Border Agency Fire Council (BAFC) is a consortium of government and private entities, emergency responders, environmentalists, and law enforcement and fire protection agencies in the United States and Mexico. The goal of the BAFC is to promote effective fire prevention, suppression and emergency response within the border zone area of concern in order to prevent wildfires, save lives, and preserve biodiversity. The BAFC has helped to create and maintain the International Fuel Break on Otay Mountain to protect adjacent communities in the U.S. and Mexico. This organization has also supported the BLM and CAL FIRE with the maintenance of the Sunrise Fuel Break that helps to protect the Julian area from wildfires. Within the 10 years of the BAFC operating there has been a decrease in the amount of fires within the border zone area.

*This page intentionally blank.*

## ***Environmental Impacts and Mitigation Measures for the Proposed Project***

### **D.15.4 Significance Criteria and Approach to Impact Assessment**

#### **D.15.4.1 Significance Criteria**

In this section, the Significance Criteria listed below are used to evaluate the significance of fire-related impacts of the Proposed Project and alternatives. As previously discussed, field data on local fuel conditions, weather conditions, and historic ignition sources are used to support the best available fire simulation techniques to determine the potential for damaging impacts to occur as a result of a project-caused wildfire. Damaging wildfire impacts occur when a fire reaches a critical size, burn severity, and rate of spread that create a situation where losses to local communities, fire agencies, and/or natural resources are likely to result.

Impacts related to wildfires would be considered significant if any of the following were to occur:

- **FIRE-1:** Activities associated with project construction or maintenance significantly increase the probability of a wildfire resulting in damaging impacts to communities, firefighter health and safety, and/or natural resources.
- **FIRE-2:** The presence of the overhead transmission line significantly increases the probability of a wildfire resulting in damaging impacts to communities, firefighter health and safety, and/or natural resources.
- **FIRE-3:** The presence of the project creates obstructions to fire suppression efforts, resulting in damaging impacts to communities and/or natural resources.
- **FIRE-4:** Activities associated with project construction or maintenance result in a fuel vegetation matrix with an increased ignition potential and rate of fire spread.

#### **D.15.4.2 Applicant Proposed Measures**

As described in Section B.5.3 (Project Description), SDG&E employs a Fire Coordinator and Pole Protection Crews who work closely with local fire protection agencies including CAL FIRE to ensure implementation and adequacy of safety requirements and procedural protocols. Additional requirements and protocols are contained in the SDG&E 2006 Draft Fire Plan for Electric Standard Practice which is currently under SDG&E's legal review and is expected to be finalized in 2008.

SDG&E's Guide for Encroachment – SDG&E Electric Transmission Rights of Way (2003) is another utility policy document that outlines management guidelines related to infrastructure clearance, encroachment, and access standards (Appendix 3D). The standards described in this guide are a reference for engineers and developers that are developing plans within or adjacent to SDG&E property or transmission easements.

SDG&E proposes to carry out the following fire-prevention and related activities during project construction, operation, and maintenance as stated in its Proponent's Environmental Assessment (PEA, filed December 14, 2005) to the CPUC.

- Clear brush in the work area prior to initiating work activities (PEA page 2-63). Remove vegetation using mechanical equipment such as chain saws, weed trimmers, rakes, shovels, mowers and brush hooks (PEA page 2-61). Apply herbicide subsequent to vegetation clearing, when appropriate, to pre-

vent re-growth of vegetation consistent with USFWS recommendations and Sempra's "Physical and Climatic Target Area Evaluation Form" (PEA Appendix A and page 2-61).

- Enforce Red Flag Warnings (PEA page 2-63). Provide "fire behavior" training to all pertinent personnel (PEA page 2-63). Continue to employ a full-time Fire Coordinator and Pole Protection Crews who will continue work closely with CAL FIRE to ensure safety requirements and procedural protocols are in place (PEA page 2-63). Station a water truck at job sites to water down work areas in extreme weather conditions (PEA page 2-63). Extinguish any remaining pole fires once a fire has passed through the work area (PEA page 2-63).
- Annually inspect facilities for the presence of potentially hazardous trees, and remove vegetation that has a mature height of 15 feet or taller from within 10 horizontal feet of any conductor within the ROW for safety and reliability reasons (PEA page 2-60). Prevent growth of vegetation with a mature height of 15 feet or taller within 10 vertical feet of any overhead conductor in order to protect system reliability and public safety (PEA page 2-62).
- Maintain access roads for vehicle and equipment access necessary for operations, maintenance, and repair (PEA page 2-60).

In addition, Table D.15-20 presents the Applicant Proposed Measure (APM) related to fire that was specifically identified as such in the PEA.

---

Table D.15-20. Applicant Proposed Measure – Fire and Fuels Management

---

APM No.	Description
HS-APM-11	SDG&E will develop project-specific Fire Prevention and Response Plan (FPRP), which will be developed and reviewed by pertinent regulatory authorities. A Project Fire Marshal shall be assigned to enforce all provisions of the FPRP as well as performing all other duties related to fire prevention activities for the Proposed Project.

---

Finally, SDG&E proposes to carry out the following (SDG&E, 2007b,c):

- Temporarily clear a 100-foot-by-100-foot area of vegetation at the base of each transmission structure, to be restored to an early successional stage of native grassland or mix of native grassland and sage scrub as appropriate at the completion of construction
- Permanently maintain devoid of vegetation a 35-foot-by-75-foot graded pad immediately adjacent to each transmission structure to provide vehicle safe passage and accessibility for emergency vehicles and firefighting apparatus
- Remove an estimated 14,179 trees and trim an estimated 2,417 trees within an approximate 3,653 acres of ROW<sup>10</sup> in compliance with General Order 95 (Rule 35), PRC 4293, and NERC standards.

### D.15.4.3 Approach to Data Collection and Analysis

Field data on local fuel conditions, weather conditions, and historic ignition sources are used to support the best available fire simulation techniques to determine the potential for damaging impacts to occur as a result of a project-caused wildfire. Wildfire-related environmental data including weather, fuels, topography, fire history, and points of ignition were derived from a combination of field inventories

---

<sup>10</sup> These estimates are based on sampling from a total of 10 proposed span locations. The data from these sampled spans were then used to estimate the number of trees at an additional 195 proposed span locations. Sampling and analysis were conducted by SDG&E in August and September, 2007.

and publicly available Geographic Information System (GIS) data sets. Field inventories of fuel types, structure, and loading were conducted over a three-month period to establish accurate fuel data sets specific to each fireshed. Publicly available regional weather data archives were obtained to support the spatial wildfire analysis conducted for each fireshed. Using the available data, a comprehensive GIS-based wildfire analysis was created to evaluate the potential for adverse direct and indirect impacts to occur as a result of project construction, operation, and maintenance.

In San Diego County, six firesheds are identified along the Proposed Project route. These six firesheds are located to the west of Milepost (MP) 70, which is the location of the existing Narrows Substation. The corridor to the east of MP 70 was not included in this wildfire analysis due to the low population density, minimal historic fire occurrence, and low relative fuel load in this area. The boundaries for each of the project firesheds were defined by topography, vegetation cover, weather, and historic fire perimeters, all of which are factors that influence landscape-level wildfire behavior. Fireshed vegetation strata were identified and mapped using California Wildlife Habitat Relationships (CWHR; completed for the Proposed Project by SDG&E's consultant, Greystone-Arcadis, and for alternatives by the EIR/EIS team), field-verified vegetation identification, San Diego County vegetation maps, and current aerial photos. All areas identified as urban, water, marsh, agriculture, barren, or non-vegetated were not inventoried. Using these resources, eight dominant vegetation types were identified within the six firesheds. The vegetation strata were used in conjunction with fuels data classifications of low, moderate, or high for the wildfire behavior modeling analysis.

### Field Approach and Implementation

A comprehensive field inventory of wildfire fuels was conducted for the Proposed Project's six fireshed assessment areas and additional 10 alternative route firesheds, encompassing a total of 744,742 acres. A plot sampling criterion was established for each fireshed based on proposed and alternative ROW vegetation types, acreage, and property ownership. Using a Geographic Information System (GIS) all vegetation types were identified and acres measured within each fireshed wire zone (ROW). The number of sample plots placed within these representative vegetation types was based on each fireshed's proportional ROW acreage. A majority of the plots were located on public lands due to private property access restrictions and limitations. The sampling frequency was determined at a minimum of 1 plot per 4.6 acres of ROW to account for the varying lengths of transmission corridor within each fireshed. Within the 14 firesheds, a total of 1,190 plots were inventoried within identified ROW vegetation types to collect representative wildfire fuel data. Fuel inventory plots were clustered in groups of three to optimize sampling efficiency. Each cluster of plots consisted of one primary plot and two secondary plots referenced from the primary. At each plot, the following field data were collected: vegetation type, shrub species composition, percent cover of live and dead shrubs, tree height and diameter at breast height (DBH), canopy cover, crown base height, crown bulk density, and downed woody debris. The fuel load at each plot was categorized as low, moderate, or high based on the density, height, and percent cover of live and dead shrubs. Fireshed fuel and vegetation types were collected to provide accurate fuels data for input into fire behavior models (described below).

### Analysis and Processing

Sunrise Fuel Model codes were assigned to the assemblage of fireshed inventory fuels and vegetation data for the FlamMap (Version 3.0; Stratton, 2004) wildfire modeling analyses. These codes were incorporated into industry standard Scott-Burgan fuel model categories (Scott & Burgan, 2005) according to vegetation type, climate, presence or absence of forest canopy, height class and percent live and dead flammable shrub cover. The Scott and Burgan fuel model categories were then used as fuel data input

into the FlamMap fire behavior modeling program. For a full description of the Sunrise Fuel Model Codes and representative photographs of the vegetation-fuel types taken along the Proposed Project route, see Appendix 3B.

A spatial database list of required and ancillary GIS information was assembled in support of the fire impacts analysis in this section. Table D.15-21 provides a list of the GIS data that were used in the wildland fire analysis used in this EIR/EIS.

---

Table D.15-21. Fire and Fuels Management GIS Data List

---

<ul style="list-style-type: none"><li>• Fire history (50-Year History)</li><li>• Fire ignition occurrence (13-Year History)</li><li>• Fire progression layers</li><li>• Fuel treatments and Prescribed fire history</li><li>• Fuel Model Code Sources</li><li>• Fireshed socioeconomic data sets</li><li>• Local, State, and federal fire service districts and stations</li><li>• Fire communication sites</li><li>• Concentrated use areas (CUAs)</li><li>• Cultural resources</li><li>• Grazing allotments</li><li>• Historic and recreational sites</li><li>• Mine and mineral claims</li><li>• Municipal water supplies and infrastructure</li><li>• Primary and secondary residences</li><li>• Railroads</li><li>• Roads</li><li>• Trails and trailheads</li><li>• SDG&amp;E utility corridors</li><li>• Wildland-urban interface areas</li><li>• Fireshed environmental GIS data sets</li><li>• Digital aerial photos - 2005</li><li>• Coordinate system (for example, UTM, Lat/Long)</li></ul>	<ul style="list-style-type: none"><li>• Digital orthophoto quads</li><li>• Digital raster graphs</li><li>• Remote automated weather stations data</li><li>• County parcel ownership and jurisdictions (for example, private lands)</li><li>• Public Land Survey System (PLSS)</li><li>• Satellite imagery</li><li>• Vegetation or cover-type</li><li>• Digital elevation model (DEM)</li><li>• Areas of critical environmental concern</li><li>• Soils data</li><li>• Fire regime condition class (CAL FIRE, RSL, USFS)</li><li>• Historical range of variability (CAL FIRE, RSL, USFS)</li><li>• Invasive weeds (Cal IPS)</li><li>• Proper functioning condition</li><li>• Rivers and streams</li><li>• Sensitive or critical wildlife habitat (for example, winter range, riparian)</li><li>• Threatened, endangered, and sensitive (TES) flora and fauna habitat</li><li>• Water bodies</li><li>• Watersheds of concern (Cal Water)</li></ul>
--	--

---

Source: Forester's Co-Op Fire Atlas Data.

A Fire Atlas was created to summarize the attributes of each fireshed as they relate to resources, communities, wildfire impacts, and fire suppression.

The 50-year fire history summary was acquired from FRAP and San Diego County. Using these data, the number of fires and acres burned in the past 50 years were assessed using. The time frame encompassed 50 years in order to capture long-term fire history. These figures show an average of the annual burned acreages of all recorded fires greater than 10 acres.<sup>11</sup>

Wildfire ignitions history from a 13-year period (1993-2006) was accessed from the California Fire Alliance. This information was used to evaluate the causes and number of wildfire ignitions within the firesheds. The historical wildfire occurrence data spans 50 years to include major increases in human influence in San Diego County.

Fire district boundaries and fire station information were obtained from CAL FIRE. The number of fire stations, locations and whether they were operated on a full-time, part-time, or seasonal basis were considered in calculating fire suppression resources. Also the availability and proximity of water sources for fire containment were included in the assessment of fire suppression resources.

---

<sup>11</sup> Small wildfires were not mapped or recorded reliably until recently, and many local fire departments still do not have the resources to record these minor events.

A listing of federally registered communities at risk of potential wildfire damage within the firesheds was obtained from the California Fire Alliance. Land ownership information within each fireshed was acquired from San Diego County. Records of fuel-break and fuel-reduction projects carried out recently within the firesheds was obtained from the California Fire Alliance. Fireshed topography was analyzed in conjunction with the above attributes using digital elevation models (DEM). All of the above features were graphically analyzed using ArcGIS 9.2.

### Fire Behavior Modeling

A model called “FlamMap (Version 3.0)” fire behavior software is used to assess the potential of the Proposed Project to affect wildfire movement and impact to surrounding communities. The principal use of the fire behavior software is to evaluate the simulated dynamics of wildfire, which may result in potentially damaging impacts to surrounding communities, firefighter safety and tactics, and the environment.

In addition to the landscape information, weather, wind, and fuel moisture data were added to model normal and extreme conditions. Under normal conditions, the modeled burn period was four hours and the fires burned for two periods, totaling eight hours of active fire progression. The extreme weather conditions simulated Santa Ana wind conditions and the correlated decrease in fuel moisture content. During extreme weather and fuel conditions the burn period was extended to 12 hours and modeled to burn for two periods,<sup>14</sup> totaling 24 hours of active burn time. FlamMap fire behavior outputs (i.e., flame length, rate of spread, fire line intensity, heat intensity) functioned as the foundation in creating three customized Sunrise Powerlink Fire Behavior Models. These models — Fire Behavior Trend Model, Burn Probability Model, and Wildfire Containment Conflict Model — are used to assess fire behavior, damage, and risk within each fireshed. Each is described below. Table D.15-22 summarizes the simulated weather and fuels conditions.

Table D.15-22. FlamMap Normal and Extreme Fire Weather and Fuels Conditions

Weather	Normal	Extreme
Wind	8 mph	50 mph
Aspect <sup>12</sup>	270°	65°
Foliar moisture content	90%	60%

Fuel Moisture Condition <sup>13</sup>				Live Herbaceous (forbs)	Live Woody (shrubs)
	1-Hr	10-Hr	100-Hr		
Normal	3%	5%	6%	80%	90%
Extreme	3%	5%	6%	50%	65%

Source: Forester's Co-Op Fire Atlas Data.

### Burn Probability Model

The Burn Probability model is used to determine the chance that a fire ignited in the “border zone” will spread beyond the ignition point. The “border zone” is the area of fire influence that extends up to 0.25 miles outward on either side of the transmission line. The burn probability model identifies the areas

<sup>12</sup> Aspect refers to the direction from which wind is blowing.

<sup>13</sup> Downed woody debris surface fuels are categorized into diameter size classes according to the rate of drying (1-hour fuels [ $< 0.24$  inch], 10-hour fuels [0.25-0.99 inches] and 100-hour fuels [1.0-2.99 inches]).

<sup>14</sup> Two burn periods were used to simulate bio-physical wildfire behavior; beyond two burn periods, fire behavior would be influenced by firefighter suppression response, human features on the landscape, and localized weather patterns that would render the output of the biophysical model less robust. It should be noted, however, that major events often burn longer than two burn periods, and therefore, during extreme fire weather, the extent of a wildfire could be greater than simulated.

within the transmission line border zone that have a low, moderate, high, and very high probability of fire recurrence. The model uses actual vegetation cover and simulates burn behavior from random ignitions within the border zone (one ignition/50 acres) under normal weather conditions and normal fuel moisture levels. The Burn Probability Model therefore simulates biophysical conditions within 0.25 miles of the transmission line to determine whether ignitions related to project construction, operation, and maintenance would pose a fire risk.

### Fire Behavior Trend Model

The primary objective of fire behavior trend model is to determine the potential area of impact as a result of project-related ignitions. The model identifies communities that would be at risk of damage from a wildfire ignited within the transmission corridor. Because construction and maintenance activities within the transmission corridor can cause fires, the transmission corridor is simulated to be the ignition source for a wildfire within each fireshed. The model produces simultaneous ignition points every 500 feet along the transmission line corridor. Simultaneous ignitions are modeled in order to analyze the results of multiple ignitions within the corridor. This simulates a worst-case ignitions scenario that could result from hazardous construction practices, accidents involving heavy equipment, or electrical facility faults from wind-blown debris. Inputting normal or extreme fire weather and fuel data over a specified burn period, the FlamMap model provides information on the direction, rate of spread, flow paths, and predicted burn behavior over the landscape during normal and extreme weather conditions. Potentially damaging impacts to communities are assessed for each fireshed.

### Wildfire Containment Conflict Model

A spatial model is used to determine areas of significant firefighting conflicts created by the presence of the overhead transmission line. The model inputs are a suite of factors that restrict or conflict with firefighting efforts, weighted according to the severity of conflict. Areas determined to present significant conflicts to firefighting efforts are those with a minimum of 1.5 consecutive miles with a criteria ranking of Very High (see Table D.15-23). This minimum conflict length is based on professional judgment in consultation with the CAL FIRE San Diego Unit, USDA Forest Service Wildfire Incident Commanders, and the BLM Fire Mitigation Education Specialist.

Table D.15-23. Wildfire Containment Conflict Index

		Conflict Index Ranking			
		Low	Moderate	High	Very High
Total Criteria Weight		0-1.5	2-2.5	3-3.5	4-5.5
	Conflict	Weight		No Conflict	
Wildfire History	Wildfire containment boundaries present within the polygon (50 years)	1		No wildfire boundaries present	
Access Roads	Roads intersect or parallel the proposed transmission line within the polygon	1		No roads present	
Topography	Transmission line is higher than the surrounding topography	0.5		Facility lower than surrounding topography	
Wildfire Fuels	Fuels present within >30% of polygon (Scott-Burgan codes 141-204, codes 1-140)	1, 0.5 <sup>a</sup>		Fuels present within <30% of polygon (masks all other features)	
Ignitions	Ignitions have occurred within the polygon (13 years)	0.5		No ignitions	
Communities	Residential parcels present within the polygon	0.5		No parcels present	
Existing Line	Existing transmission line within ROW or parallel transmission line within polygon	0.5		No existing line present, or line would be underbuilt or undergrounded	

<sup>a</sup> Scott-Burgan customized fuel model codes of 141-204 carry a weight of 1; codes of 1-140 carry a weight of 0.5

The Firefighting Conflict Model criteria analyzed are wildfire history, access roads, topography, wildfire fuels, ignitions, communities/assets at risk, and existing transmission lines. The wildfire history (50-year FRAP data) is used to identify historical wildfire boundaries, indicating areas of successful containment that would be compromised by the presence of an overhead high-voltage transmission line. This criterion is weighted more heavily for segments where the project would introduce a transmission line to the landscape, and less heavily where the project would be collocated with an existing, lower-voltage transmission line. The access roads criterion identifies those locations where there is sufficient access for ground-based firefighters to make a stand against a fire. The model assumes that where no roads currently intersect the proposed transmission line, no conflict can be created by the introduction of the transmission line.

Topography influences firefighting tactical approach: steep slopes and canyons are areas where firefighters will not attempt to suppress a wildfire because fires tend to burn at high intensities and rates of spread on steep slopes. The model assumes that a transmission line at the base of a steep slope would not present a firefighting conflict due to the indefensible nature of this topography. A transmission line at the crest of a hill would present a conflict. The wildfire fuels criterion requires that wildfire fuels (based on Scott and Burgan Fuel Models) be present within at least 30% of the polygon to carry a wildfire through the landscape. No conflict is created where insufficient fuels are present.

Ignition data (CALFIRE) are used to identify locations with high ignition potential. Historic ignitions in an area indicate a high likelihood of subsequent ignitions, and introducing a transmission line to a location with a high ignition potential would create an obstacle to future initial attack operations. At-risk communities are high priorities for protection during wildfire suppression, and the introduction of a transmission line would create an obstacle to community protection efforts.

#### D.15.4.4 Impacts Identified

Table D.15-24 summarizes impacts related to fire and fuels management identified within the Proposed Project area, based on the identified significance criteria. Impacts are classified as No Impact; Class I (significant, cannot be mitigated to a level that is less than significant); Class II (significant, can be mitigated to a level that is less than significant); Class III (adverse, but less than significant); or Class IV (beneficial).

Table D.15-24. Impacts Identified – Proposed Project – Fire and Fuels Management

Impact No.	Description	Impact Significance
<b>Imperial Valley Link and Eastern Anza-Borrego Link</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class III
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class III
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>PFS-1 Ranchita Fireshed</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

**Table D.15-24. Impacts Identified – Proposed Project – Fire and Fuels Management**

<b>Impact No.</b>	<b>Description</b>	<b>Impact Significance</b>
<b>PFS-2 San Felipe Fireshed</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>PFS-3 Santa Ysabel Fireshed</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>PFS-4 Ramona Fireshed</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class I
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>PFS-5 Poway Fireshed</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class I
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>PFS-6 Peñasquitos Fireshed</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Proposed Project – Other System Upgrades</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	No Impact
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	No Impact
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Proposed Project – 230 kV Future Transmission System Expansion</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class I
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I, III <sup>a</sup>
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

**Table D.15-24. Impacts Identified – Proposed Project – Fire and Fuels Management**

Impact No.	Description	Impact Significance
<b>Proposed Project – 500 kV Future Transmission System Expansion</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class I
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Proposed Project – Connected Actions</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II, III <sup>b</sup>
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I,III, No Impact <sup>c</sup>
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III, No Impact <sup>d</sup>
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

a Class I for segments that would not be collocated with the Proposed Project, Class III for segments that would be collocated with the Proposed Project.

b Class II for La Rumorosa Wind Project, Class III for other Connected Actions.

c Class I for La Rumorosa Wind Project, No Impact for Jacumba Substation, Class III for other Connected Actions.

d No Impact for Jacumba Substation, Class III for other Connected Actions.

Fire and fuels impacts are analyzed using supporting information and fire behavior model results for each fireshed (as defined in Section D.15.4). Impact conclusions summarize the main results. The objective of the mitigation measures, when applicable, is to reduce the impacts to a level that is less than significant. Due to the large scale of the SRPL and the very high fire risk in San Diego County three of these impacts is not mitigable to a level that is less than significant. The fire behavior model results for each impact are discussed according to each fireshed. Because the firesheds encompass a wild-fire assessment region, they do not coincide with the linear project “links” into which the Proposed Project is divided. Therefore, a fireshed approach is used in this impacts assessment section instead of the link approach used elsewhere in the EIR/EIS document. The modeling completed for each of the six Proposed Project firesheds is presented below.

### D.15.5 Imperial Valley Link and Eastern Anza-Borrego Link

The project region of the Imperial Valley Link and Eastern Anza-Borrego Link located in Imperial County and eastern San Diego County does not warrant fireshed evaluations due to a low potential for wildfire occurrence in this desert landscape, therefore a fireshed modeling analysis is not performed. The rocky surfaces and dry, desert climate of the Imperial Valley and Eastern Anza-Borrego region does not promote fast-growing woody vegetation communities such as chaparral, oak woodlands, and coniferous forests that allow for the accumulation of heavy fuels that sustain wildfire outbreaks in the remainder of the Proposed Project study area. Furthermore, the very low population density in the region minimizes the occurrence of human-caused ignition sources. However, fast-spreading surface wildfires have occasionally occurred in western Imperial County. These fires generally occur after high precipitation years have allowed for a flush of vegetation growth that in turn provides a fuel source for wildfires. Generally these fires do not possess the heat intensities associated with the damaging impacts of chaparral and forest wildfires; however, they can sometimes ignite structures when present. Fire risk is very low in the Imperial Valley Link and Eastern Anza-Borrego Link because of low fire intensities that burn sparse desert vegetation, resulting in minimal threats to the scattered population centers.

## Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class III)***

Fire risk is very low in the two easternmost links of the Proposed Project because of low fire intensity levels that burn sparse desert vegetation causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted in the area east of the Narrows Substation just southeast of the town of Borrego Springs. In these desert areas with minimal vegetation, the risk of construction and maintenance activities igniting a wildfire is very low. However, some risk of fire remains even in desert terrain, and the possibility that construction activities could start a fire in these areas is considered to be adverse but less than significant (Class III). No mitigation is required.

## Operational Impacts

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. However, due to patchy fuels and a low overall risk of fire in Imperial County and eastern San Diego County, the presence of the overhead transmission line would present a less than significant risk of igniting a catastrophic wildfire in this area (Class III). No mitigation is required.

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The fire risk is very low in the Imperial Valley and Eastern Anza-Borrego Links because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. In these dry desert areas where wildfires are infrequent, the transmission line conflict with wildfire containment operations would be minimal. Tactical firefighting obstructions may occur; however, the randomness and low intensity of fires minimize this potential impact.

State and federal fire prevention and transmission facility clearance requirements stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be required and would ensure that the potential for adverse firefighting impacts of the Imperial County Link and Eastern Anza-Borrego Link would be less than significant (Class III). No mitigation is required.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. Construction and maintenance of the Proposed Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses, extending the length of the fire season and creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these

grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Proposed Project ROW will adversely influence fire behavior by increasing the fuel load, fire frequency and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Proposed Project transmission line. Please note the full text of this and all mitigation measures can be found in Appendix 12.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

**B-3a Prepare and implement a Weed Control Plan.** SDG&E shall prepare and implement a comprehensive, adaptive Weed Control Plan for pre-construction and long-term invasive weed abatement. Where SDG&E owns the ROW property, the Weed Control Plan shall include specific weed abatement methods, practices and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC). On the ROW easement lands administered by public agencies (BLM, USDA Forest Service (for alternatives routes within Cleveland National Forest lands), Wildlife Agencies, and State Parks (ABDSP) the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the ROW land-holding public agencies for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions for the implementation of the SDG&E Weed Control Plan. Prior to implementation, SDG&E shall work with the landowners to obtain authorization of the weed control treatment that is required.

The Weed Control Plan shall include the following:

- A pre-construction weed inventory shall be conducted by surveying the entire ROW and areas immediately adjacent to the ROW as well as at all ancillary facilities associated with the project. Weed populations that: (1) are considered by the San Diego County Agriculture Commissioner as being a priority for control; (2) are rated High or moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006); and (3) aid and promote the spread of wildfires (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) shall be mapped and described according to density and area covered. These plant species shall be treated prior to construction according to

control methods and practices for invasive weed populations designed in consultation with the San Diego County Agriculture Commissioner's Office and Cal-IPC.

- Weed control treatments shall include all legally permitted chemical, manual and mechanical methods applied with the authorization of the San Diego County Agriculture Commissioner and the ROW easement land-holding agencies where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA) and implemented by a Licensed Qualified Applicator. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County Agriculture Commissioner. The timing of the weed control treatment shall be determined for each plant species in consultation with the PCA, the San Diego County Agriculture Commissioner, and Cal-IPC with the goal of controlling populations before they start producing seeds.

For the lifespan of the project, long-term measures to control the introduction and spread of noxious weeds in the project area shall be taken as follows.

- From the time construction begins until two years after construction is complete, annual surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required within and adjacent to the ROW and at all ancillary facilities associated with the project. After this time, surveying for new invasive weed populations and monitoring of identified and treated populations shall be required at an interval of every two years. However, the treatment of weeds shall occur on a minimum annual basis.
- During project construction and maintenance, all seeds and straw materials shall be certified weed free, and all gravel and fill material shall be certified weed free by the San Diego County Agriculture Commissioner's Office.
- During project construction and maintenance, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) before and after entering all project areas. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed before and after entering all project areas. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC, BLM, USDA Forest Service (for alternative routes within Cleveland National Forest lands), Wildlife Agencies and State Parks (for weeds in ABDSP) for inspection at any time and shall be submitted to the CPUC on a monthly basis.

## D.15.6 PFS-1 Ranchita Fireshed

### Fireshed Summary and Model Results

The Ranchita Fireshed would include 21 miles of overhead 500 kV and 1.7 miles of underground 230 kV transmission line and the proposed Central East Substation. The Ranchita Fireshed is bordered to the north by County Road S22 and includes the community of Ranchita. The eastern portion includes The Narrows on SR78 and Blair Valley, both within ABDSP. County Road S2 bisects the middle of the fireshed from northwest to southeast and includes the northeastern face of the Volcan Mountains and the

community of Shelter Valley. The area receives adequate precipitation to support dense but patchy chaparral and scrub oak on north facing slopes. The arid climate matched with the Santa Ana winds blowing early summer through winter can create severe to extreme wildfire weather. Refer to Figure D.15-5 for the Ranchita Fireshed boundary, public land ownership boundaries and proposed and alternative project routes.

There have been 13 fires in the past 50 years within this fireshed, with the 2002 Pines Fire being the largest, burning 21,708 acres through the western portion of the fireshed adjacent to PFS-2. The Pines Fire started along Banner Grade just outside the fireshed when a power line was struck by a California National Guard helicopter. All other fires ranged between 45 and 417 acres with an average of 275 acres burned (when 3 smaller fires less than 26 acres are excluded). The predominant cause of ignitions in this fireshed (22%) is lightning, which is more than double the rate of the next highest lightning ignition rate fireshed (San Felipe Fireshed) within the Proposed Project area. A cumulative total of 26,500 acres burned in the Ranchita Fireshed over the last 50 years, and the fireshed experienced two large fires and two major events over this time period. This fireshed experiences periodic extreme fire weather events, but fuels are predominantly patchy, and the number of acres burned in 50 years is moderate, rendering the overall risk of ignitions leading to catastrophic events in this fireshed moderate.

### Burn Probability Model Results

Construction-related ignitions within the Proposed Project corridor have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to the Santa Ana winds will have a higher burn probability and a higher potential for an ignition to escape. The burn probability along the Proposed Project route within the Ranchita Fireshed is modeled to illustrate regions within the border zone that have a high potential to experience recurring wildfire events.

High fire probability areas within the half-mile-wide border zone of the Ranchita Fireshed were identified using the FlamMap Burn Probability Model. See Section D.15.4.3, Approach to Data Collection – Fire Behavior Models, for a description of the modeling analysis. The model output indicates that 4% of the border zone area within the Ranchita Fireshed has a very high burn probability, 3% has a high burn probability, 4% has a moderate burn probability, and 89% has a low burn probability. Figure D.15-18 shows the burn probability of the border zone. The majority of high to very high burn probability areas occur where the corridor borders or crosses fuel-laden wildlands. The highest burn probability area within this fireshed is where the corridor parallels the northern edge of the San Felipe Hills Wilderness Study Area.

### Fire Behavior Trend Model Results

In the event of a wildfire within the semi-arid Ranchita Fireshed, damaging impacts are likely to occur because the area experiences severe Santa Ana wind conditions that can rapidly propel a wildfire through the landscape. During these extreme weather conditions, the trend of a fire started within the corridor would be driven to the southwest by the prevailing Santa Ana winds, with the potential of burning extensive areas in and around the transmission corridor and into communities within the fire path. Damaging impacts would result if a fire burned through the Ranchita Fireshed, but the magnitude of the impacts would be dramatically increased during severe fire weather conditions.

During normal weather conditions, ignitions along the transmission line would burn mainly within the half-mile-wide border zone. A fire started in the western part of the corridor could spread outside of the border zone into the town of San Felipe and the northern part of the San Felipe Hills Wilderness Study

Area, putting four or more homes and 6,592 or more acres at risk in two burn periods. A fire ignited in the corridor between MP 83 and 85 would spread east into ABDSP. An ignition along the transmission line where the line parallels SR78 and County Roads S2, S3 and S22 could obstruct these transportation routes. Figure D.15-19 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Proposed Project route through the Ranchita Fireshed.

Under extreme weather conditions, ignitions along the transmission line would burn to the southwest spreading through a large portion of ABDSP. A fire started in the northwest portion of the corridor would burn into the town of San Felipe and through the Santa Ysabel Reservation, continuing into the town of Julian, and putting 13 or more homes and 53,481 or more acres at risk. The western edge of Ranchita, where the corridor is located, would also be threatened. Where the power line corridor parallels SR78 and County Roads S2, S3, and S22 a wildfire ignition would again compromise these transportation routes. Two cell phone towers would be threatened by a potential fire, limiting communication within the area. The potential area at risk of being consumed in a wildfire ignited along the transmission corridor in the Ranchita Fireshed would be more than eight times greater during extreme Santa Ana weather conditions compared to normal conditions.

#### Wildfire Containment Conflict Model Results

Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Proposed Project through the Ranchita Fireshed 14% would present a very high conflict, 33% a high conflict, 51% a moderate conflict, and 2% a low conflict (Figure D.15.20). Two significant conflict areas are identified by the model, located at MP 85-86.5 and MP 90-92.5. The latter includes the site of the proposed Central East Substation.

#### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction activities associated with the Proposed Project would include, but not be limited to, use of vehicles and heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles, and tools would be used for preparation of staging areas, and construction of the new Central East Substation and many miles of new roads. The use of heavy equipment along with the personnel required to construct, repair, and maintain the transmission line introduce the potential for a variety of wildfire ignition sources to surrounding vegetation fuels and combustible materials (such as diesel fuel and herbicide) associated with project activities.

Figure D.15-18. PFS-1 Ranchita Fireshed Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-19. PFS-1 Ranchita Fireshed Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-20. PFS-1 Ranchita Fireshed Containment Conflict Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

A total of 21 miles of overhead 500 kV transmission line and 1.7 miles of overhead 230 kV transmission line and the Central East Substation are proposed to be built within the Ranchita Fireshed. The existing 69 kV corridor would be expanded to accommodate new 230 kV and 500 kV lines, and the existing 69 kV transmission line would be placed underground for approximately five miles, would be underbuilt with the proposed 500 kV line for approximately 16 miles, and would diverge from the proposed 500 kV line near the Central East Substation. Approximately 17 miles of existing wood poles would be removed, but for approximately four miles the existing wood poles would remain adjacent to the 500 kV line to support existing distribution circuits. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

Project-related ignitions within the Proposed Project corridor in the Ranchita Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fuel loads, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The Burn Probability Model for the Ranchita Fireshed (Figure D.15-18) indicates that along the length of the Proposed Project, a total of 7% of the border zone area has a high to very high probability of fire recurrence. The Fire Behavior Trend Model (Figure D.15-19) indicates that random fire ignitions along the corridor in the Ranchita Fireshed would burn within the entire length of the half-mile-wide border zone area and expand further where the corridor borders the San Felipe Hills Wilderness Study Area under normal weather conditions. The potential area burned would be eight times greater during extreme fire weather conditions resulting in widespread impacts. Under normal weather conditions, as many as four homes and 6,592 acres would be at risk within two burn periods, and in extreme fire weather, as many as 13 homes and 53,481 acres would be at risk within two burn periods.

The Proposed Project would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the Ranchita Fireshed. This increase can be mitigated to a level that is less than significant (Class II) in this moderate-risk fireshed through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Ensure coordination for emergency fire suppression, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 53,481 acres to approximately 6,592 acres) and the number of homes at risk (from more than 13 to approximately 4) in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

**F-1a Develop and implement a Construction Fire Prevention Plan.** SDG&E shall develop a multi-agency Construction Fire Prevention Plan for the SRPL and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include: CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies. SDG&E shall provide a draft copy of this Plan to each listed agency at least 90 days before the start of any construction activities. Comments on the Plan shall be provided by SDG&E to all other participants, and SDG&E shall resolve each comment in consultation with CAL FIRE. The final Plan shall be approved by CAL FIRE at least 30 days prior to the initiation of construction activities. SDG&E shall fully implement the Plan during all construction and maintenance activities.

All construction work on the SRPL shall follow the Construction Fire Prevention Plan guidelines and commitments, and Plan contents are to be incorporated into the standard construction contracting agreements for the construction of the SRPL. Primary Plan enforcement responsibility shall remain with SDG&E.

At a minimum, Plan contents shall include the requirements of Title 14 of the California Code of Regulations, Article 8 #918 "Fire Protection" (Refer to Section D.15.3), all components of the draft SDG&E Draft Fire Plan in Appendix 3D, and the elements listed below:

- During the construction phase of the project, SDG&E shall implement ongoing fire patrols during the fire season as defined each year by local, State, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods.
- Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), SDG&E shall update in writing the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CPUC, BLM, and to State and federal fire agencies.
- During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and Local Responsibility Areas (LRA), and when the USFS Project Activity Level (PAL) is Very High on CNF (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may

be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. Utility and contractor personnel shall be informed of changes to the Red Flag event status and PAL as stipulated by CAL FIRE and CNF.

- All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition.
- Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect.
- Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Plan.

**F-1b Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.** The draft SDG&E Plan is presented in Appendix 3D. SDG&E shall finalize and adopt this plan for Company-wide implementation, and the Final Plan shall, at a minimum, include all of the provisions of the Draft Plan and the Construction Fire Plan (per Mitigation Measure F-1a). The plan shall be revisited and updated once every five years to incorporate new regulations, practices, technologies, and fire science research. SDG&E shall submit the Plan for review and approval by the following agencies at least 90 days prior to energizing the Proposed Project: CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP.

**F-1c Ensure coordination for emergency fire suppression.** SDG&E shall ensure that personnel, construction equipment, and aerial operations do not create obstructions to firefighting equipment or crews. The following provisions shall be defined based on consultation with fire agencies.

Onsite SDG&E and contracted personnel shall coordinate fire suppression activities through the active Fire Incident Commander, and emergency ingress and egress to construction-related access roads shall remain unobstructed at all times.

Construction in the work area shall cease in the event of a fire within 1,000 feet of the work area. The work area includes the transmission right-of-way (ROW), construction lay-down areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. SDG&E shall contact CAL FIRE and CNF dispatch seven days prior to helicopter use and shall provide dispatch centers with radio frequencies being used by the aircraft, aircraft identifiers, the number of helicopters that will be used while working on or near SRA and CNF lands at any given time, and the flight pattern of helicopters to be used. Should a wildfire occur within one (1) mile of the work area, upon contact from the CAL FIRE Incident Commander and/or Forest Aviation Officer, helicopters in use by SDG&E shall immediately cease construction activities and not restart aerial operations until authorized by the appropriate fire agency.

**F-1d Remove hazards from the work area.** The Applicant shall clear brush and dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.

**F-1e Contribute to defensible space grants fund.** SDG&E shall contribute an annual sum to a fund that shall be distributed as homeowner grants for the creation of defensible space around homes, to promote compliance with PRC 4291, and to facilitate firefighting efforts and reduce structure damage from wildfires potentially ignited by the transmission line. The dollar value of the contribution is set forth in Table D.15-25. Grants from the fund shall be distributed to those homeowners at highest risk of sustaining structure damage from an ignition-related to the transmission line, as demonstrated by the Fire Behavior Trend Model results. The mechanism for grants distribution shall be determined through agency negotiations and detailed in the Memorandum of Understanding (Mitigation Measure F-3b).

Table D.15-25. Mitigation Measure F-1e Compliance Contributions

Segment Identification	Homes at Risk	Annual Contribution Per Home	Total Annual Contribution for 2008 (USD)
Proposed Project: Ranchita Fireshed	13	\$2,000	\$26,000
Proposed Project: San Felipe Fireshed	17	\$2,000	\$34,000
Proposed Project: Santa Ysabel Fireshed	63	\$2,000	\$126,000
Proposed Project: Ramona Fireshed	223	\$2,000	\$446,000
Proposed Project: Poway Fireshed	337	\$2,000	\$674,000
Proposed Project: Peñasquitos Fireshed	214	\$2,000	\$428,000
Proposed Project: Other System Upgrades	100	\$2,000	\$20,000
Proposed Project: Future Transmission System Expansion	TBD <sup>a</sup>	\$2,000	TBD <sup>b</sup>
FTHL Eastern Alternative	0	\$2,000	\$0
SDG&E West of Dunaway Alternative	0	\$2,000	\$0
SDG&E West Main Canal–Huff road Modification Alternative	0	\$2,000	\$0
Partial Underground 230 kV ABDSP SR78 to S2 Alternative	0	\$2,000	\$0
All Underground Option	0	\$2,000	\$0
Overhead 500 kV ABDSP within Existing ROW Alternative	102	\$2,000	\$204,000
Santa Ysabel Existing ROW Alternative	8	\$2,000	\$16,000
Santa Ysabel Partial Underground Alternative	0	\$2,000	\$0
Santa Ysabel All Underground Alternative	0	\$2,000	\$0
Mesa Grande Alternative	4	\$2,000	\$8,000
CNF Existing 69 kV Route Alternative	0	\$2,000	\$0
Oak Hollow Road Underground Alternative	0	\$2,000	\$0
San Vicente Transition Alternative	0	\$2,000	\$0
Chuck Wagon Road Alternative	40	\$2,000	\$80,000
Pomerado Road to Miramar Area North Alternative	42	\$2,000	\$84,000
Los Peñasquitos Canyon Preserve–Mercy Road Alternative	0	\$2,000	\$0

**Table D.15-25. Mitigation Measure F-1e Compliance Contributions**

Segment Identification	Homes at Risk	Annual Contribution Per Home	Total Annual Contribution for 2008 (USD)
Black Mountain to Park Village Road Underground Alternative	0	\$2,000	\$0
Coastal Link System Upgrade Alternative	100	\$2,000	\$200,000
Top of the World Substation Alternative	15	\$2,000	\$30,000
Interstate 8 Alternative	657	\$2,000	\$1,314,000
Interstate 8 Alternative Substation	0	\$2,000	\$0
Campo North Option	0 <sup>b</sup>	\$2,000	\$0
Buckman Springs Underground Option	0	\$2,000	\$0
West Buckman Springs Option	0	\$2,000	\$0
South Buckman Springs Option	0	\$2,000	\$0
Chocolate Canyon Option	0 <sup>b</sup>	\$2,000	\$0
BCD Alternative	16	\$2,000	\$32,000
BCD South Option	74	\$2,000	\$148,000
Route D Alternative	101	\$2,000	\$202,000
Central South Substation Alternative	0	\$2,000	\$0
Modified Route D Alternative	882	\$2,000	\$1,764,000
Modified Route D Alternative Substation	0	\$2,000	\$0
Star Valley Option	126	\$2,000	\$252,000
LEAPS Transmission-Only Alternative	812	\$2,000	\$1,624,000
LEAPS Generation and Transmission Alternative	812	\$2,000	\$1,624,000

a To be determined through Fire Behavior Trend Modeling Analyses that shall be performed by SDG&E should any of these future routes be constructed.

b No additional homes would be placed at risk should this alternative be selected in addition to the primary route to which this alternative would connect.

## Operational Impacts

### ***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)***

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Ranchita Fireshed is a moderate-risk fireshed based on its wildfire history, fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 13 or more households and 53,481 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line and distribution circuits in the immediate vicinity of the Proposed Project from MP 83.5 to MP 87.6. In Santa Ana wind conditions and in areas with wildland fuels, the Proposed Project would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the Proposed Project. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

**F-2a Establish and maintain adequate line clearances.** The Applicant shall establish adequate conductor clearances prior to energizing the project by removing all vegetation from within 15 radial feet of new and relocated overhead 69 kV, 230 kV, and 500 kV conductors under maximum sag and sway. Only trees and vegetation with a mature height of 15 feet or less shall be permitted within the ROW. In addition, tree branches that overhang the ROW within 15 horizontal feet of any conductor shall be trimmed or removed, as appropriate, including those on steep hillsides that may be many vertical feet above the facility. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.

During the life of the project, the Applicant shall maintain adequate conductor clearances by inspecting the growth of vegetation along the entire length of the overhead transmission line at least once each spring and documenting the survey and results in a report submitted to the CPUC before June 1 of each year. Conductor clearance of 15 radial feet under maximum sag and sway shall be maintained at all times.

Maximum sag and sway shall be computed based on ambient temperatures of no less than 120 degrees Fahrenheit and wind gusts of no less than 100 miles per hour.

**F-2b Install existing conductors on steel poles.** Where construction of the Proposed Project or an alternative would result in the relocation of existing 69 kV transmission lines, these lines shall be relocated onto steel poles using vertical conductor construction. Also, all existing 69 kV or distribution lines with poles located within 100 feet of the Proposed Project or alternative shall be reconstructed so the existing conductors are on steel poles using vertical

conductor construction to eliminate pole combustion hazard potential, increase wind loading capacity, and reduce mid-line slap ignition potential. This measure shall not apply to conductors that would be underbuilt on steel poles or lattice towers or installed underground.

**F-1e Contribute to defensible space grants fund.**

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)***

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model (Figure D.15-20) for the Ranchita Fireshed identifies two specific areas where the Proposed Project would restrict wildfire containment to a very high degree. The conflict areas are located at MP 85-86.5 and MP 90-92.5; the latter includes the site of the proposed Central East Substation. Both of the 1.5 mile-long conflict areas are located in high fire risk areas with heavy fuels and historical fire containment boundaries. The nearby access roads and moderate topography indicate that the conflicts exist in defensible landscapes where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in these areas would be obstructed by the presence of the overhead transmission line and the proximity of parallel existing lines. Firefighting suppression tactics, maneuverability and approach distances are greatly restricted by the indefensible island created between collocated and parallel transmission lines. This indefensible landscape is a swath of land where firefighting is tactically very difficult or simply too dangerous (due to a combination of minimum approach distances and rates of wildfire spread that can reach up to 300 feet per minute).

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the Proposed Project in the Ranchita Fireshed is considered a significant impact (Class I). This impact can be partially mitigated by creating fuel breaks in the conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuel breaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

***Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting***

**F-3a Construct and maintain fuelbreaks.** SDG&E shall construct and maintain fuelbreaks at targeted locations along the transmission line where significant conflicts with fire containment are created. SDG&E shall purchase or secure by other means complete and total vegetation management rights for the life of the project for the area within ¼ miles of the transmission centerline between project mileposts shown in Table D.15-26.

Table D.15-26. Mitigation Measure F-3a Compliance Locations

Segment Identification	Location of Required Fuelbreak	Total Length of Required Fuelbreak (miles)
Proposed Project: Ranchita Fireshed	MP 85-86.5, and 90-92.5	3
Proposed Project: San Felipe Fireshed	MP 104-105.5	1.5
Proposed Project: Santa Ysabel Fireshed	MP 110-112.5, and 114-115.5	4
Proposed Project: Ramona Fireshed	MP 126-128.5, and 130.5-131.5	3.5
Proposed Project: Poway Fireshed	MP 131.5-133	1.5
Proposed Project: Peñasquitos Fireshed	-	0
Proposed Project: Other System Upgrades	-	0
Proposed Project: Future Transmission System Expansion	TBD <sup>a</sup>	TBD <sup>a</sup>
FTHL Eastern Alternative	-	0
SDG&E West of Dunaway Alternative	-	0
SDG&E West Main Canal–Huff road Modification Alternative	-	0
Partial Underground 230 kV ABDSP SR78 to S2 Alternative	-	0
All Underground Option	-	0
Overhead 500 kV ABDSP within Existing ROW Alternative	-	0
Santa Ysabel Existing ROW Alternative	MP SYR 2.5-4.5, and 6-9	2
Santa Ysabel Partial Underground Alternative	-	0
Santa Ysabel All Underground Alternative	-	0
Mesa Grande Alternative	-	0
CNF Existing 69 kV Route Alternative	-	0
Oak Hollow Road Underground Alternative	-	0
San Vicente Transition Alternative	-	0
Chuck Wagon Road Alternative	-	0
Pomerado Road to Miramar Area North Alternative	-	0
Los Peñasquitos Canyon Preserve–Mercy Road Alternative	-	0
Black Mountain to Park Village Road Underground Alternative	-	0
Coastal Link System Upgrade Alternative	-	0
Top of the World Substation Alternative	-	0
Interstate 8 Alternative	18 41.5-43.5, 44-47, and 62-63.5	6.5
Interstate 8 Alternative Substation	-	0
Campo North Option	-	0
Buckman Springs Underground Option	-	0
West Buckman Springs Option	-	0
South Buckman Springs Option	-	0
Chocolate Canyon Option	-	0
BCD Alternative	-	0
BCD South Option	-	0
Route D Alternative	-	0
Central South Substation Alternative	-	0
Modified Route D Alternative	MRD 10.5-13, and 15-16.5	4

**Table D.15-26. Mitigation Measure F-3a Compliance Locations**

Segment Identification	Location of Required Fuelbreak	Total Length of Required Fuelbreak (miles)
Modified Route D Alternative Substation	-	0
Star Valley Option	-	0
LEAPS Transmission-Only Alternative	LEAPS 2-4	2
LEAPS Generation and Transmission Alternative	-	0

a To be determined through Wildfire Containment Conflict Modeling Analyses that shall be performed by SDG&E should any of these future routes be constructed. Contributions shall not be required in locations where the Future Transmission System Expansion lines would parallel the Proposed Project where this commitment is already being honored for the Proposed Project.

The fuelbreak design plans shall be submitted to CPUC, BLM, ABDSP, and U.S. Forest Service, as appropriate, for review and approval at least 90 days before the commencement of project construction. Vegetation fuel load in the fuel break shall be reduced to and maintained at a level not to exceed 12 tons/acre as determined by the National Wildfire Coordination Group Stereo Photo Series for Quantifying Natural Fuels for the appropriate vegetation type series. Fuelbreaks shall be constructed prior to transmission line energizing. The following fuelbreak performance criteria are to be met:

- At its most intensive, vegetation reduction shall be carried out to maintain a native grass cover to minimize water quality impacts due to erosion and sedimentation. In addition, vegetation on slopes greater than 45% shall be limited to hand treatment of hazardous trees to avoid causing erosion.
- Herbicidal treatments shall be restricted to ground-based applications. A colorant or dye shall be added to the herbicide mixture to determine location of coverage. A surfactant shall be added to the herbicide mixture to facilitate targeted absorption. Herbicide applications shall be performed by licensed professionals in accordance with each material's label instructions and in compliance with Sempra's "Physical and Climatic Target Area Evaluation Form."
- Dead and decaying vegetation within the Wire Zone (ROW) shall be cut to 18 inches or less in height, and removed or chipped and spread onsite in piles no higher than six (6) inches.
- Trees greater than four (4) inches DBH, except those whose crowns are separated from other tree crowns by at least 150 feet in all directions, shall be removed and treated with herbicidal and fungicidal stump applications; communities of shrubs greater than 1,000 square feet and greater than five (5) feet tall shall be thinned or removed; and, dead and decaying vegetation shall be cut to 18 inches or less in height or removed. All cut vegetation shall be either removed or chipped and spread onsite in piles no higher than six (6) inches.
- SDG&E shall develop and implement a post-fire assessment protocol, which shall include site inspection and vegetation inventory, debris and hazard removal, damage assessment, site monitoring, native species restoration as appropriate, facilities redesign/reconstruction as appropriate, and adaptive modification to fuelbreak maintenance activities as appropriate.
- SDG&E shall report all fuelbreak maintenance and post-fire assessments on an annual basis to CAL FIRE or CNF as appropriate.

Should complete vegetation management rights be impossible to secure, SDG&E shall make financial contributions to either CAL FIRE or CNF (as appropriate) for offsite fuelbreak creation. The contributions shall be between \$1,000 to \$4,000 per acre for initial fuelbreak construction, plus between \$250 and \$1,000 per acre per year for fuelbreak maintenance. The exact financial contribution shall be determined by CAL FIRE or CNF based on actual costs of compensatory fuelbreak construction and maintenance as observed in the field.

**F-3b Prepare and implement a Multi-agency Fire Prevention MOU.** A Memorandum of Understanding (MOU) for the SRPL shall be created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate using the existing Southwest Powerlink MOU as a template. The purpose of this Multi-agency Fire Prevention MOU is to efficiently coordinate all aspects of agency and utility fire prevention plans and practices. The MOU shall integrate the following components of the utility fire plan with existing agency fire plans: fire prevention, firefighter safety, emergency communication, firefighter training of both ground and aerial utility personnel, and others as appropriate. Financial commitments of each participating organization to pre-fire planning, preparedness, and prevention programs shall be stipulated in the MOU. The MOU shall require inter-agency coordination and assistance for the construction and regular maintenance of targeted fuel breaks in conjunction with the SRPL transmission corridor (Mitigation Measure F-3a). This MOU shall be periodically reviewed and updated at a minimum of once every five years to accommodate changes in regulations and environmental conditions. A community education and outreach program on the fire prevention plans and practices implemented by the MOU shall be adopted.

A key element of the MOU shall be ensuring immediate transmission line de-energizing during fire emergencies and ensuring adequate and immediate communication to fire agencies of line de-energizing. SDG&E shall provide all appropriate local, State, and federal fire dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1,000 feet of the transmission corridor to maintain firefighter safety, and re-energizing shall require notification of all fire agencies.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the Proposed Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants

within the Proposed Project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Proposed Project transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.7 PFS-2 San Felipe Fireshed

### Fireshed Summary and Model Results

The San Felipe Fireshed would include 16.9 miles of overhead 230 kV transmission corridor. The existing 69 kV transmission line would remain on wood poles parallel to the proposed 230 kV transmission line for approximately 2.6 miles, would be placed parallel to the proposed 230 kV transmission line on new tubular steel poles for approximately 9.2 miles, and would deviate from the proposed 230 kV line just before the San Felipe Fireshed boundary.

This fireshed is bordered to the west by the Palomar Ranger District of the Cleveland National Forest and includes the northern portion of the southwestern slope of the Volcan Mountains, the 3,500-acre Mesa Grande Indian Reservation, the Santa Ysabel Valley, and Whale Mountain northeast of Ramona. The elevation ranges within the fireshed from 2,058 feet at Lake Sutherland to 3,249 feet at Corral Mountain and the Volcan Mountains average 5,500 feet. In the rolling oak woodlands and grassland of Santa Ysabel Valley the average annual rainfall ranges from 22.5 to 27.5 inches. In the central section of the fireshed are the Volcan Mountains, which receive an average annual rainfall of 32.5 inches. This ample amount of precipitation contributes to dense growth of the chaparral, scrub oak and chamise plant communities. Moving down the steep northeastern slope of the mountains into the San Felipe Valley, the rainfall range is similar to that of the Santa Ysabel Valley area. The very northeast corner of the fireshed is in the rain shadow of the mountains receiving on average 18 inches of rainfall annually. The vegetation is composed mostly of dense chaparral. The thick vegetation creates a hazardous fuel load especially with severe to extreme fire weather conditions created by the Santa Ana winds. Refer to Figure D.15-7 for Fireshed PFS-2 boundary, public land ownership boundaries and proposed and alternative project routes.

There have been 21 fires in the past 50 years within this fireshed. Three of these, the Mataguay (2004: 8,867 acres), the Morettis (1990: 3,314 acres), and the Witch (2007: 12,600 acres) became major events. The 2003 Cedar Fire burned only 258 acres, or 1% of the fireshed. All other fires remained

below 500 acres with an average of 108 acres burned. Both the Mataguay and Morettis fires were in the northern portion of the fireshed, and the Witch Fire burned the southwestern portion. The primary identified causes of ignitions in this fireshed over the last 13 years are smoking, debris burning, and equipment use (44%). Naturally occurring fires caused by lightning represent 6% of the ignitions, the second highest level in the six proposed firesheds. Only the Ranchita Fireshed has more lightning ignitions.

A cumulative total of 26,700 acres burned in this fireshed over the last 50 years, and the fireshed experienced 3 major events over the same time period. This fireshed experiences periodic extreme fire weather events, fuels are heavy, and the number of acres burned in 50 years is moderate, rendering the overall risk of ignitions leading to a major event in this fireshed high. This is a sparsely populated fireshed, however, and the number of homes at risk is moderate, even during extreme weather.

### Burn Probability Model Results

High fire probability areas within the half-mile-wide border zone of the San Felipe Fireshed were identified using the FlamMap Burn Probability Model. See Section D.15.1.2, Approach to Data Collection – Fire Behavior Models, for a description of the modeling analysis. The model output indicates that less than 1% of the border zone area within the San Felipe Fireshed has a very high burn probability, 9% has a high burn probability, 36% has a moderate burn probability, and 55% has a low burn probability. Figure D.15-21 shows the burn probabilities of areas in the San Felipe Fireshed within the Proposed Project corridor. The majority of high to very high burn probability areas occur where the corridor borders or crosses fuel-laden wildlands. Fireshed PFS-2 (San Felipe) has moderate to high burn probability areas within the corridor northeast of the intersection of SR76 and SR79 and an area of very high burn probability near the County Road S2 and S22 junction.

### Fire Behavior Trend Model Results

In the event of a wildfire within the San Felipe Fireshed, damaging impacts are likely to occur because the area experiences severe Santa Ana wind conditions that can rapidly propel a wildfire through the landscape. During these extreme weather conditions, the trend of a fire started within the corridor would be driven to the southwest by the prevailing Santa Ana winds, with the potential of burning extensive areas in and around the transmission corridor and into communities within the fire path including Mesa Grande, Santa Ysabel, and the Santa Ysabel Reservation. Damaging impacts will result if a fire burned through the San Felipe Fireshed, but the magnitude of the impacts is dramatically increased during severe fire weather conditions and within regions of dense fuel.

Under normal weather conditions, ignitions along the transmission line would burn primarily within the half-mile-wide border zone. A fire started in the northwest part of the corridor would affect the area east of the SR76/79 junction, and burn within one-half mile of the southeast corner of Lake Henshaw. A wildfire ignited within the southern portion of the corridor could burn to the east into the outskirts of the community of Santa Ysabel, putting 10 or more homes and 5,373 or more acres at risk. Mesa Grande Road, S2 and SR78 could be obstructed if a fire was ignited within the nearby corridor. Figure D.15-22 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Proposed Project route through the San Felipe Fireshed.

In the event of extreme weather conditions, ignitions along the transmission line would create a serious risk to the rural communities and transportation routes in the area. A majority of the transmission line border zone would burn spreading southwest with the prevailing Santa Ana winds. The area around the SR76/SR79 junction would be consumed by a fire started anywhere in the northern section of the trans-

mission line. The southern part of Lake Henshaw and the northern half of Santa Ysabel Reservation would be completely burned. The open rangeland around Mesa Grande Road and Witch Creek to the west of the transmission line would burn and possibly spread down to Lake Sutherland and the surrounding CNF lands. A fire ignited in the southern part of the corridor would spread into the Mesa Grande Reservation, continuing to the southern edge of Lake Sutherland and on into the northern outskirts of Ramona. County Road S2, SR79, SR76, SR78 and Mesa Grande Road would be compromised if a large fire spread through the area, and 17 or more homes and 32,124 or more acres would be placed at risk. The potential area at risk of a wildfire ignited along the transmission corridor in the San Felipe Fireshed would be almost six times greater during extreme Santa Ana weather conditions compared to normal conditions.

### Wildfire Containment Conflict Model Results

Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Proposed Project through the San Felipe Fireshed 12% would present a very high conflict, 26% a high conflict, 56% a moderate conflict, and 6% a low conflict (Figure D.15.23). One significant conflict area is identified by the model, located at MP 104 to MP 105.5.

### Construction Impacts

#### ***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction activities associated with the Proposed Project would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas and many miles of new roads. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the Proposed Project corridor in the San Felipe have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The San Felipe Fireshed would include 16.9 miles of overhead 230 kV transmission corridor. The existing 69 kV transmission line would remain on wood poles parallel to the proposed 230 kV transmission line for approximately 2.6 miles, would be placed parallel to the proposed 230 kV transmission line on new tubular steel poles for approximately 9.2 miles, and would deviate from the proposed 230 kV line just before the San Felipe Fireshed boundary. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs

or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Burn Probability Model for the San Felipe Fireshed (Figure D.15-21) indicates that along the length of the analyzed Proposed Project, a total of 9% of the border zone area has a high to very high probability of wildfire recurrence. The Fire Behavior Trend Model (Figure D.15-22) indicates that a random fire ignition within the San Felipe Fireshed project corridor under normal weather conditions would burn within a majority of the border zone, putting as many as 10 homes and 5,373 acres at risk in two burn periods. The potential area burned would be six times greater during extreme fire weather conditions as compared to normal weather conditions, putting as many as 17 homes and 32,124 acres at risk in two burn periods.

The Proposed Project would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the San Felipe Fireshed. Although the San Felipe Fireshed is a rural fireshed with only a moderate wildfire history, heavy fuels are present, and the fireshed experiences periodic severe fire weather. The risk of a project construction- or maintenance-related ignition in this fireshed is therefore high, and the potential for an ignition to result in a catastrophic fire is significant. This risk can be reduced to a level that is less than significant through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 32,124 acres to approximately 5,373 acres) and the number of homes at risk (from more than 17 to approximately 10) in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Figure D.15-21. PFS-2 San Felipe Fireshed Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-22. PFS-2 San Felipe Fireshed Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-23. PFS-2 San Felipe Fireshed Wildfire Containment Conflict Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a Develop and implement a Construction Fire Prevention Plan.**
- F-1b Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c Ensure coordination for emergency fire suppression.**
- F-1d Remove hazards from the work area.**
- F-1e Contribute to defensible space grants fund.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The San Felipe Fireshed is a high-risk based on its wildfire history and fuels present; however, due to the rural nature of the fireshed, there is a small number of homes at risk (see Fireshed Summary and Model Results, above). Any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 17 or more households and 32,124 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line in the immediate vicinity of the Proposed Project from MP 97.6 to MP 100.2. In Santa Ana wind conditions and in areas with wildland fuels, the Proposed Project would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the Proposed Project. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the

adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

**F-2a Establish and maintain adequate line clearances.**

**F-2b Install existing conductors on steel poles.**

**F-1e Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)*

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model (Figure D.15-22) for the San Felipe Fireshed identifies one specific area where the Proposed Project would restrict wildfire containment to a very high degree. The conflict area is located at MP 104 to MP 105.5. The 1.5 mile-long conflict area is located in high fire risk areas with heavy fuels and historical fire containment boundaries. The nearby access roads and moderate topography indicate that the conflicts exist in defensible landscapes where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in these areas would be obstructed by the presence of the overhead transmission line and the proximity of parallel existing lines. Firefighting suppression tactics, maneuverability and approach distances are greatly restricted by the indefensible island created between collocated and parallel transmission lines. This indefensible landscape is a swath of land where firefighting is tactically very difficult or simply too dangerous (due to a combination of minimum approach distances and rates of wildfire spread that can reach up to 300 feet per minute).

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the Proposed Project in the San Felipe Fireshed is considered a significant impact (Class I). This impact can be partially mitigated by creating fuelbreaks in the conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuelbreaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

*Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting*

**F-3a Construct and maintain fuelbreaks.**

**F-3b Prepare and implement a Multi-agency Fire Prevention MOU.**

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the Proposed Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Proposed Project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Proposed Project transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.8 PFS-3 Santa Ysabel Fireshed

The Santa Ysabel Fireshed would include 7.8 miles of overhead and 1.3 miles of underground transmission corridor. The proposed 230 kV overhead line would parallel the existing 69 kV line for approximately 6.4 miles, and the existing 69 kV line would remain on wood poles along this segment.

The dense nature of the vegetation on the western side of SR78 to Lake Sutherland and into the Cleveland National Forest will make fire suppression difficult under moderate fire weather conditions. Under severe fire weather conditions, fire suppression efforts will have minimal impact. This will be especially true for the portion of the Proposed Project that runs along Mesa Grande Road, through Santa Ysabel Valley, and east of SR78. The Santa Ysabel area is a critical strategic firefighting area that would be compromised by the presence of the Proposed Project. The importance of the Santa Ysabel area during fire suppression activities was demonstrated during the November 30, 2006 Open Fire. Firefighters estimated that they had 10-minute window to control this fire while it was shielded from 40 mph winds by the mountains. Six air tankers and four helicopters, along with on-the-ground firefighters, were able to contain the fire to less than 300 acres and keep it from spreading further. Ground-based firefighters would have been forced to attack the fire from more than 500 feet and would not have benefited from the support of air crews if a transmission line had been present during the Open Fire due to the risks introduced by the presence of a high-voltage line. It is therefore unlikely that a containment effort would be successful in this area with the introduction of the Proposed Project.

### Fireshed Summary and Model Results

This fireshed is bordered to the north by the edge of Whale Mountain and includes a portion of San Diego Country Estates on its southern border. The southeastern portion is bounded by Mt. Gower at an elevation of 3,103 feet. The town of Ramona is outside of the fireshed to the west. The fireshed is oriented on the west slope of the Volcan Mountains and includes the area of Santa Ysabel. The western half of Fireshed PFS-3 receives an annual average rainfall of 22.5 inches. As the elevation rises up the west slope, the average annual rainfall increases to 27.5 for the east side of the fireshed. This moderate amount of precipitation is sufficient to support dense chaparral plant communities on north facing slopes. The arid summer and fall climate creates very dry ground fuels that are easily ignited. The Santa Ana winds can create severe to extreme fire weather in this fireshed from early fall through spring. Refer to Figure D.15-9 for Fireshed PFS-3 boundary, public land ownership boundaries and proposed and alternative project routes.

### Wildfire Containment Conflict Model Results

Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Proposed Project through the Santa Ysabel Fireshed 50% would present a very high conflict, 33% a high conflict, and 17% no conflict due to underground placement (Figure D.15.26). Two significant conflict areas are identified by the model, located at MP 110 to MP 112.5 and MP 114 to MP 115.5.

### Construction Impacts

#### ***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction activities associated with the Proposed Project would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas and many miles of new roads. The use of construction equip-

ment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the Proposed Project corridor in the Santa Ysabel Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The Santa Ysabel Fireshed would include 7.8 miles of overhead and 1.3 miles of underground transmission corridor. The proposed 230 kV overhead line would parallel the existing 69 kV line for approximately 6.4 miles, and the existing 69 kV line would remain on wood poles along this segment. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Burn Probability Model for the Santa Ysabel Fireshed (Figure D.15-24) indicates that along the length of the Proposed Project, a total of 9% of the total border zone area has a high to very high probability of fire escapes and wildfire recurrence. The Fire Behavior Trend Model (Figure D.15-25) indicates that random fire ignitions within the Santa Ysabel Fireshed Project corridor would burn primarily within the border zone area under normal weather conditions, putting 10 homes and 3,137 acres at risk within two burn periods. The potential burn area would be almost four times greater during extreme fire weather conditions, putting 63 homes and 11,604 acres at risk in two burn periods.

The Proposed Project would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the Santa Ysabel Fireshed. The Santa Ysabel Fireshed is a high risk fireshed based on wildfire history, the presence heavy fuels, and the occurrence of periodic severe fire weather. The risk of a project construction- or maintenance-related ignition in this fireshed is therefore high, and the potential for an ignition to result in a catastrophic fire is significant. This risk can be reduced to a level that is less than significant through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 313 acres to approximately 63 acres) and the number of homes at risk (from more than 63 to approximately 10) in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a        Develop and implement a Construction Fire Prevention Plan.**
- F-1b        Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c        Ensure coordination for emergency fire suppression.**
- F-1d        Remove hazards from the work area.**
- F-1e        Contribute to defensible space grants fund.**

Figure D.15-24. PFS-3 Santa Ysabel Fireshed Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-25. PFS-3 Santa Ysabel Fireshed Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-26. PFS-3 Santa Ysabel Fireshed Wildfire Containment Conflict Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

## Operational Impacts

### *Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Ranchita Fireshed is a moderate-risk fireshed based on its wildfire history, fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 63 or more households and 11,604 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line in the immediate vicinity of the Proposed Project from MP 110.8 to MP 117.2. In Santa Ana wind conditions and in areas with wildland fuels, the Proposed Project would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the Proposed Project. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

- F-2a**      **Establish and maintain adequate line clearances.**
- F-2b**      **Install existing conductors on steel poles.**
- F-1e**      **Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting. (Class I)*

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model (Figure D.15-26) for the Santa Ysabel Fireshed identifies two specific areas where the Proposed Project would restrict wildfire containment to a very high degree. The conflict areas are located at MP 110 to MP 112.5 and MP 114 to 115.5. Both of the conflict areas are located in high fire risk areas with heavy fuels and historical fire containment boundaries. The nearby access roads and moderate topography indicate that the conflicts exist in defensible landscapes where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in these areas would be obstructed by the presence of the overhead transmission line and the proximity of parallel existing lines. Firefighting suppression tactics, maneuverability and approach distances are greatly restricted by the indefensible island created between collocated and parallel transmission lines. This indefensible landscape is a swath of land where firefighting is tactically very difficult or simply too dangerous (due to a combination of minimum approach distances and rates of wildfire spread that can reach up to 300 feet per minute).

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the Proposed Project in the Santa Ysabel Fireshed is considered a significant impact (Class I). This impact can be partially mitigated by creating fuelbreaks in the very high conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuelbreaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

*Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting*

- F-3a**      **Construct and maintain fuelbreaks.**
- F-3b**      **Prepare and implement a Multi-agency Fire Prevention MOU.**

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the Proposed Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Proposed Project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Proposed Project transmission line.

***Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread***

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.9 PFS-4 Ramona Fireshed

### Fireshed Summary and Model Results

The Ramona Fireshed would include 9.3 miles of overhead and 3.5 miles of underground transmission line. For approximately 1.4 miles, the proposed 230 kV overhead transmission line would not be collocated with the existing 69 kV line in this fireshed. For approximately 8.2 miles, however, the proposed 230 kV overhead transmission line would be collocated with the 69 kV line, which would remain on wood poles.

This fireshed stretches from the San Diego Country Estates southwest to the San Vicente Reservoir. It includes Iron Mountain east of Poway and a portion of SR67 in the southwest corner. Just outside of the fireshed boundary is the town of Ramona located to the north where SR67 joins SR78. The elevation within the fireshed ranges from 2,696 feet at Iron Mountain to 650 feet at San Vicente Reservoir. On the eastern side of the fireshed, San Diego Country Estates is at 1,520 feet elevation. The terrain is variable with rolling oak woodlands, small creek canyons, grasslands and shrublands. Although the elevation varies within the fireshed, the whole area receives an average of 18 inches of rainfall annually. The Santa Ana winds create the potential for severe to extreme fire weather from early fall through the spring. Refer to Figure D.15-11 for Fireshed PFS-4 boundary, public land ownership boundaries and proposed and alternative project routes.

Of all the proposed firesheds, this was the most heavily impacted by the 2003 Cedar Fire; 98% of the area was burned. The 2007 Witch Fire burned only 2% of this fireshed. This area can be considered a high-risk “fire corridor” because historical wildfires have repeatedly followed similar paths, and it is especially prone to wildfires driven by Santa Ana winds. The route of the Proposed Project runs through the center of this fire corridor.

This area has the highest ignition frequency of all the Proposed Project firesheds (401 ignitions/13 years). The predominant reported causes of ignitions in this fireshed are equipment use (21%), vehicles (5%) and arson (5%). A cumulative total of 56,300 acres burned in this fireshed over the last 50 years, and the fireshed experienced 5 large fires and 10 major events over the same time period. This fireshed experiences periodic extreme fire weather events, heavy fuel loading is present, and the number of acres burned in 50 years is high, rendering the overall risk of ignitions leading to catastrophic events in this fireshed high. Development at the WUI is also high in this fireshed, placing a high number of assets at risk from ignitions.

### Burn Probability Model Results

High burn probability areas within the half-mile-wide border zone of the Ramona Fireshed were identified for the aboveground and underground sections of the route using the FlamMap Burn Probability Model. See Section D.15.1.2, Approach to Data Collection – Fire Behavior Models, for a description of the modeling analysis. The model output indicates that 1% of the border zone area within the Ramona Fireshed has a very high burn probability, 2% has a high burn probability, 20% has a moderate burn probability, and 77% has a low burn probability (Figure D.15-27). A majority of the moderate to very high burn probability areas are located where the route crosses the fuel-laden northeast section of San Vicente Highlands Preserve and Barnett Ranch Open Space Preserve.

The underground portion of the Proposed Project route through the Ramona Fireshed was not further analyzed using wildfire behavior models due to the low level of ongoing wildfire impacts from an underground transmission line.

### Fire Behavior Trend Model Results

In the event of a wildfire within the Ramona Fireshed, damaging impacts are likely to occur because the area experiences severe Santa Ana wind conditions that can rapidly propel a wildfire through the landscape. During these extreme weather conditions, the trend of a fire started within the corridor would be driven to the southwest by the prevailing Santa Ana winds, with the potential of burning extensive areas in and around the transmission corridor and into communities within the fire path including Foster, Fernbrook, Irvings Crest, and Rosemont. Damaging impacts will result if a fire burned through the Ramona Fireshed, but the magnitude of the impacts is dramatically increased during severe fire weather conditions and within regions of dense fuel.

Under normal weather conditions, ignitions along the transmission line would burn primarily within the border zone and spread to the northeast. A fire burning outside of the half-mile-wide border zone between MP122-129 would affect the surrounding areas in Foster, rural communities near Fernbrook, the southern edge of Ramona and the western corner of San Diego Country Estates, placing 66 or more homes and 3,498 or more acres at risk. The western edge of the Barona Ranch Reservation would also be affected by a potential fire. A fire started where the transmission line crosses the San Vicente Highlands Preserve would potentially burn through the entire northwest section of the Preserve. An ignition started between MP 122-124 would threaten two cell phone towers near Ramona. There is a possibility that a fire started in the corridor near SR67 would cross the highway causing the obstruction of the transportation route. Figure D.15-28 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Proposed Project route through the Ramona Fireshed.

During extreme weather conditions, ignitions along the transmission line would create a serious risk to several urban and rural communities surrounding the corridor. The Santa Ana winds would propel the fire toward the southwest, completely consuming the corridor and a substantial stretch of SR67. The rural communities of Fernbrook, Shady Dell and Irving's Crest stand in the direct path of a potential fire started in the northeastern portion of the transmission corridor. If the fire continued through these communities it would burn through the east side of Poway. A fire ignited in the corridor midway through the fireshed would be blown through the entire San Vicente Highlands Preserve and drop down into the city of Foster. This fire would come within less than one-half mile from the two northern points of San Vicente Reservoir. A fire started in the very northern section of the corridor would consume the northern section of Barona Ranch Reservation as it moved southwest. Other communities at risk from a wildfire would be the outskirts of southern Ramona and the western corner of San Diego Country Estates. A total of 223 or more homes and 14,798 or more acres would be placed at risk if an ignition in the corridor were to occur under extreme fire weather conditions. Six cell phone towers throughout the fireshed could be threatened, causing reduced communication during an emergency situation. The potential area at risk of a wildfire ignited along the transmission corridor in the Ramona Fireshed would be more than four times greater during extreme Santa Ana weather conditions compared to normal conditions.

#### Wildfire Containment Conflict Model Results

Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Proposed Project through the Ramona Fireshed 38% would present a very high conflict, 27% a high conflict, 4% a moderate conflict, and 4% a low conflict (Figure D.15-29). One significant conflict area is identified by the model, located at MP 126 to MP 128.5.

## Construction Impacts

### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class I)*

Construction activities associated with the Proposed Project would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas and many miles of new roads. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the Proposed Project corridor in the Ramona Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The Ramona Fireshed would include 9.3 miles of overhead and 3.5 miles of underground transmission line. For approximately 1.4 miles, the proposed 230 kV overhead transmission line would not be collocated with the existing 69 kV line in this fireshed. For approximately 8.2 miles, however, the proposed 230 kV overhead transmission line would be collocated with the 69 kV line, which would remain on wood poles. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

In the Ramona Fireshed, the WUI interfaces with contiguous wildland areas, and wildfires have the potential to be very large. Due to the small parcel size (and high population density) in an Interface WUI fireshed, wildfires have an extremely high potential to have devastating effects on adjacent developments, placing more assets at risk. Wildfire risk is extremely high in the Ramona Fireshed based on wildfire history and fuels present.

The Burn Probability Model for the Ramona Fireshed (Figure D.15-27) indicates that along the length of the Proposed Project, a total of 3% of the border zone area has a high to very high probability of fire escapes and wildfire recurrence. The Fire Behavior Trend Model (Figure D.15-28) indicates that a random fire ignition during normal weather conditions within the Ramona Fireshed Project corridor would burn primarily within the border zone area and spread to the northeast where fuels are present, putting at least 66 homes and 317 acres at risk. The potential area burned would be four times greater during extreme fire weather conditions, putting at least 223 homes and 1,167 acres at risk. Wildfire history in the Ramona Fireshed shows an average number of small and large fires over the last 25 years, a very high number of major wildfire events over the last 50 years, and a very high number of cumulative acres burned over the last 50 years. Some 223 households are at risk of losing their homes if a fire were to burn through the Ramona Fireshed. The Ramona Fireshed is a high risk fireshed based on wildfire history, the presence heavy fuels, and the occurrence of periodic severe fire weather. The risk of a project construction- or maintenance-related ignition in this fireshed is therefore high. Even a

Figure D.15-27. PFS-4 Ramona Fireshed Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-28. PFS-4 Ramona Fireshed Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-29. PFS-4 Ramona Fireshed Wildfire Containment Conflict Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

very small increase in wildfire ignitions during normal and extreme weather can have enormously damaging consequences in this fireshed. The impact of project construction and maintenance activities on the potential for a wildfire to have damaging consequences to the community, firefighter health and safety, and natural resources is considered significant in the Ramona Fireshed, and it cannot be mitigated to a level that is less than significant (Class I).

This risk of ignition during normal and extreme weather and the risk of damage to structures can be reduced, although not to a level that is less than significant, through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 1,167 acres to approximately 317 acres) and the number of homes at risk (from more than 223 to approximately 66) in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire, although not to a level that is less than significant.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Despite implementation of these measures, the risk of an ignition erupting into a catastrophic event in the Ramona fireshed is still unacceptably high, and Impact F-1 would remain significant in this fireshed.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a Develop and implement a Construction Fire Prevention Plan.**
- F-1b Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c Ensure coordination for emergency fire suppression.**
- F-1d Remove hazards from the work area.**
- F-1e Contribute to defensible space grants fund.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Ranchita Fireshed is a moderate-risk fireshed based on its wildfire history, fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 223 or more households and 1,167 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line circuits in the immediate vicinity of the Proposed Project from MP 123.3 to MP 131.5. In Santa Ana wind conditions and in areas with wildland fuels, the Proposed Project would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the Proposed Project. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on

the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

***Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire***

- F-2a      Establish and maintain adequate line clearances.**
- F-2b      Install existing conductors on steel poles.**
- F-1e      Contribute to defensible space grants fund.**

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)***

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model (Figure D.15-29) for the Ramona Fireshed identifies two specific areas where the Proposed Project would restrict wildfire containment to a very high degree. The conflict areas are located at MP 126 to MP 128.5 and MP 130.5 to 131.5. Both of the conflict areas are located in high fire risk areas with heavy fuels and historical fire containment boundaries. The nearby access roads and moderate topography indicate that the conflicts exist in defensible landscapes where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in these areas would be obstructed by the presence of the overhead transmission line and the proximity of parallel existing lines. Firefighting suppression tactics, maneuverability and approach distances are greatly restricted by the indefensible island created between collocated and parallel transmission lines. This indefensible landscape is a swath of land where firefighting is tactically very difficult or simply too dangerous (due to a combination of minimum approach distances and rates of wildfire spread that can reach up to 300 feet per minute).

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the Proposed Project in the Ramona Fireshed is considered a significant impact (Class I). This impact can be partially mitigated by creating fuelbreaks in the very high conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuelbreaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

*Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting*

**F-3a Construct and maintain fuelbreaks.**

**F-3b Prepare and implement a Multi-agency Fire Prevention MOU.**

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the Proposed Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Proposed Project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Proposed Project transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.10 PFS-5 Poway Fireshed

### Fireshed Summary and Model Results

The Poway Fireshed would include 11.1 miles of overhead 230 kV transmission line, 0.5 miles of underground 230 kV transmission line, and upgrades to the existing Sycamore Canyon Substation. For approximately 4.8 miles in this fireshed, the proposed 230 kV overhead line would parallel the existing 69 kV transmission line, which would remain on wood poles. For approximately 6 miles, the existing 69 kV, 138 kV, and 230 kV lines are and would be located on tubular steel poles or lattice steel towers.

This fireshed is located between SR67 and Interstate 15, excluding the Scripps Ranch community and a portion of the MCAS Miramar Air Base. The elevation ranges from 503 feet in Poway to 200 feet in Eucalyptus Hills. The humid coastal influence has a slight presence within this fireshed but it lessens as the elevation increases from the Coastal Plain into the west slope of the Peninsular Ranges. The western and southern portions of the fireshed receive an average of 13 inches of rainfall annually. The central part of the fireshed experiences slightly more precipitation. The east side of the fireshed is higher in elevation and receives an annual average of 18 inches of rainfall. With the slight humidity and rainfall, there is enough moisture to support chaparral and coastal sage scrub communities. The Santa Ana winds create a potential for severe to extreme fire weather in this fireshed early fall through spring. Refer to Figure D.15-13 for Fireshed PFS-5 boundary, public land ownership boundaries and proposed and alternative project routes.

Nearly all of the wildlands within this fireshed burned during the 2003 Cedar Fire. This area has the highest number of recorded fires of all the Proposed Project firesheds. Most fires were under 500 acres, but three ranged from 1,400 to 3,200 acres. The likely cause for the elevated number of small fires is the large population adjoining and intermixing with extensive wildlands.

Equipment use has caused the greatest number of identified ignitions (29%) in this fireshed. This large quantity of ignitions is consistent with the level of active development and high population density in adjoining wildlands. Much of this region has been developed over the past 30 years, especially the northern portion, so prior fire history is not as helpful in predicting future events as in other firesheds. However, a significant amount of wildland exists within the Sycamore Canyon Preserve and MCAS Miramar. Areas around and within the Preserve have burned multiple times over the past 20 years. A cumulative total of 67,100 acres burned in this fireshed over the last 50 years, and the fireshed experienced 9 large fires and 8 major events over the same time period. This fireshed experiences periodic extreme fire weather events, heavy fuel loading is present, and the number of acres burned in 50 years is high, rendering the overall risk of ignitions leading to catastrophic events in this fireshed high. Development at the WUI is also high in this fireshed, placing a high number of assets at risk from ignitions.

### Burn Probability Model Results

High fire probability areas within the half-mile-wide border zone of the Poway Fireshed were identified using the FlamMap Burn Probability Model. See Section D.15.1.2, Approach to Data Collection – Fire Behavior Models, for a description of the modeling analysis. The model output indicates that 15% of the border zone area within the Poway Fireshed has a very high burn probability, 13% has a high burn probability, 23% has a moderate burn probability, and 49% has a low burn probability. Figure D.15-30 shows the burn probabilities of areas in the Poway Fireshed within the Proposed Project corridor. The majority of high to very high burn probability areas occur where the corridor borders or crosses fuel-laden

wildlands. Out of the six firesheds, PFS-5 (Poway) has the largest percentage of border zone area that has a high (13%) to very high (15%) probability of burning. These hot spots mainly occur where the transmission corridor borders Sycamore Canyon Preserve and between Rancho Encantada and the wildlands of MCAS Miramar. The new Rancho Encantada development that borders MCAS Miramar to the north is in a highly fire-prone area, and the residents would be at risk if a wildfire occurred.

### Fire Behavior Trend Model Results

In the event of a wildfire within the Poway Fireshed, damaging impacts are likely to occur because the area experiences severe Santa Ana wind conditions that can rapidly propel a wildfire through the landscape. During these extreme weather conditions, the trend of a fire started within the corridor would be driven to the southwest by the prevailing Santa Ana winds, with the potential of burning extensive areas in and around the transmission corridor and into communities within the fire path including Poway and MCAS Miramar. Damaging impacts will result if a fire burned through the Poway Fireshed, but the magnitude of the impacts is dramatically increased during severe fire weather conditions and within regions of dense fuel.

In normal weather conditions, ignitions along the transmission line would burn most of the border zone area within the eastern 7 of the 11 miles of corridor. A fire would burn in select patches outside of the half-mile-wide border zone affecting the urban communities of Sabre Springs, Miramar Ranch, Rancho Encantada, Poway and Foster, placing 324 homes at risk. A fire started in the adjacent corridor would burn into the northern edge of MCAS Miramar, Los Peñasquitos Canyon Preserve, and the west side of Sycamore Canyon Preserve. Where the transmission line crossed Interstate 15, SR67 and 56 a fire could greatly impact these major transportation routes. Figure D.15-31 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Proposed Project route through the Poway Fireshed.

During extreme weather conditions, ignitions along the transmission line would create a serious risk to several urban communities surrounding the corridor. The Santa Anas would blow the fire toward the southwest, completely covering the eastern 7 miles of the corridor. A fire would burn through most of Foster, Rancho Encantada, the southeast half of Poway, the east side of Miramar Ranch and Scripps Ranch, and patches along the corridor in Sabre Springs, placing 337 homes at risk. The most area would burn in the northeast portion of MCAS Miramar continuing into the Peñasquitos Fireshed. A fire would move continuously through this area because it is mostly open wildlands. A fire would engulf Sycamore Canyon Preserve and the section of Los Peñasquitos Canyon Preserve to the east of Interstate 15. The western boundary of a fire would be Interstate 15 where it crossed through MCAS Miramar in Fireshed PFS-1. A fire would pass over SR67. One cell phone tower would be at risk effecting lines of communication. A fire in this fireshed poses a serious threat due to the densely populated urban areas surrounding wildlands that supply ignition and fuel sources. The potential area at risk of a wildfire ignited along the transmission corridor in the Poway Fireshed would be more than five times greater during extreme Santa Ana weather conditions compared to normal conditions.

### Wildfire Containment Conflict Model Results

Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict

Figure D.15-30. PFS-5 Poway Fireshed Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-31. PFS-5 Poway Fireshed Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Proposed Project through the Poway Fireshed 26% would present a very high conflict, 31% a high conflict, 26% a moderate conflict, 13% a low conflict, and 4% no conflict due to undergrounding (Figure D.15-32). One significant conflict area is identified by the model, located at MP 130.5 to MP 133.

## Construction Impacts

### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class I)*

Construction activities associated with the Proposed Project would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas, expansion of the existing Sycamore Canyon and Chicarita Substations, and many miles of new roads. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the Proposed Project corridor in the Poway Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The Poway Fireshed would include 11.1 miles of overhead 230 kV transmission line, 0.5 miles of underground 230 kV transmission line, and upgrades to the existing Sycamore Canyon Substation. For approximately 4.8 miles in this fireshed, the proposed 230 kV overhead line would parallel the existing 69 kV transmission line, which would remain on wood poles. For approximately 6 miles, the existing 69 kV, 138 kV, and 230 kV lines are and would be located on tubular steel poles or lattice steel towers. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

In the Poway Fireshed, there is a remaining small Interface WUI within a fireshed with primarily urban character. Wildfire history in the Poway Fireshed shows a large number of small and large fires over the last 25 years, an extremely high number of major events over the last 50 years, and an extremely high cumulative number of acres burned over the last 50 years. Over a duration of several decades, the Poway Fireshed has developed into a primarily urban fireshed from an Interface WUI fireshed, and its wildfire history reflects the stages of this transformation. Because the urban areas are surrounded by extensive wildland fuels, during extreme fire weather conditions, even urban area homes can become fuel for wildfires as was experienced during the fires of 2003 and 2007.

The Burn Probability Model for the Poway Fireshed (Figure D.15-30) indicates that along the length of the Proposed Project, a total of 28% of the border zone area has a high to very high probability of fire escapes and wildfire recurrence. The Fire Behavior Trend Model (Figure D.15-31) indicates that a random fire ignition under normal weather conditions within the Poway Fireshed Project corridor would

burn primarily within the eastern half of the border zone area and spread to the east into Sycamore Canyon Preserve and MCAS Miramar, putting 324 homes and 4,832 acres at risk in two burn periods. The potential area burned would be almost six times greater during extreme fire weather conditions, putting 337 homes and 27,198 acres at risk in two burn periods. Wildfire risk is extremely high in the Poway Fireshed, where a small remaining interface WUI with very high population density adjacent to fuel-laden wildlands creates the condition for large fires to easily ignite and spread, using first wildland vegetation and then homes as fuels as occurred during the 2003 Cedar Fire. Many of the more urban homes would be shielded from harm, but many are situated in harm's way. Even a very small increase in wildfire frequency can have enormously damaging consequences in both normal and extreme weather conditions. The impact of project construction on the potential for a wildfire to have damaging consequences to the community, firefighter health and safety, and natural resources is considered significant, and it cannot be mitigated to a level that is less than significant.

This risk of ignition during normal and extreme weather and the risk of damage to structures can be reduced, although not to a level that is less than significant, through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 27,198 acres to approximately 4,832 acres) but only minimally reducing the number of homes at risk (from more than 337 to approximately 324) in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would slightly reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire, although not to a level that is less than significant.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Figure D.15-32. PFS-5 Poway Fireshed Wildfire Containment Conflict Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

Despite implementation of these measures, the risk of an ignition erupting into a catastrophic event in the Poway fireshed is still unacceptably high, and Impact F-2 would remain significant in this fireshed.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a**      **Develop and implement a Construction Fire Prevention Plan.**
- F-1b**      **Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c**      **Ensure coordination for emergency fire suppression.**
- F-1d**      **Remove hazards from the work area.**
- F-1e**      **Contribute to defensible space grants fund.**

#### Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Poway Fireshed is an extremely high-risk fireshed based on its wildfire history, fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 337 or more households and 27,198 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line in the immediate vicinity of the Proposed Project from MP 131.5 to MP 136.3. In Santa Ana wind conditions and in areas with wildland fuels, the Proposed Project would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the Proposed Project. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

- F-2a**      **Establish and maintain adequate line clearances.**
- F-2b**      **Install existing conductors on steel poles.**
- F-1e**      **Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)*

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model (Figure D.15-32) for the Poway Fireshed identifies one specific area where the Proposed Project would restrict wildfire containment to a very high degree. The conflict area is located at MP 131.5 to MP 133 in a high fire risk area with heavy fuels and historical fire containment boundaries. The nearby access roads and moderate topography indicate that the conflict exists in a defensible landscape where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in this area would be obstructed by the presence of the overhead transmission line and the proximity of parallel existing lines. Firefighting suppression tactics, maneuverability and approach distances are greatly restricted by the indefensible island created between collocated and parallel transmission lines. This indefensible landscape is a swath of land where firefighting is tactically very difficult or simply too dangerous (due to a combination of minimum approach distances and rates of wildfire spread that can reach up to 300 feet per minute).

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the Proposed Project in the Poway Fireshed is considered a significant impact (Class I). This impact can be partially mitigated by creating fuelbreaks in the very high conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain

fuelbreaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

*Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting*

**F-3a Construct and maintain fuelbreaks.**

**F-3b Prepare and implement a Multi-agency Fire Prevention MOU.**

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the Proposed Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Proposed Project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Proposed Project transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.11 PFS-6 Peñasquitos Fireshed

### Fireshed Summary and Model Results

The Peñasquitos Fireshed would include 3.3 miles of overhead 230 kV transmission line, 3.5 miles of underground 230 kV transmission line, and modifications to the existing Peñasquitos Substation. For approximately 3.3 miles, the proposed 230 kV overhead transmission line would parallel existing 69 kV and 138 kV transmission lines that are supported on lattice steel towers and an additional existing 69 kV line that is supported on wood H-frame structures. The latter 69 kV line would be underbuilt onto steel structures with the proposed 230 kV line, and the wood structures would be removed.

The Peñasquitos Fireshed is located at the westernmost portion of the Proposed Project and includes Scripps Ranch on the east side of Interstate 15 and primarily the Rancho Peñasquitos area between SR56 to the north and Interstate 805 to the south. The elevation ranges from 510 ft at Scripps Ranch to sea level. The San Diego coast receives a significant amount of its moisture from coastal fog and humidity. The western half of Fireshed PFS-6 receives an average annual rainfall of 11 inches. With a slight elevation gain heading inland, the eastern side of the fireshed experiences slightly more precipitation with an average of 13 inches annually. Coastal weather patterns have an influence on fire fuels as was demonstrated when the 2003 Cedar Fire behavior was mollified as it burned into these humid shrub communities and interacted with the marine air mass influences near the junction of State Highway 52 and Interstate Highway 15. Refer to Figure D.15-15 for Fireshed PFS-6 boundary, public land ownership boundaries and proposed and alternative project routes.

Excluding the Cedar Fire, all of the fires within the past 25 years have occurred in the northern part of this fireshed, specifically within the northern Los Peñasquitos and Del Mar Mesa region where the last remnants of native open space exists. The total recorded fire history for this area includes several small fires that burned in 1971, 1982, 1983, 1986, 1987, and a large 1,483-acre fire that burned in 1989. The southern portion contains MCAS Miramar where the Cedar Fire burned and finally ended its westward march in 2003. Reflecting the urbanized nature of this fireshed, its relatively small wildland area, and its nearness to moist, coastal influences, only five wildfire ignitions have occurred within the past 13 years. The causes of these ignitions were equipment use (2), miscellaneous (2) and undetermined sources (1). A cumulative total of 15,300 acres burned in this fireshed over the last 50 years, and the fireshed experienced 3 major events over the same time period. This fireshed experiences periodic extreme fire weather events, but fuels are patchy and enclosed by developments, and the number of acres burned in 50 years is low, rendering the overall risk of ignitions leading to catastrophic events in this fireshed moderate. Development at the WUI is high in this fireshed, placing a high number of assets at risk from ignitions during extreme fire weather.

### Burn Probability Model Results

High fire probability areas within the half-mile-wide border zone of the Peñasquitos Fireshed were identified using the FlamMap Burn Probability Model. See Section D.15.1.2, Approach to Data Collection – Fire Behavior Models, for a description of the modeling analysis. The model output indicates that 10% of the border zone area within the Peñasquitos Fireshed has a very high burn probability, 8% has a high burn probability, 13% has a moderate burn probability, and 70% has a low burn probability. Figure D.15-33 shows the burn probabilities of areas in the Peñasquitos Fireshed within the Proposed Project corridor. The majority of high to very high burn probability areas occur where the corridor borders or crosses fuel-laden wildlands. The northeast section of the corridor in the Peñasquitos Fireshed is ranked as having a moderate to very high probability of burning. This area is located where the corridor runs along the densely vegetated, north side of Los Peñasquitos Canyon Preserve.

Figure D.15-33. PFS-6 Peñasquitos Fireshed Burn Probability Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

## Fire Behavior Trend Model Results

In the event of a wildfire within the Peñasquitos Fireshed, damaging impacts are likely to occur because the area experiences severe Santa Ana wind conditions that can rapidly propel a wildfire through the landscape. During these extreme weather conditions, the trend of a fire started within the corridor would be driven to the southwest by the prevailing Santa Ana winds, with the potential of burning extensive areas in and around the transmission corridor and into communities within the fire path including Park Village and Del Mar Mesa. Damaging impacts will result if a fire burned through the Peñasquitos Fireshed, but the magnitude of the impacts is dramatically increased during severe fire weather conditions and within regions of dense fuel.

Under normal weather conditions, ignitions along the transmission line would cause a fire to burn just within the border zone for half the length of the corridor. An ignition along the northeast section of the transmission line would spread outside of the half-mile-wide border zone to the north, east and south. The area directly affected by the fire would be where the corridor passes through Los Peñasquitos Canyon Preserve. The densely populated urban areas of Torrey Hills that are adjacent to the Preserve, Sorrento Mesa to the south and Mira Mesa to the east would be affected by a wildland fire started within the corridor, and four or more homes and 1,157 or more acres would be put at risk. Figure D.15-34 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Proposed Project route through the Peñasquitos Fireshed.

During extreme weather conditions, ignitions along the transmission line would burn to the southwest due to the prevailing Santa Anas. A much larger portion of Los Peñasquitos Canyon Preserve would be affected under these conditions, due to the amount of vegetation and ground fuels that can carry a wildfire quickly through the area. The fire would extend much further into the urban areas of Torrey Hills, Sorrento Mesa and Mira Mesa threatening 214 homes. The western edge of a potential fire would be Interstate 5, which is a heavily used transportation route. The potential area at risk of a wildfire ignited along the transmission corridor in the Peñasquitos Fireshed would be more than six times greater during extreme Santa Ana weather conditions compared to normal conditions.

## Wildfire Containment Conflict Model Results

Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Proposed Project through the Peñasquitos Fireshed 13% would present a very high conflict, 7% a high conflict, 33% a moderate conflict, and 47% a low conflict (Figure D.15.35). However, no significant conflict to firefighting efforts was identified by the model based on a lack of continuous conflict segments.

## Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction activities associated with the Proposed Project would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be

used for the construction of staging areas, and expansion of the existing Peñasquitos Substation. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the Proposed Project corridor in the Peñasquitos Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The Peñasquitos Fireshed would include 3.3 miles of overhead 230 kV transmission line, 3.5 miles of underground 230 kV transmission line, and modifications to the existing Peñasquitos Substation. For approximately 3.3 miles, the proposed 230 kV overhead transmission line would parallel existing 69 kV and 138 kV transmission lines that are supported on lattice steel towers and an additional existing 69 kV line that is supported on wood H-frame structures. The latter 69 kV line would be underbuilt onto steel structures with the proposed 230 kV line, and the wood structures would be removed. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Burn Probability Model for the Peñasquitos Fireshed (Figure D.15-33) indicates that 18% of the border zone area has a high to very high probability of fire escapes and wildfire recurrence. The Fire Behavior Trend Model (Figure D.15-34) indicates that a random fire ignition under normal weather conditions within the Peñasquitos Fireshed Project corridor would burn primarily within the border zone area and continue northeast through a portion of Los Peñasquitos Canyon Preserve, putting four homes and 1,157 acres at risk in two burn periods. The potential area burned would be seven times greater during extreme fire weather conditions, putting 214 homes and 8,194 acres at risk in two burn periods. This is the most heavily developed and urbanized fireshed along the Proposed Project route, and consequently contains the least amount of contiguous wildland fuel. However, under the drier environmental conditions that frequently occur, wildfires could burn through coastal fuels and travel along San Clemente Canyon to Mt. Soledad, impacting the community of La Jolla. The Peñasquitos Fireshed has experienced very few ignitions, an average number of small and large fires and major events, and a low number of cumulative acres burned over the last 50 years. The level of human wildfire influence is expected to remain constant within this densely populated, urban fireshed due to the complete isolation of wildland fuels to Los Peñasquitos Canyon Preserve and MCAS Miramar. Wildfire spread will be limited to these wildlands except during extreme fire weather conditions, during which homes can become fuel for a fire. Wildfires that start within this urban fireshed have the potential to be quickly contained due to fire resource availability and rapid response times.

The Proposed Project would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the Peñasquitos Fireshed. The Peñasquitos Fireshed is a high risk fireshed based on wildfire history, the presence heavy fuels, and the occurrence of periodic severe fire weather. The risk of a project construction- or maintenance-related ignition in this fireshed is therefore

Figure D.15-34. PFS-6 Peñasquitos Fireshed Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-35. PFS-6 Peñasquitos Fireshed Wildfire Containment Conflict Model  
[CLICK HERE TO VIEW](#)

high, and the potential for an ignition to result in a catastrophic fire is significant. This risk can be reduced to a level that is less than significant through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 313 acres to approximately 63 acres) and the number of homes at risk (from more than 63 to approximately 10) in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a        Develop and implement a Construction Fire Prevention Plan.**
- F-1b        Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c        Ensure coordination for emergency fire suppression.**
- F-1d        Remove hazards from the work area.**
- F-1e        Contribute to defensible space grants fund.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable.

able. The Peñasquitos Fireshed is a moderate-risk fireshed based on its wildfire history and fuels present; however, numerous assets are at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 214 or more households and 8,194 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

- F-2a**      **Establish and maintain adequate line clearances.**
- F-2b**      **Install existing conductors on steel poles.**
- F-1e**      **Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)*

From west of the eastern edge of the Peñasquitos Fireshed, the single-circuit 230 kV overhead transmission line would be located within an existing utility ROW to Chicarita Substation (MP 142.3). The existing utility ROW presently contains 230 kV and 69 kV circuits supported by double-circuit steel poles or lattice towers and a 138 kV circuit supported by wood H-frame structures. Under the Proposed Project, the new 230 kV transmission line would be constructed on double-circuit steel poles and the existing 138 kV circuit would be relocated to the new 230 kV poles. The existing 138 kV H-frame structures would be removed.

The maximum height of towers within the existing corridor would not change with the addition of the Proposed Project through this fireshed, the corridor would not be widened, and additional towers would not be required. Consequently, although the model results identified a few discontinuous areas of local conflict criteria, significant wildfire containment conflicts would not be created by the addition of the Proposed Project to the Peñasquitos Fireshed. The resulting impact to firefighting efforts would be less than significant (Class III). No mitigation is required.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the Proposed Project will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Proposed Project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Proposed Project transmission line.

***Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread***

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.12 Other System Upgrades – Impacts and Mitigation Measures

Additional system upgrades are proposed under the SRPL Project and would be required to accommodate the operation of the transmission line in accordance with State and federal electric system criteria. The existing 69 kV overhead transmission line between the existing Sycamore Canyon and Elliot Substations would be reconductored (see Section B.2.6.1 and B.4.3.3). In addition, system upgrades would be performed at the existing San Luis Rey and South Bay Substations, as described in Section B.4.3. The locations of the proposed system upgrades are shown Figure B-10 in Section B.

## Reconductor Sycamore Canyon to Elliot 69 kV Line

Currently, the Sycamore Canyon to Elliot 69 kV line traverses 8.2 miles on 84 wood poles. The reconductoring would require improving existing access roads to facilitate entry into individual structure sites, replacement of 11 existing poles, replacement of porcelain insulators with polymer insulators, and replacement of the existing conductors.

### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction work would be modest for this system upgrade, and would take place coincidentally with Proposed Project construction activities. This transmission line is located in the Poway Fireshed, which is a very high-risk fireshed based on wildfire history, fuels present, and assets at risk. As for the Proposed Project through the Poway Fireshed, the risk of construction-related ignitions is extremely high, however, because construction would occur coincidentally with Proposed Project construction, this risk would not be significantly increased over Proposed Project construction activities.

Even a very small increase in wildfire frequency can have enormously damaging consequences in both normal and extreme weather conditions. The impact of project construction on the potential for a wildfire to have damaging consequences to the community, firefighter health and safety, and natural resources is considered significant, and it cannot be mitigated to a level that is less than significant.

Transmission line maintenance activities would not increase over baseline conditions.

This risk of ignition during normal and extreme weather and the risk of damage to structures can be reduced, although not to a level that is less than significant, through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of reducing the potential acres burned and the number of homes at risk. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire, although not to a level that is less than significant.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Despite implementation of these measures, the risk of an ignition erupting into a catastrophic event in the Poway fireshed is still unacceptably high, and Impact F-1 would remain significant.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a**      **Develop and implement a Construction Fire Prevention Plan.**
- F-1b**      **Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c**      **Ensure coordination for emergency fire suppression.**
- F-1d**      **Remove hazards from the work area.**
- F-1e**      **Contribute to defensible space grants fund.**

#### Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (No Impact)*

The presence of the Sycamore Canyon to Elliot reconductor would not increase the probability of ignitions over baseline conditions (No Impact).

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (No Impact)*

The presence of the Sycamore Canyon to Elliot reconductor would not reduce the effectiveness of firefighting over baseline conditions (No Impact).

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the Sycamore Canyon to Elliot reconductor will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses

also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Sycamore Canyon to Elliot ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the reconductoring of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

Modifications to San Luis Rey Substation

The substation modifications would be completed within the existing substation boundary, creating no additional fire-related risk.

Modifications to South Bay Substation

The substation modifications would be completed within the existing substation boundary, creating no additional fire-related risk.

## D.15.13 Future Transmission System Expansion

The Proposed Project would facilitate the possible future construction of additional 230 kV and 500 kV transmission lines. These lines are not proposed at this time, but because the construction of the Proposed Project would include a substation and create new transmission corridors that could be used by these additional circuits, impact analysis is presented in this EIR/EIS.

### D.15.13.1 Environmental Setting – 230 kV Future Transmission System Expansion

As described in Section B.2.7, the Central East Substation that would be built as a part of the Proposed Project would accommodate up to six 230 kV circuits. Only two circuits are proposed by SDG&E at this time, but construction of additional 230 kV circuits out of the Central East Substation may be required within the next 10 years. This section considers the impacts of construction and operation of these potential future transmission lines. Based on information provided by SDG&E, there are four substation endpoints and five routes that would be most likely for these future lines; each is addressed below. Figure B-12a illustrates the potential routes of each of the 230 kV transmission lines.

The Central East Substation to Sycamore Canyon or Peñasquitos Substation route that parallels the existing Proposed Project corridor lies within the six firesheds analyzed in the EIR/EIS for the Proposed Project route, as described in Section D.15.2. The Central East Substation to Sycamore Canyon Substation route would follow the Proposed Project, terminating at MP 136. The Central East Substation to Los Coches Substation route would follow the Proposed Project until MP 122, then diverge south to Los Coches Substation. The Central East Substation to Mission Substation would follow the Proposed Project route to MP 135, then diverge south to Mission Substation. The Central East Substation to Escondido Substation route would either follow the Proposed Project route to MP 142, then veer north to Escondido Substation, or it would follow an existing line from Central East Substation, taking a northern route to Escondido Substation.

Only the northern option of the Central East Substation to Escondido Substation route falls within substantially different firesheds than the Proposed Project route, and the environmental setting for the other routes is nearly identical to the Proposed Project environmental setting for fire and fuels management. A fireshed analysis was not performed for the northern option to Escondido Substation, but it traverses a very high fire risk landscape as defined by CAL FIRE models. The western portion of the route traverses urban areas, but the eastern portion of the route traverses many fuel-laden wildlands.

### D.15.13.2 Environmental Impacts – 230 kV Future Transmission System Expansion

Due to the similar high fire risk in the areas of the future 230 kV transmission lines, mitigation measures would be required similar to those recommended for the impacts analyzed for the Proposed Project transmission corridor. Additionally, the relevant APMs, which SDG&E has agreed to implement in the Sunrise Powerlink application, are not considered to be part of the potential Future Expansion and are recommended as mitigation where required to reduce an otherwise significant impact.

#### Construction Impacts

##### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class I)*

Construction and maintenance activities associated with the Future Transmission System Expansion would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction- and maintenance-related ignitions within the Future Transmission System Expansion corridors have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape. The risk of a catastrophic fire being ignited by construction or maintenance of the Future Transmission System Expansion would be extremely high due to the transmission lines' location in extremely high fire risk landscapes, and because the transmission lines would traverse high population density WUI areas.

This risk can be reduced, although not to a level that is less than significant, through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of reducing the potential acres burned and the number of homes at risk. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire, although not to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Despite implementation of these measures, the risk of an ignition erupting into a catastrophic event is still unacceptably high, and Impact F-1 would remain significant.

***Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire***

- F-1a      Develop and implement a Construction Fire Prevention Plan.**
- F-1b      Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c      Ensure coordination for emergency fire suppression.**
- F-1d      Remove hazards from the work area.**
- F-1e      Contribute to defensible space grants fund.**

**Operational Impacts**

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)***

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Future Transmission System Expansion would traverse extremely high fire risk landscapes, and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting many acres and many homes at risk if transmission line ignitions were to occur during extreme weather conditions.

Should any wood poles that currently support the existing transmission and/or distribution circuits in the immediate vicinity of the Future Transmission System Expansion lines, in Santa Ana wind conditions and in areas with wildland fuels, the transmission lines would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the Future Transmission System Expansion lines is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Future Transmission System Expansion routes is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent wood poles and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall. Contributions to the fund would not be required in locations where the Future Transmission System Expansion lines parallel the Proposed Project where this commitment would already be undertaken for the Proposed Project.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

- F-2a**      **Establish and maintain adequate line clearances.**
- F-2b**      **Install existing conductors on steel poles.**
- F-1e**      **Contribute to defensible space grants fund.**

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I for routes that deviate from Proposed Project, Class III for routes collocated with Proposed Project)***

Significant obstacles to firefighting would not be created above the obstacle created by the Proposed Project where the Future Transmission System Expansion lines are collocated with the Proposed Project because the Future Transmission System Expansion towers would be of equivalent height to the Proposed Project towers, and the future transmission lines would be adjacent to the Proposed Project. A small obstacle is created by the addition of new transmission lines adjacent to existing lines, because the safe approach distance for ground-based firefighters is increased, creating a small indefensible space that is equivalent to the distance between lines. This small indefensible space can allow a fire to gain in speed and intensity unchecked as firefighters are forced to wait until the fire passes through the area. This impact would be adverse but less than significant (Class III) for segments of the Future Transmission System Expansion routes that would parallel the Proposed Project. See Figure B-12a for segments that would be collocated with and independent of the Proposed Project.

Identical to the Proposed Project, segments of the Future Transmission System Expansion lines that would not be collocated with a line of equal or greater voltage (and therefore towers of equal or greater height) would potentially create a significant obstacle to firefighting and wildfire containment should they traverse otherwise defensible landscapes with dense fuels and favorable firefighting topography. The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities.

For Future Transmission System Expansion line segments that would not be collocated with the Proposed Project, the potential creation of obstacles to wildfire containment by firefighters would be significant (Class I). This impact can be partially mitigated by creating fuelbreaks in the very high conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuelbreaks, is therefore required, and should the Future Transmission System Expansions be constructed, wildfire containment conflict modeling would be required to be carried out by SDG&E to determine areas of significant conflict. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant for segments that would not be collocated with the Proposed Project (Class I).

***Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting***

**F-3a Construct and maintain fuelbreaks.**

**F-3b Prepare and implement a Multi-agency Fire Prevention MOU.**

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of

trees and shrubs involved with the construction and maintenance of the Future Transmission System Expansion will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Future Transmission System Expansion ROWs will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for construction and maintenance of the transmission lines.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.13.3 Environmental Setting – 500 kV Future Transmission System Expansion

As described in Section B.7.2 and illustrated in Figure B-12b, the potential Future 500 kV Circuit would connect the proposed Central East Substation to the Southern California Edison (SCE) transmission system at a new substation north of Interstate 15 (I-15), about 20 miles west of SCE’s Valley Substation.

The northern portion of the 500 kV Future Expansion route would be approximately 30 miles long in a new ROW with the majority of its length within the Trabuco Ranger District of the CNF, Camp Pendleton, and BLM lands. A two-mile segment would be underground through CNF north of the San Mateo Canyon Wilderness Area. The southern portion of the 500 kV Future Expansion route would be approximately 60 miles long and would be collocated with existing lines primarily in expanded ROWs, traversing both urban and wildland areas (including CNF). Numerous wildfire fuels are present in Camp Pendleton and CNF, and almost the entire 500 kV Future Expansion route would be located in very high Fire Hazard Severity zones as defined by CAL FIRE. Southern Riverside County and northern San Diego County experience severe fire weather behavior during the fire season. There is an extensive WUI within the northern segment’s area of wildfire influence. These conditions combined with chaparral vegetation and the rugged topography along the majority of the route contribute to a very high fire risk.

Wildfire impacts for the northern segment of this route, from north of the Pala Substation to the Serrano-Valley interconnection, would be almost identical to impacts of the LEAPS Transmission-Only Alternative, presented in Section E.7.1.15.

#### D.15.13.4 Environmental Impacts – 500 kV Future Transmission System Expansion

Due to the similar high fire risk in the areas of the future 500 kV transmission line, mitigation measures would be required similar to those recommended for the impacts analyzed for the Proposed Project transmission corridor. Additionally, the relevant APMs, which SDG&E has agreed to implement in the Sunrise Powerlink application, are not considered part of the potential Future Expansion and would be implemented as mitigation where required to reduce an otherwise significant impact.

##### Construction Impacts

##### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class I)*

Construction and maintenance activities associated with the 500 kV Future Expansion route would include, but not be limited to, use of large equipment for vegetation removal, construction of transmission tower pads and towers, use of construction staging areas, construction of new substation(s), along with the modification of several existing substations and many miles of new roads. The use of construction equipment such as earth movers, generators, vehicles, and chainsaws along with personnel introduce the potential for a variety of wildfire ignition sources.

A fire ignited in the 500 kV Future Expansion corridor would most likely spread beyond the corridor during severe fire weather conditions, putting numerous assets at risk. Due to the vast contiguous wildlands located in the project area, the potential for a devastating wildfire to result from a project construction-related ignition is very high. The number of acres at risk of a construction- or maintenance-related fire would be potentially many more than 20,000 during normal weather and 150,000 during extreme weather, and the number of homes at risk would be potentially many more than 700 during normal weather and 800 during extreme weather (see Fire Behavior Trend Model results for the Lake Elsinore and Margarita Firesheds in Section E.7.1.15 and Figures E.7.1.15-6 and E.7.1.15-7, but note that these are estimates only for the northernmost portion of the 500 kV Future Expansion route). The Future Expansion projects would increase construction activities and thereby increase the risk of wildland fires, resulting in damaging impacts to communities, firefighter safety, and natural resources. This is considered an unavoidable significant impact (Class I) Mitigation Measures F-1a through F-1e for the Proposed Project would nonetheless be required to reduce the risk of construction-related ignitions to the extent possible. This risk can be reduced, although not to a level that is less than significant, through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work dur-

ing extreme fire weather and have the effect of reducing the potential acres burned and the number of homes at risk. Combined with Mitigation Measure F-1e, described below, this measure would marginally reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire, although not to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire.

Despite implementation of these measures, the risk of an ignition erupting into a catastrophic event in is still unacceptably high, and Impact F-1 would remain significant.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a      Develop and implement a Construction Fire Prevention Plan.**
- F-1b      Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c      Ensure coordination for emergency fire suppression.**
- F-1d      Remove hazards from the work area.**
- F-1e      Contribute to defensible space grants fund.**

#### Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The 500 kV Future Expansion route traverses extremely high risk fire areas, and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting potentially many more than 800 homes and potentially many more than 150,000 acres at risk if transmission line ignitions were to occur during extreme weather conditions.

Should any wood poles that currently support the existing transmission and/or distribution circuits in the immediate vicinity of the 500 kV Future Expansion route, in Santa Ana wind conditions and in areas with wildland fuels, the transmission lines would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event

could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the 500 kV Future Expansion line is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

**F-2a        Establish and maintain adequate line clearances.**

**F-2b        Install existing conductors on steel poles.**

**F-1e        Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)*

Identical to the Proposed Project, the 500 kV Future Expansion line would potentially create a significant obstacle to firefighting and wildfire containment should it traverse otherwise defensible landscapes with dense fuels and favorable firefighting topography. The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. For the northern portion of the 500 kV Future Expansion line, at least two miles of significant wildfire containment conflict areas would be created (see Wildfire Containment Conflict Model results in Section E.7.1.15 and Figures E.7.1.15-8 and E.7.1.15-9, but note that these are estimates for the northern

portion of the 500 kV Future Expansion route only). The creation of obstacles to wildfire containment by firefighters would be significant (Class I). This impact can be partially mitigated by creating fuelbreaks in the very high conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuelbreaks, is therefore required, and should the Future Transmission System Expansions be constructed, wildfire containment conflict modeling would be required to be carried out by SDG&E to determine additional areas of significant conflict. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

*Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting*

**F-3a Construct and maintain fuelbreaks.**

**F-3b Prepare and implement a Multi-agency Fire Prevention MOU.**

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the 500 kV Future Expansion will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the 500 kV Future Expansion ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for construction and maintenance of the transmission line.

*Mitigation Measures for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and Implement a Weed Control Plan.**

## D.15.14 Connected Actions and Indirect Effects

Section B.6 describes the other projects that have been found to be related to the Sunrise Powerlink Project. They fall into two categories:

- **Connected Actions.** The four projects found to be connected to the Sunrise Powerlink Project are the Stirling Energy Systems solar facility, two components of the IID 230 kV transmission system upgrades, the Esmeralda–San Felipe Geothermal Project, and the Jacumba Substation. Those projects are addressed in Sections D.15.14.1 through D.15.14.4.
- **Indirect Effects.** One project, the SCE La Rumorosa Wind Project, would create effects as a result of the construction and operation of the Sunrise Powerlink Project. That project is addressed in Section D.15.14.5.

### D.15.14.1 Stirling Energy Systems Solar Two LLC Project

As agreed in a Power Purchase Agreement (PPA) approved by the CPUC, SDG&E would purchase up to 900 MW of solar power produced at a proposed 8,000-acre Concentrating Solar Power (CSP) facility in the Imperial Valley (see Section B.6.1). At least 600 MW of this total would be transmitted via the SRPL. Stirling Energy Systems (SES) Solar Two, LLC would construct, own and operate the CSP facility and an associated 230 kV transmission line. The CSP site would be leased by SES from BLM, and additional individual private parcels within the site boundaries would be acquired. The transmission line would be constructed within a new ROW easement just north of and adjacent to the SWPL.

As described in Section B.6, the CPUC and BLM have determined that the Stirling CSP facility and associated 230 kV transmission line are so closely related to the Proposed Project as to be considered “connected actions” under the National Environmental Policy Act (NEPA). Therefore, the Stirling site and transmission line are discussed in this EIR/EIS in order to fully disclose the potential for this project to be constructed as a result of the presence of the SRPL (if it is approved and constructed). Types of mitigation that would likely reduce potentially significant impacts of the Stirling CSP facility and transmission line have been included in the environmental impact analysis below; however, implementation of specific mitigation measures would be developed and executed by Stirling Energy Systems at the time of project permitting and approval.

Approval of the SRPL would not result in automatic approval of the Stirling CSP facility or transmission line discussed below, and the project would require SES permit applications to CEC and BLM and compliance with CEQA and NEPA, followed by approvals from the CEC and BLM prior to construction on BLM lands.

#### Environmental Setting

The Imperial County geographic region in which the Stirling Energy Systems Solar Two LLC Project is planned does not warrant firehatched evaluations due to a low potential for wildfire occurrence in this desert landscape. A search of State and federal historical wildfire data centers yielded a finding of only one wildfire suppression effort over the past 15 years of archived records in the Stirling Energy Sys-

tems Solar Two LLC Project area. Comparably, fireshed assessment areas of the Proposed SRPL project averaged 47 mobilized-suppression fires per year. The rocky surface and dry desert climate of the region supports slow-growing vegetation communities, unlike the fast-growing chaparral, oak woodlands, and coniferous forests that allow for the accumulation of heavy fuels. Furthermore, the very low population of the region also minimizes the occurrence of human-caused ignitions. The criteria used to establish Proposed Project and alternative route firesheds are outlined in Section D.15.4.3, Approach to Data Collection and Analysis, and Appendix 3. Although these regions do not warrant fireshed evaluations due to a low potential for wildfire occurrence in this desert landscape, fast spreading surface wildfires have occasionally occurred throughout western Imperial County. These fire occurrences generally occur after wet precipitation years have allowed for a flush vegetation (grasses and forbs) growth which in turn provides a fuel source for wildfire. Generally these fires do not possess the heat values associated with the damaging impacts of chaparral and forest fires; however, they can ignite combustible materials and structures.

## Environmental Impacts and Mitigation Measures

### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class III)***

Fire risk is very low in Imperial County desert vegetation, because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted for the site vicinity. The risk of construction or maintenance activities igniting a wildfire in the 8,000-acre area proposed for the SES Solar Two Project site is minimal due to the sparse vegetation and arid conditions. Enforcement of State and federal fire prevention and Transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be sufficient to ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

### Operational Impacts

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The risk of the presence of the solar facility and associated transmission line igniting a wildfire site is minimal due to the sparse vegetation and arid conditions. Enforcement of State and federal fire prevention and Transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be sufficient to ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. In these desert areas where wildfires are infrequent, the creation of tactical firefighting obstructions may occur; however, the randomness and low intensity of fires minimize this potential impact.

State and federal fire prevention and transmission facility clearance requirements stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be required and would ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the solar facility and transmission line will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the solar site and transmission ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the solar facility and transmission line. The full text of all mitigation measures can be found in Appendix 12.

***Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread***

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.14.2 IID Transmission System Upgrades

As part of Phase 2 of the Imperial Valley Study Group’s development plan (see Section A.4.3), IID would construct a new 230 kV line from the Bannister Substation to a new San Felipe 500/230 kV Substation to interconnect to the proposed Imperial Valley to San Diego 500 kV line (i.e., the Sunrise Powerlink line). This San Felipe Substation could potentially provide an additional interconnection between the IID and CAISO systems, and thus another point for the delivery of renewable resources to Southern California loads. IID would construct, own and operate these upgrades.

As described in Section B.6, the CPUC and BLM have determined that these IID Transmission System Upgrades are so closely related to the Proposed Project as to be considered “connected actions” under the National Environmental Policy Act (NEPA). Therefore, IID Transmission System Upgrades are discussed in this EIR/EIS in order to fully disclose the potential for a Bannister–San Felipe 230 kV transmission line and new San Felipe 500/230 kV Substation to be constructed as a result of the presence of the SRPL (if it is approved and constructed). Approval of the SRPL would not result in automatic approval of the IID Transmission System Upgrades discussed below, and the projects would require applications by IID, compliance with CEQA and NEPA, followed by approvals from the BLM prior to construction on BLM lands.

## Environmental Setting

The project area of the IID Transmission System Upgrades in Imperial County and eastern San Diego County (east of ABDSP boundary) does not warrant firehatched evaluations due to a low potential for wildfire occurrence in this desert landscape. A search of State and federal historical wildfire data centers yielded a finding of six wildfire initial attack and suppression efforts over the past 15 years of archived records for the IID Upgrades project area. Comparatively firehatched assessment areas of the Proposed Project averaged 47 initial attack and suppression fires per year. The rocky surface and dry desert climate of the region does not promote comparably fast growing vegetation communities such as chaparral, oak woodlands, and coniferous forests, which allow for the accumulation of heavy fuels that sustain wildfire outbreaks when an ignition source occurs. Furthermore, the very low population of the region minimizes the occurrence of human caused ignition sources. The criteria used to establish Proposed Project and alternative route firehatched areas are outlined in Section D.15.4.3, Approach to Data Collection and Analysis, and Appendix 3. Although these regions do not warrant firehatched evaluations due to a low potential for wildfire occurrence in this desert landscape, fast spreading surface wildfires have occasionally occurred throughout western Imperial County. These fire occurrences generally occur after wet years have allowed for a flush of vegetation (grasses and forbs) growth. Generally these fires do not possess the heat values associated with the damaging impacts of chaparral and forest fires; however, they can ignite combustible materials, substances, and structures.

## Environmental Impacts and Mitigation Measures

### Construction Impacts

#### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class III)*

Fire risk is very low in the desert of Imperial and San Diego Counties in areas east of the ABDSP boundary because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted in the vicinity of the transmission line or substation site. The risk of construction activities starting a damaging wildfire in the vicinity of IID’s 230 kV lines into San Felipe Substation or the San Felipe 500/230 kV Substation is very low. Enforcement of State and federal fire prevention and Transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would ensure that the potential for adverse fire impacts would be less than significant (Class III), and no mitigation is required.

## Operational Impacts

### ***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The risk of the presence of IID's 230 kV lines into San Felipe Substation igniting a wildfire is minimal due to the sparse vegetation and arid conditions. Enforcement of State and federal fire prevention and Transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be sufficient to ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

### ***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted east of the Narrows Substation. Tactical firefighting obstructions may occur; however, the randomness and low intensity of fires minimize this potential impact.

State and federal fire prevention and transmission facility clearance requirements stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be required and would ensure that the potential for adverse fire impacts of the IID Transmission System Upgrades would be less than significant (Class III). No mitigation is required.

### ***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the IID upgrades will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the transmission ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are con-

sidered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the IID transmission upgrades.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.14.3 Esmeralda–San Felipe Geothermal Project

An EIS is currently being prepared by BLM to analyze the leasing of geothermal resources exploration, development, and utilization in the Truckhaven Geothermal Leasing Area (Truckhaven) located in western Imperial County, California (refer to Figure B-46). Currently, BLM has non-competitive geothermal lease applications pending for portions of this land, including lease applications from Esmeralda Energy, LLC (Esmeralda); however, the land must first be assessed under NEPA regulations before granting leases. Under the Proposed Action analyzed in the EIS, BLM would approve the pending non-competitive leases and offer competitive leases for all other available lands at Truckhaven.

The Esmeralda–San Felipe Geothermal Project would develop 20 MW of geothermal resources within the Truckhaven Geothermal Leasing Area; however, Esmeralda is not able to submit a project application to BLM for the Esmeralda–San Felipe Geothermal Project until their pending lease applications with BLM for Truckhaven are approved. In the absence of a formal Project application, it is assumed that roughly half of the components identified under the Reasonably Foreseeable Development (RFD) scenario in BLM’s Truckhaven EIS would apply to the Esmeralda–San Felipe Geothermal Project. Additionally, the description of the environmental setting and likely impacts are partially adapted from the Draft EIS for the Truckhaven Geothermal Leasing Area (February 2007). The RFD describes the anticipated development that would occur at Truckhaven to facilitate geothermal resources exploration, development and utilization should the leases be approved by BLM and include new wells, a power plant and transmission lines, as described in Section B.6.1.3. Geothermal energy uses heat from the earth, extracted through geothermal wells in the form of steam or brine, which is then transported via pipeline and used to drive turbines, which drive electricity generation.

As described in Section B.6, the CPUC and BLM have determined that the Esmeralda–San Felipe Geothermal Project is so closely related to the Proposed Project as to be considered a “connected action” under the National Environmental Policy Act (NEPA). Therefore, the Esmeralda–San Felipe Geothermal Project is discussed in this EIR/EIS in order to fully disclose the potential for a new geothermal plant and associated linears to be constructed as a result of the presence of the SRPL (if it is approved and constructed). Types of mitigation that would likely reduce potentially significant impacts of the Esmeralda–San Felipe Geothermal Project have been included in the environmental impact analysis below; however, implementation of specific mitigation measures would be developed and executed by Esmeralda at the time of project permitting and approval.

Approval of the SRPL would not result in automatic approval of the Esmeralda–San Felipe Geothermal Project discussed below, and the project would require applications by Esmeralda Energy, LLC, compliance with CEQA and NEPA, followed by approvals from the BLM prior to construction on BLM lands.

## Environmental Setting

The Esmeralda–San Felipe Geothermal project area in Imperial County has especially sparse vegetation due to ground compaction from off-road vehicles in the Ocotillo Wells State Vehicular Recreation Area. Due to the low density of fuels, there is very low fire risk. It is possible that annual grasses may establish throughout the project area after a period of high precipitation, which may provide an additional, albeit poor, fuel source.

## Environmental Impacts and Mitigation Measures

Local ground compaction has resulted in minimal availability of fuels and a low risk of fire in the project area of the Esmeralda–San Felipe Geothermal project.

### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class III)***

In general, fire risk is very low in the desert regions of Imperial County where there is sparse vegetation and a lack of fuels. It is highly unlikely that construction or maintenance activities would start a damaging wildfire in the vicinity of the Esmeralda–San Felipe project. Enforcement of State and federal fire prevention and transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

### Operational Impacts

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The risk of the presence of the transmission interconnection line that would be required to deliver power from the Truckhaven geothermal area igniting a wildfire is minimal due to the sparse vegetation and arid conditions. Enforcement of State and federal fire prevention and Transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be sufficient to ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. Tactical firefighting obstructions may occur; however, the randomness and low intensity of fires minimize this potential impact.

State and federal fire prevention and transmission facility clearance requirements stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be required and would ensure that the potential for adverse fire impacts of the transmission interconnection lines associated with the Esmeralda–San Felipe project would be less than significant (Class III). No mitigation is required.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the geothermal leasing area and associated transmission line will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the geothermal leasing area and transmission ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the geothermal leasing area and associated transmission line.

***Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread***

**B-3a Prepare and implement a Weed Control Plan.**

#### D.15.14.4 Jacumba Substation

##### Environmental Setting

The Jacumba Substation would be located entirely in the Boulevard Fireshed, described in Section E.1.15. The dominant vegetation type in this fireshed is extremely sparse desert chaparral. The sparse vegetation limits the spread of wildfires started in this area. As a result, the wildfire history indicates that only small portions of the region have burned in wildfire events over the last 50 years. However, cheatgrass and Sahara mustard have started to invade the fireshed; these fire-adapted weeds can quickly spread, altering the plant community and contributing to type-conversion. Exotic grass-dominated landscapes are prone to ignite more easily and spread fires more rapidly than desert vegetation; however, the Boulevard Fireshed is not a high-risk fireshed based on fire history and fuels present.

## Environmental Impacts and Mitigation Measures

### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class III)***

Construction activities associated with the Jacumba Substation in the Boulevard Fireshed would include but not be limited to, use of heavy equipment for vegetation removal and grading and excavation for placing underground conduit or steel poles. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the facilities introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more. Construction- and maintenance-related ignitions have the potential to escape initial attack containment and become larger fires; however, the extent and intensity of a wildfire in this fireshed would be limited by the sparse desert chaparral fuels.

Construction activities could ignite a wildfire and result in impacts to nearby communities and natural resources. Due to the predominantly low fire risk in this area, this impact would be considered less than significant (Class III). No mitigation is required.

### Operational Impacts

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (No Impact)***

The Jacumba Substation does not have a transmission component, and its presence would not increase the probability of a wildfire (No Impact).

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (No Impact)***

The Jacumba Substation would have no impact on firefighting effectiveness because it is not a linear element, and does not present a physical obstruction to firefighting activities (No Impact).

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the Jacumba Substation will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head, and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread. The introduction of non-native plants in the project area would exacerbate wildfire risks in the project area.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and manage-

ment protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Jacumba Substation.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.14.5 SCE La Rumorosa Wind Project

### Environmental Setting

**United States.** The “Rumorosa Wind Developers II” (RWD) project would be connected to the Jacumba Substation MP I8-35, and would follow 1.7 miles of transmission line approximately 1,000 feet west of the town of Jacumba in San Diego County. This falls entirely into the Boulevard Fireshed (AFS-1) as detailed in Section 15.1.1.

The Boulevard Fireshed assessment area is 72,838 acres in total, and it encompasses the southeastern-most corner of San Diego County and contains the easternmost portion of the I-8 alternative route. The fireshed contains the towns of Jacumba, Manzanita, and Boulevard which are all federally designated communities at risk of wildfire. Located in the fireshed are the Jacumba Mountains and the In-Ko-Pah Mountains, which is a BLM Area of Critical Environmental Concern. The wilderness areas in the southernmost portion of ABDSP are also within the fireshed boundary. The elevation ranges from 1,640 feet on the desert floor to 3,880 feet in Boulevard to 4,647 feet on Mt. Tule in the In-Ko-Pah Mountains. This fireshed has an average annual rainfall range between 8 and 14 inches per year. Consequently, much of the area is dominated by sparse, semi-arid vegetation which is often interspersed with granitic boulder outcroppings.

**Mexico.** The RWD wind farm and transmission line would be situated near the town of La Rumorosa in the municipality of Tecate. The Sierra Juárez mountain chain on which the RWD wind farm will be located is a continuation of the Jacumba mountain chain and has a similar physical aspect. Although the Boulevard Fireshed assessment area ends at the U.S./Mexico border, it can be assumed that the wilderness areas are similar and that the threats of fire would be similar as well.

### Environmental Impacts and Mitigation Measures

#### Construction Impacts

*Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

**United States and Mexico.** Construction activities associated the wind turbines, access roads, and switching station would occur within and immediately outside of the Boulevard Fireshed in San Diego County, and would include but not be limited to, use of heavy equipment for vegetation removal and grading and excavation for placing underground conduit or steel poles. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the facilities introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions have the potential to escape initial attack containment and become catastrophic fires. Because the sites have

heavy fire fuels, steep topography, and exposure to high winds including Santa Ana winds, they have a high burn probability and a high potential for an ignition to escape. Due to the extremely high fire risk in this area, this impact would be considered significant. However, implementation of Mitigation Measures F-1a through F-1e would reduce this impact to a less than significant level (Class II). Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of reducing the potential acres burned and the number of homes at risk. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a**      **Develop and implement a Construction Fire Prevention Plan.**
- F-1b**      **Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c**      **Ensure coordination for emergency fire suppression.**
- F-1d**      **Remove hazards from the work area.**
- F-1e**      **Contribute to defensible space grants fund.**

#### Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

**United States and Mexico.** The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable.

A fire started in the transmission corridor could burn into the nearby town of La Rumorosa, potentially putting hundreds of homes at risk if a fire were to burn during extreme weather conditions. The potential losses would be unacceptably high. Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

- F-2a**      **Establish and maintain adequate line clearances.**
- F-1e**      **Contribute to defensible space grants fund.**

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

**United States and Mexico.** The transmission line associated with the La Rumorosa wind project would not create a significant obstacle to firefighting and wildfire containment due to its short length. A significant conflict with wildfire containment is defined as no less than a 1.5-mile segment of very high conflict index values, and although modeling is not carried out for this project, it would not create indefensible islands between transmission lines, and it would be located through rugged terrain that would not be otherwise defensible. This impact is considered less than significant (Class III). No mitigation is required.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

**United States and Mexico.** Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the wind facilities will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head, and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread. The introduction of non-native plants in the project area would exacerbate wildfire risks in the project area.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the wind facilities.

***Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.15 Overall Fire and Fuels Management Impacts of Proposed Project

### Construction Impacts

Construction of the Proposed Project, Future Transmission System Expansion, Connected Actions, and Indirect Effects would increase the probability of igniting a catastrophic wildfire above baseline conditions. This impact would be significant and unavoidable (Class I) for the Proposed Project through the Ramona and Poway Firesheds and for the Future Transmission System Expansion projects due to the extremely high risk of fire in these areas and due to the unacceptably high number of homes at risk even during normal weather conditions.

Construction impacts would be significant but mitigable to a less than significant level (Class II) for Proposed Project through the Ranchita, San Felipe, Santa Ysabel, and Peñasquitos Firesheds, and for Indirect Effects. Due to a lower risk of fire and a small number of homes at risk during normal weather conditions, this impact can be mitigated by discontinuing construction during severe fire weather, coordinating with fire agencies, fuel reduction, and making financial contributions for the maintenance

of defensible space around at-risk homes. This impact would be less than significant (Class III) for Connected Actions due to the low fire risk in the Connected Action project areas.

### Operational Impacts

The presence of the Proposed Project, Future Transmission System Expansion, Connected Actions, and Indirect Effects would increase the probability of igniting a catastrophic wildfire above baseline conditions. This impact would be significant and unavoidable (Class I) for the Proposed Project and Future Transmission System Expansion because certain ignitions are unavoidable and could take place during severe weather conditions. This impact would be less than significant (Class III) for Connected Actions due to the low risk of fires in the project areas and for Indirect Effects due to the location and nature of the project.

The Proposed Project would also have a significant, unavoidable impact (Class I) on the effectiveness of firefighting through the Ranchita, San Felipe, Santa Ysabel, Ramona, and Poway Firesheds for a total of 3, 1.5, 4, 3.5, and 1.5 miles, respectively. This impact would be less than significant (Class III) for the Proposed Project through the Peñasquitos Fireshed and Future Transmission System Expansion because the transmission lines would be collocated with existing lines of equal height, and would not present a significant firefighting conflict above baseline conditions. This impact would also be less than significant (Class III) for Connected Actions and Indirect Effects due to the non-linear nature of the projects.

The Proposed Project, Future Transmission System Expansion, Connected Actions, and Indirect Effects would have a significant but mitigable (Class II) impact on fire frequency and rate of wildfire spread through the introduction of non-native plants. This impact can be mitigated by following a strict weed-control protocol.

## ***Environmental Impacts and Mitigation Measures for Alternatives Along Proposed Project Route***

Table D.15-27 summarizes the impacts that have been identified for the alternatives along the Proposed Project route.

**Table D.15-27. Impacts Identified – Alternatives – Fire and Fuels Management**

Impact No.	Description	Impact Significance
<b>FTHL Eastern Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class III
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class III
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>SDG&amp;E West of Dunaway Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class III
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class III
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>SDG&amp;E West Main Canal–Huff Road Modification Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class III
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class III
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Partial Underground 230 kV ABDSP SR78 to S2 Alternative (with or without All Underground Option)</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>San Felipe Substation Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	No Impact
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	No Impact
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Overhead 500 kV ABDSP within Existing ROW Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

**Table D.15-27. Impacts Identified – Alternatives – Fire and Fuels Management**

<b>Impact No.</b>	<b>Description</b>	<b>Impact Significance</b>
<b>Santa Ysabel Existing ROW Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class II
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Santa Ysabel Partial Underground Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class III
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Santa Ysabel SR79 All Underground Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Operation and maintenance activities could ignite a wildfire.	Class III
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>SDG&amp;E Mesa Grande Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>CNF Existing 69 kV Route Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Oak Hollow Road Underground Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	No Impact
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	No Impact
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>San Vicente Transition Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class III
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

**Table D.15-27. Impacts Identified – Alternatives – Fire and Fuels Management**

Impact No.	Description	Impact Significance
<b>Chuck Wagon Road Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Pomerado Road to Miramar Area North</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Los Peñasquitos Canyon Preserve–Mercy Road Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	No Impact
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	No Impact
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Black Mountain to Park Village Road Underground Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	No Impact
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	No Impact
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Coastal Link System Upgrades Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	No Impact
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	No Impact
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
<b>Top of the World Substation Alternative</b>		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class II
F-2	Presence of the overhead transmission line would increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

Fire and fuels impacts are analyzed using supporting information and fire behavior model results for each fireshed (as defined in Section D.15.3). Impact conclusions summarize the main results. The objective of the mitigation measures, when applicable, is to reduce the impacts to a level that is less than significant. Due to the large scale of the SRPL and the very high fire risk in San Diego County two of these impacts is not mitigable to a level that is less than significant for six of these route. The fire behavior model results for each impact are discussed according to each fireshed. Because the firesheds encompass a wildfire assessment region, they do not coincide with the linear Sunrise “links” into which the Proposed Project is divided. Therefore, the fireshed approach to analysis is used in this impacts assessment section instead of the link approach used elsewhere in the EIR/EIS document.

## D.15.16 Imperial Valley Link Alternatives

There are three alternatives analyzed in the Imperial Valley Link, the FTHL Eastern Alternative, the SDG&E West of Dunaway Alternative, and the SDG&E West Main Canal–Huff Road Modification Alternative.

The project region of the Imperial Valley Link alternatives do not warrant fireshed evaluations due to a low potential for wildfire occurrence in this desert landscape, therefore fireshed modeling analyses are not performed for the FTHL Eastern Alternative, SDG&E West of Dunaway Alternative, and the SDG&E West Main Canal–Huff Road Modification Alternative. The rocky surfaces and dry, desert climate of the Imperial Valley region does not promote fast growing vegetation communities such as chaparral, oak woodlands, and coniferous forests that allow for the accumulation of heavy fuels that sustain wildfire outbreaks in the remainder of the project study area. Furthermore, the very low population density in the region minimizes the potential damage from a fire. However, fast-spreading surface wildfires have occasionally occurred in western Imperial County. These fires generally occur after high precipitation years have allowed for a flush of vegetation growth that in turn provides a fuel source for wildfires. Generally these fires do not possess the heat intensities associated with the damaging impacts of chaparral and forest wildfires; however, they can sometimes ignite structures when present. Fire risk is very low in the Imperial Valley Link alternative areas because of low fire intensities that burn sparse desert vegetation, resulting in minimal threats to the scattered population centers.

### D.15.16.1 FTHL Eastern Alternative

This alternative was developed by the EIR/EIS team as a way to avoid almost 2 miles within the Flat-Tailed Horned Lizard (FTHL) Management Area. Instead the 500 kV overhead route would follow section lines within agricultural lands and would be approximately 1.5 miles shorter than the proposed route.

#### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class III)***

Fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted in the area east of the Narrows Substation just southeast of the town of Borrego Springs. In these desert areas with minimal vegetation, the risk of construction and maintenance activities igniting a wildfire is very low. However, some risk of fire remains even in desert terrain, and the possibility that construction activities could start a fire in these areas is considered to be adverse but less than significant (Class III). No mitigation is required.

#### Operational Impacts

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The risk of the presence of the FTHL Eastern Alternative igniting a wildfire is minimal due to the sparse vegetation and arid conditions. Enforcement of State and federal fire prevention and Transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be sufficient to ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted east of the Narrows Substation. Tactical firefighting obstructions may occur; however, the randomness and low intensity of fires minimize this potential impact.

State and federal fire prevention and transmission facility clearance requirements stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be required and would ensure that the potential for adverse fire impacts of the FTHL Eastern Alternative would be less than significant (Class III). No mitigation is required.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line. The full text of all mitigation measures can be found in Appendix 12.

***Mitigation Measures for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread***

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.16.2 SDG&E West of Dunaway Alternative

This 6.1-mile alternative was suggested by SDG&E and approved by the proposed land use developer in the area. It would be an overhead 500 kV line, and would be 2.2 miles longer than the Proposed Project.

#### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class III)***

Fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted in the area east of the Narrows Substation just southeast of the town of Borrego Springs. In these desert areas with minimal vegetation, the risk of construction and maintenance activities igniting a wildfire is very low. However, some risk of fire remains even in desert terrain, and the possibility that construction activities could start a fire along the SDG&E West of Dunaway Alternative is considered to be adverse but less than significant (Class III). No mitigation is required.

#### Operational Impacts

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The risk of the presence of the SDG&E West of Dunaway Alternative igniting a wildfire is minimal due to the sparse vegetation and arid conditions. Enforcement of State and federal fire prevention and Transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be sufficient to ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted east of the Narrows Substation. Tactical firefighting obstructions may occur; however, the randomness and low intensity of fires minimize this potential impact.

State and federal fire prevention and transmission facility clearance requirements stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be required and would ensure that the potential for adverse fire impacts of the SDG&E West of Dunaway Alternative would be less than significant (Class III). No mitigation is required.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants,

like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measures for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.16.3 SDG&E West Main Canal–Huff Road Modification Alternative

This 4.9-mile alternative would follow the IID Westside Main Canal to the east-northeast, and then turn north on Huff Road. Existing IID 92 kV transmission lines are located on the west side of Huff Road along most of this segment; however, where the IID line would turn northwest, this alternative would continue straight along Huff Road to reconnect with the Proposed Project 0.2 miles south of Wheeler Road (MP 15.9). The lengths of the alternative and the proposed routes would be essentially the same; however, this route would avoid direct effects to the Bullfrog Farms and also to the Raceway development.

#### Construction Impacts

*Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class III)*

Fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted in the area east of the Narrows Substation just southeast of the town of Borrego Springs. In these desert areas with minimal vegetation, the risk of construction and maintenance activities igniting a wildfire is very low. However, some risk of fire remains even in desert terrain, and the possibility that construction activities could start a fire in these areas is considered to be adverse but less than significant (Class III). No mitigation is required.

## Operational Impacts

### ***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The risk of the presence of the SDG&E West Main Canal–Huff Road Modification Alternative igniting a wildfire is minimal due to the sparse vegetation and arid conditions. Enforcement of State and federal fire prevention and Transmission facility clearance laws stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be sufficient to ensure that the potential for adverse fire impacts would be less than significant (Class III). No mitigation is required.

### ***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The fire risk is very low in the Imperial Valley because of low fire intensity levels that burn sparse desert vegetation, causing minimal threats to the scattered population centers. Therefore, an extensive wildfire impacts analysis was not conducted east of the Narrows Substation. Tactical firefighting obstructions may occur; however, the randomness and low intensity of fires minimize this potential impact.

State and federal fire prevention and transmission facility clearance requirements stipulated in Section D.15.3, Applicable Regulations, Plans, and Standards, would be required and would ensure that the potential for adverse fire impacts of the SDG&E West Main Canal–Huff Road Modification Alternative would be less than significant (Class III). No mitigation is required.

### ***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are consid-

ered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measures for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.17 Anza-Borrego Link Alternatives

Two alternatives are considered in the Anza-Borrego Link: the Partial Underground 230 kV ABDSP SR78 to S2 Alternative (also considered with an All Underground Option) and the Overhead 500 kV ABDSP within Existing ROW Alternative.

### D.15.17.1 Partial Underground 230 kV ABDSP SR78 to S2 Alternative

This alternative was developed by the EIR/EIS team and would include installation of a double-circuit bundled 230 kV line (as opposed to an overhead 500 kV with the Proposed Project) that would be installed underground in SR78 through ABDSP. The proposed Central East Substation would not be constructed with this alternative and approximately 2 miles of transmission line (one mile of 500 kV and one mile of 230 kV) to and from that substation would be eliminated. Instead a new 500 kV/230 kV substation would be constructed adjacent to the existing IID San Felipe Substation to accommodate the new transmission line.

There is also an All Underground Option considered for this alternative, in which the entire length of the 230 kV transmission line between the San Felipe Substation and the connection to the Proposed Project would be installed underground in Highways SR78 and S2.

#### Environmental Setting

The western 23.6 miles of the Partial Underground 230 kV ABDSP SR78 to S2 Alternative falls within the Ranchita Fireshed (refer to the Ranchita Fireshed description in Section D.15.2.4). The Ranchita Fireshed receives minimal precipitation that supports desert scrub and chaparral vegetation. The primary ignition source in this fireshed is lighting (22%). The 2002 Pines Fire was the only major wildfire event in the past 50 years, and it burned 21,708 acres when a National Guard Helicopter hit a power line. The eastern 14 miles of this alternative are not assessed for potential wildfire impacts due to the low population density, minimal historic fire history, and low level of fuels present along this stretch.

#### Environmental Impacts and Mitigation Measures

**Burn Probability Model Results.** High fire probability areas within the half-mile-wide border zone of this alternative were identified using the FlamMap Burn Probability Model. See Section D.15.4.3, Approach to Data Collection – Fire Behavior Models, for a description of the modeling analysis. The model output indicates that less than 1% of the border zone area has a very high burn probability, 2% has a high burn probability, 15% has a moderate burn probability, and 83% has a low burn probability. Figure D.15-36 shows the burn probabilities along the alternative transmission line route.

The underground portion of the ABDSP Alternative is not further analyzed using models due to the low level of potential wildfire-related impacts from an operational underground transmission line.

**Fire Behavior Trend Model Results.** The primary objective of fire behavior trend model is to identify communities that could be at risk from a wildfire ignited within the transmission corridor. During normal weather conditions, ignitions started within the overhead corridor would burn to the northeast primarily within the border zone. Ignitions started where the line crosses through the rural community of San Felipe would impact homes within close proximity to the transmission corridor. A wildfire started where the corridor parallels County Road 2 would burn into the adjacent San Felipe Hills Wilderness Study Area. A fire started within the border zone between MP SR25-SR26 would impact the Scissors Crossing junction of County Road S2 and SR78. Figure D.15-37 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the portion of the Partial Underground ABDSP Alternative through the Ranchita Fireshed.

A fire ignited in the corridor during normal weather conditions would put one home and as many as 2,709 acres at risk during two burn periods. Corridor ignitions during extreme fire weather conditions would burn extensive areas to the southwest including the town of Julian and surrounding private and public lands. The transportation routes SR78 and SR79 would potentially be obstructed by a wildfire in the area. Six cell towers would be threatened by a wildfire here. The potential burn area from a wildfire started along the Partial Underground ABDSP Alternative corridor would be more than 13 times greater during extreme Santa Ana weather conditions compared to normal conditions, putting 102 households and 36,052 acres at risk in two burn periods.

**Wildfire Containment Conflict Model Results.** Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the alternative through the Ranchita Fireshed 6% would present a very high conflict, 20% a high conflict, 16% a moderate conflict, and 4% a low conflict (Figure D.15-20). No significant conflict area is identified by the model for this alternative. Figure D.15-38 presents the model results.

## Construction Impacts

### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with the Partial Underground 230 kV ABDSP SR78 to S2 Alternative would include, but not be limited to, use of vehicles and heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles, and tools would be used for preparation of staging areas and many miles of new roads. The use of heavy equipment along with the personnel required to construct, repair, and maintain the transmission line introduce the potential for a variety of wildfire ignition sources to surrounding vegetation fuels and combustible materials (such as diesel fuel and herbicide) associated with project activities.

Figure D.15-36. Ranchita Partial Underground ABDSP SR78 to S2 Alternative Burn Probability Model

[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

A total of 9.8 miles of overhead 500 kV transmission line and 11.2 miles of underground 230 kV transmission line would be built within the Ranchita Fireshed. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

Project-related ignitions within the alternative project corridor in the Ranchita Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fuel loads, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The Burn Probability Model for this alternative in the Ranchita Fireshed (Figure D.15-36) indicates that along the length of the alternative, a total of 2% of the border zone area has a high to very high probability of fire recurrence. The Fire Behavior Trend Model (Figure D.15-37) indicates that random fire ignitions along the corridor in the Ranchita Fireshed would burn primarily within the border zone. The potential area burned would be 13 times greater during extreme fire weather conditions resulting in widespread impacts. Under normal weather conditions, one home and as many as 2,709 acres would be at risk within two burn periods, and in extreme fire weather, as many as 102 homes and 36,052 acres would be at risk within two burn periods.

The alternative would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the Ranchita Fireshed. This increase can be mitigated to a level that is less than significant (Class II) in this moderate-risk fireshed through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Ensure coordination for emergency fire suppression, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 36,052 acres to approximately 2,709 acres) and the number of homes at risk (from more than 102 to approximately one) in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a      Develop and implement a Construction Fire Prevention Plan.**
- F-1b      Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c      Ensure coordination for emergency fire suppression.**
- F-1d      Remove hazards from the work area.**
- F-1e      Contribute to defensible space grants fund.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Ranchita Fireshed is a moderate-risk fireshed based on its wildfire history, fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 13 or more households and 135 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line and distribution circuits in the immediate vicinity of the Proposed Project from MP 83.5 to MP 87.6. In Santa Ana wind conditions and in areas with wildland fuels, the Proposed Project would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the Proposed Project. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Figure D.15-37. Ranchita Partial Underground ABDSP SR78 to S2 Alternative Overhead Portion  
Fire Behavior Trend Model

[CLICK HERE TO VIEW](#)

Figure D.15-38. Ranchita Partial Underground ABDSP SR78 to S2 Alternative Wildfire Containment Conflict Model

**[CLICK HERE TO VIEW](#)**

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

**F-2a        Establish and maintain adequate line clearances.**

**F-2b        Install existing conductors on steel poles.**

**F-1e        Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)*

The 9.8 miles of overhead transmission line associated with this alternative route occur in a non-defensible landscape with rugged topography. Furthermore fuels are sparse, contributing to a low level of conflict identified for these overhead segments through Wildfire Containment modeling. This alternative would not create a significant linear obstacle to fire suppression, defined as 1.5 contiguous miles of very high conflict criteria. The overhead segment would therefore have an adverse but less than significant impact on firefighting (Class III). No mitigation is required.

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further

into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

San Felipe Substation

The proposed Central East Substation would not be constructed with the Partial Underground 230 kV ABDSP SR78 to S2 Alternative. Instead, a new 40-acre 500 kV/230 kV substation would be constructed adjacent to the existing IID San Felipe Substation to accommodate the new transmission line.

Environmental Setting

The San Felipe Substation Alternative would be constructed within the Ranchita Fireshed (refer to the Ranchita Fireshed description in Section D.15.2.4). The Ranchita Fireshed receives minimal precipitation that supports desert scrub and chaparral vegetation. The primary ignition source in this fireshed is lightning (22%). The 2002 Pines Fire was the only major wildfire event in the past 50 years, and it burned 21,708 acres when a National Guard Helicopter hit a power line.

Environmental Impacts and Mitigation Measures

Construction Impacts

*Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction of the San Felipe Substation Alternative would occur in a small area in a moderate risk fireshed with minimal homes at risk. If construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

**F-1a Develop and implement a Construction Fire Prevention Plan.**

Operational Impacts

Operation of this substation would not entail the presence of overhead transmission lines and would therefore not present an ongoing ignition hazard nor an obstacle to firefighting. Impacts F-2, Presence of the overhead transmission line would increase the probability of a wildfire, and F-3, Presence of the overhead transmission line would reduce the effectiveness of firefighting, would not occur (No Impact).

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the substation will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants near the substation will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the substation.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## All Underground Option

The All Underground Option would place the two overhead segments of the Partial Underground 230 kV ABDSP SR78 to S2 Alternative underground.

### Environmental Setting: All Underground Option

The changes made to the alternative by the All Underground Option would fall within the Ranchita Fireshed (refer to the Ranchita Fireshed description in Section D.15.2.4). The Ranchita Fireshed receives minimal precipitation that supports desert scrub and chaparral vegetation. The primary ignition source in this fireshed is lighting (22%). The 2002 Pines Fire was the only major wildfire event in the past 50 years, and it burned 21,708 acres when a National Guard Helicopter hit a power line.

### Environmental Impacts and Mitigation Measures: All Underground Option

#### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction of the two underground segments of the All Underground Option would occur in moderate risk fireshed with minimal homes at risk. If construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

***Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire***

#### **F-1a      Develop and implement a Construction Fire Prevention Plan.**

#### Operational Impacts

Operation of this entirely underground option would not entail the presence of overhead transmission lines and would therefore not present an ongoing ignition hazard nor an obstacle to firefighting. Impacts F-2, Presence of the overhead transmission line would increase the probability of a wildfire, and F-3, Presence of the overhead transmission line would reduce the effectiveness of firefighting, would not occur (No Impact).

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions associated with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native

grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the underground transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

#### D.15.17.2 Overhead 500 kV ABDSP within Existing ROW Alternative

The alternative would differ from the proposed route in the Grapevine Canyon area (in the Angelina Springs Cultural District), in the vicinity of Tamarisk Grove Campground, and in a few areas east of Tamarisk Grove Campground along SR78. The alternative would remain within the existing SDG&E 69 kV ROW/easement. This alternative would eliminate towers within State-designated Wilderness. Undergrounding of the existing 69 kV and 92 kV lines would not occur with this alternative; those lines would be underbuilt on Delta lattice towers.

The *East of Tamarisk Grove Campground 150-Foot Option* was suggested by SDG&E in which the alternative would follow the Proposed Project route in the 150-foot proposed alignment, and not the existing ROW, between the eastern Park boundary (MP 60.9) to Tamarisk Grove Campground (MP 74.8) near the SR78/Highway S3 intersection. Similar to the Proposed Project described in Section B.2.2, SDG&E would underbuild and underground the existing 92 kV and 69 kV lines.

#### Environmental Setting

This alternative would involve building of an elevated 500 kV line through an existing 69 kV ROW that is 100 feet wide, and it would be entirely overhead for a total of 13.5 miles through the Ranchita Fireshed. The lines would be strung vertically, instead of horizontally, in order to provide a standard minimum clearance. The route west of MP OH-9 falls within the Ranchita Fireshed (refer to the discussion in Section D.15.2.4). The eastern 9 miles of this alternative were not included in the fire and fuels assessment area established for this impact analysis due to a low risk of fire in this area of sparse vege-

tation. This section of the alternative presents a low fire risk due to the lack of fuels and low historical wildfire numbers, and was therefore was not assessed for potential wildfire impacts.

### Environmental Impacts and Mitigation Measures

The Overhead 500 kV ABDSP within Existing ROW Alternative would follow the same route as the Proposed Project between MP 70 and MP 83.5 in the Ranchita Fireshed. Therefore, this alternative route was not modeled separately for this wildfire impact analysis. For model results see Section D.15.6. The assets at risk from a fire started in the corridor during normal weather include a total of one home and 2,709 acres, and during severe weather they include a total of 102 homes and 36,052 acres.

### Construction Impacts

#### ***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction activities associated with the alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles, and tools would be used for the construction of staging areas, the new Central East Substation, and many miles of new roads. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduce the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the alternative corridor in the Ranchita Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fuel loads, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The alternative construction activities in the Ranchita Fireshed could ignite a wildfire and result in impacts to communities and natural resources. Within this fireshed, ignitions resulting from activities similar to transmission line construction activities (including vehicular, equipment, and smoking-related ignitions) make up 21% of the fires started in the past 13 years, none of which resulted in initial attack failures. These activities would increase in the ROW during project construction.

Construction activities associated with the Overhead 500 kV ABDSP within Existing ROW Alternative would include, but not be limited to, use of vehicles and heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles, and tools would be used for preparation of staging areas, and construction of the new Central East Substation and many miles of new roads. The use of heavy equipment along with the personnel required to construct, repair, and maintain the transmission line introduce the potential for a variety of wildfire ignition sources to surrounding vegetation fuels and combustible materials (such as diesel fuel and herbicide) associated with project activities.

A total of 13.5 miles of overhead 500 kV transmission line would be built for this alternative within the Ranchita Fireshed. The construction of the alternative would not require a new transmission corridor or widening of the existing 100-foot corridor due to the proposed elevated structure. However, the use of heavy equipment and the presence of personnel would still increase the wildfire ignition potential in the transmission corridor compared with existing conditions.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

Project-related ignitions within the alternative corridor in the Ranchita Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fuel loads, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The Burn Probability Model for the Ranchita Fireshed (Figure D.15-18) indicates that along the length of this alternative, a total of 7% of the border zone area has a high to very high probability of fire recurrence. The Fire Behavior Trend Model (Figure D.15-19) indicates that random fire ignitions along the corridor in the Ranchita Fireshed would burn within the entire length of the half-mile-wide border zone area and expand further where the corridor borders the San Felipe Hills Wilderness Study Area under normal weather conditions. The potential area burned would be eight times greater during extreme fire weather conditions resulting in widespread impacts. Under normal weather conditions, as many as four homes and 6,592 acres would be at risk within two burn periods, and in extreme fire weather, as many as 13 homes and 53,481 acres would be at risk within two burn periods.

The Overhead 500 kV ABDSP within Existing ROW Alternative would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the Ranchita Fireshed. This increase can be mitigated to a level that is less than significant (Class II) in this moderate-risk fireshed through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Ensure coordination for emergency fire suppression, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 53,481 acres to approximately 6,592 acres) and the number of homes at risk (from more than 13 to approximately four) in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a**      **Develop and implement a Construction Fire Prevention Plan.**
- F-1b**      **Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c**      **Ensure coordination for emergency fire suppression.**
- F-1d**      **Remove hazards from the work area.**
- F-1e**      **Contribute to defensible space grants fund.**

#### Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the transmission line. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Ranchita Fireshed is a moderate-risk fireshed based on its wildfire history, fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 102 or more households and 36,052 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

- F-2a**      **Establish and maintain adequate line clearances.**
- F-1e**      **Contribute to defensible space grants fund.**

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)***

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model (Figure D.15-20) for the Ranchita Fireshed identifies two specific areas where the Overhead 500 kV ABDSP within Existing ROW Alternative would restrict wildfire containment to a very high degree. The conflict areas are located at MP 85-86.5 and MP 90-92.5; the latter includes the site of the proposed Central East Substation. Both of the 1.5 mile-long conflict areas are located in high fire risk areas with heavy fuels and historical fire containment boundaries. The nearby access roads and moderate topography indicate that the conflicts exist in defensible landscapes where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in these areas would be obstructed by the presence of the overhead transmission line and the proximity of parallel existing lines. Firefighting suppression tactics, maneuverability and approach distances are greatly restricted by the indefensible island created between collocated and parallel transmission lines. This indefensible landscape is a swath of land where firefighting is tactically very difficult or simply too dangerous (due to a combination of minimum approach distances and rates of wildfire spread that can reach up to 300 feet per minute).

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the Overhead 500 kV ABDSP within Existing ROW Alternative in the Ranchita Fireshed is considered a significant impact (Class I). This impact can be partially mitigated by creating fuel breaks in the conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuel breaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

***Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting***

**F-3a Construct and maintain fuelbreaks.**

**F-3b Prepare and implement a Multi-agency Fire Prevention MOU.**

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass,

medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

**East of Tamarisk Grove Campground 150-Foot Option**

This option would reroute the Overhead 500 kV ABDSP within Existing ROW Alternative into the proposed 150-foot-wide ROW, and not the existing ROW, between the eastern Park boundary (MP 60.9) and the west side of Tamarisk Grove Campground (MP 74.8) near the SR78/Highway S3 intersection. SDG&E would remove the 92 kV conductors from the existing wood poles between MP 60.9 and MP 68.2 and attach them to the new 500 kV lattice steel towers as an underbuilt.

**Environmental Setting**

This option would slightly change the routing of four miles of overhead transmission line through the Ranchita Fireshed. Wildfire risk is low in this area of sparse, desert vegetation and scattered homes.

**Environmental Impacts and Mitigation Measures**

This four-mile reroute in the overhead transmission line would not change the character or magnitude of wildfire-related impacts relative to the Overhead 500 kV ABDSP within Existing ROW Alternative. Impacts would be identical to those of the Overhead 500 kV ABDSP within Existing ROW Alternative.

## D.15.18 Central Link Alternatives

Four Central Link Alternatives are considered in this section: the Santa Ysabel Existing ROW Alternative, the Santa Ysabel Partial Underground Alternative, the Santa Ysabel SR79 All Underground Alternative, and the Mesa Grande Alternative.

### D.15.18.1 Santa Ysabel Existing ROW Alternative

This alternative would follow an existing 69 kV transmission line ROW on the west side of SR79 in the northern half and east of SR79, along the toe of the hill slope in the southern portion of the alternative. This route would pass east of the existing Santa Ysabel Substation and continue to follow the existing 69 kV line south of SR78 until it rejoins the proposed corridor.

#### Environmental Setting

This route would pass through the middle of the San Felipe Fireshed (refer to the discussion in Section D.15.2.5). This rural fireshed primarily contains private ranch land (61%) within the Santa Ysabel and San Felipe Valleys. The Mesa Grande and Santa Ysabel Reservations also cover a large portion of the fireshed (28%). The vegetation consists of oak woodlands in the valleys with dense chaparral and scrub on the slopes. This area burned in the 2007 Witch fire.

#### Environmental Impacts and Mitigation Measures

**Burn Probability Model Results.** High fire probability areas within the half-mile-wide border zone of the Santa Ysabel Existing ROW Alternative were identified using the FlamMap Burn Probability Model. See Section D.15.1.2, Approach to Data Collection – Fire Behavior Models, for a description of the modeling analysis. The model output indicates that only 1% has a moderate burn probability and 99% has a low burn probability. Figure D.15-39 shows the burn probabilities of areas in the Santa Ysabel Existing ROW Alternative corridor.

**Fire Behavior Trend Model Results.** Fire Behavior Trend Models were used to assess the potentially damaging impacts to communities due to ignitions in the border zone. The resulting data were analyzed for the Santa Ysabel Existing ROW Alternative route and compared under normal and extreme fire weather conditions. See Section D.15.1.2, Approach to Data Collection – Fire Behavior Modeling, for modeling parameters. The model results indicate that, during normal weather conditions, ignitions started within the corridor would burn toward the northeast within sections of the 0.5-mile wide border zone putting zero homes and as many as 1,352 acres at risk during two burn periods. A wildfire started where the corridor parallels SR79 and SR78 would obstruct these transportation routes. Figure D.15-40 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Santa Ysabel Existing ROW Alternative through the San Felipe Fireshed.

Extreme fire weather conditions would cause ignitions started within the corridor to burn extensive areas to the southwest including the town of Santa Ysabel and surrounding private and public lands. SR78 and SR79 would potentially be obstructed by a wildfire in the area. Six cell towers would possibly be threatened by a wildfire, reducing means of communication. The potential burn area from a wildfire started along the Santa Ysabel Existing ROW Alternative would be 11 times greater during extreme Santa Ana weather conditions compared to normal conditions, putting as many as eight households and 15,042 acres at risk during two burn periods.

**Wildfire Containment Conflict Model Results.** Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of this alternative 64% would present a very high conflict and the remaining 36% a high conflict (Figure D.15.41). Two significant conflict areas are identified by the model, located at MP SYR-2.5 to MP SYR-4.5 and MP SYR-6 to MP SYR-8.8.

## Construction Impacts

### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with the Santa Ysabel Existing ROW Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the corridor have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The San Felipe Fireshed would include 8.9 miles of overhead 230 kV transmission corridor for this alternative. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions. Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Burn Probability Model for this alternative through the San Felipe Fireshed (Figure D.15-39) indicates that along the length of this alternative, a total of 1% of the border zone area has a moderate probability of wildfire recurrence. The Fire Behavior Trend Model (Figure D.15-40) indicates that a random fire ignition within the corridor under normal weather conditions would during normal weather conditions would burn toward the northeast within the border zone putting zero homes and as many as 1,352 acres at risk during two burn periods. The potential area burned would be 11 times greater during extreme fire weather conditions as compared to normal weather conditions, putting as many as eight homes and 15,042 acres at risk.

The Santa Ysabel Existing ROW Alternative would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources during extreme weather conditions. Although the San Felipe Fireshed is a rural fireshed with only a moderate wildfire history, heavy fuels are present, and the fireshed

Figure D.15-39. Santa Ysabel Existing ROW Alternative Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-40. Santa Ysabel Existing ROW Alternative Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-41. Santa Ysabel Existing ROW Alternative Wildfire Containment Conflict Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

experiences periodic severe fire weather. The risk of a project construction- or maintenance-related ignition in this fireshed is therefore high, and the potential for an ignition to result in a catastrophic fire is significant. This risk can be reduced to a level that is less than significant through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, and F-1d, Remove hazards from the work area.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 15,042 acres to approximately 1,352 acres) and the number of homes at risk (from more than 8 to zero) in this fireshed. This measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire to a less than significant level.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition. The full text of all mitigation measures can be found in Appendix 12.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

- F-1a**      **Develop and implement a Construction Fire Prevention Plan.**
- F-1b**      **Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
- F-1c**      **Ensure coordination for emergency fire suppression.**
- F-1d**      **Remove hazards from the work area.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class II)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The San Felipe Fireshed is a high-risk based on its wildfire history and fuels present; however, due to the rural nature of the fireshed, there is a small number of homes at risk (see Fireshed Summary and Model Results, above). Any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 8 or more households and 15,042 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line in the immediate vicinity of the Santa Ysabel Existing ROW Alternative route for approximately four miles from MP SYR-0 to MP SYR-4. In Santa Ana wind conditions and in areas with wildland fuels, the alternative would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the alternative. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the alternative route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class II). Because the number of at-risk homes is small, the risk of ignitions and the risk of damage from a project-related ignition can be reduced to a level that is less than significant through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

- F-2a        Establish and maintain adequate line clearances.**
- F-2b        Install existing conductors on steel poles.**
- F-1e        Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)*

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model for this alternative (Figure D.15-41) identifies two specific areas where the Proposed Project would restrict wildfire containment to a very high degree. The conflict area is located at MP SYR-2.5 to MP SYR-4.5 and MP SYR-6 to MP SYR-8.8 in high fire-risk areas with heavy fuels and historical fire containment boundaries. The nearby access roads and moderate

topography indicate that the conflict exists in a defensible landscape where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in this area would be obstructed by the presence of the overhead transmission line and the proximity of parallel existing lines. Firefighting suppression tactics, maneuverability and approach distances are greatly restricted by the indefensible island created between collocated and parallel transmission lines. This indefensible landscape is a swath of land where firefighting is tactically very difficult or simply too dangerous (due to a combination of minimum approach distances and rates of wildfire spread that can reach up to 300 feet per minute).

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the Santa Ysabel Existing ROW Alternative is considered a significant impact (Class I). This impact can be partially mitigated by creating fuelbreaks in the very high conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuelbreaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant.

*Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting*

**F-3a Construct and maintain fuelbreaks.**

**F-3b Prepare and implement a Multi-agency Fire Prevention MOU.**

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.18.2 Santa Ysabel Partial Underground Alternative

This 230 kV alternative would begin at MP 105.5 where the proposed route would join Mesa Grande Road at the base of the hills at the western side of the Santa Ysabel Valley. The alternative would transition underground at the southern side of Mesa Grande Road and would travel underground in Mesa Grande Road, SR79 and then, south of SR78, following property lines for approximately one mile to rejoin the proposed route at approximately MP 109.5 where it would transition overhead. The route would be 0.7 miles longer than the proposed route.

#### Environmental Setting

This primarily underground, 5-mile alternative route would run through the middle of the San Felipe Fireshed (refer to the discussion in Section D.15.2.5). This alternative would traverse overhead only for 900 feet. This rural fireshed primarily contains private ranch land (61%) within the Santa Ysabel and San Felipe Valleys. The Mesa Grande and Santa Ysabel Reservations also cover a large portion of the fireshed (28%). The vegetation consists of oak woodlands in the valleys with dense chaparral and scrub on the slopes. This area burned in the 2007 Witch fire.

#### Environmental Impacts and Mitigation Measures

**Burn Probability Model Results.** High fire probability areas within the Santa Ysabel Partial Underground Alternative border zone were identified using the FlamMap Burn Probability Model. See D.15.1.2, Approach to Data Collection –Fire Behavior Models, for a description of the modeling analysis. The model output indicates that the border zone area contains less than 1% moderate burn probability (near MP SYPU-4) and 99% low burn probability (refer to Figure D.15-39).

The Santa Ysabel Partial Underground Alternative was not further analyzed using wildfire behavior models due to the low level of ongoing wildfire impacts from a primarily underground transmission line.

## Construction Impacts

### ***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction activities associated with the Santa Ysabel Partial Underground Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. The San Felipe Fireshed would include approximately 5 miles of underground and 900 feet of overhead transmission line for this alternative. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions. Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Burn Probability Model for this alternative through the San Felipe Fireshed (refer to Figure D.15-39) indicates that along the length of this alternative, a total of 1% of the border zone area has a moderate probability of wildfire recurrence. Although the burn probability is low for this corridor, if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

### ***Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire***

**F-1a      Develop and implement a Construction Fire Prevention Plan.**

## Operational Impacts

### ***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The presence of the short segment of overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the transmission line. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. When combined with the Proposed Project to the south, this alternative would not significantly contribute to additional ignitions above those of the overhead transmission line to which this alternative would connect. Impacts would therefore be adverse but less than significant (Class III) for this very short segment of overhead transmission line. No mitigation is required.

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The 900 feet of overhead transmission line associated with the Santa Ysabel Partial Underground Alternative route would not by itself create a linear obstacle to fire suppression. The overhead segment would therefore have an adverse but less than significant impact on firefighting (Class III) due to its short length. No mitigation is required.

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

***Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread***

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.18.3 Santa Ysabel All Underground Alternative

This alternative would diverge from the Proposed Project at MP 100, just south of the crossing of SR78. It would start as an overhead 230 kV line, which would then transition to an underground route on private property, west of SR79. It would be underground along existing dirt roads and within hay fields and SR79 through the Santa Ysabel Valley, rejoining the proposed route south of SR78.

#### Environmental Setting

This 5.2-mile completely underground route passes through the middle of the San Felipe Fireshed (refer to the discussion in Section D.15.2.5). This rural fireshed primarily contains private ranch land (61%) within the Santa Ysabel and San Felipe Valleys. The Mesa Grande and Santa Ysabel Reservations also cover a large portion of the fireshed (28%). The vegetation consists of oak woodlands in the valleys with dense chaparral and scrub on the slopes. This area burned in the 2007 Witch fire.

#### Environmental Impacts and Mitigation Measures

**Burn Probability Model Results.** High fire probability areas within the half-mile-wide border zone of the Santa Ysabel All Underground Alternative were identified using the FlamMap Burn Probability Model. See D.15.4.3, Approach to Data Collection and Analysis, for a description of the modeling analysis. The model output indicates that the border zone area contains less than 1% high burn probability areas (MP SYAU-3), 7% moderate burn probability areas (MP SYAU-0.5, SYAU-3, SYAU-4) and 93% low burn probability areas (refer to Figure D.15-39). The moderate to high burn probability areas occur where there is dense vegetation adjacent to SR79. Overall, this alternative route has a low probability of burning during a wildfire event and a low likelihood of fire recurrence.

The Santa Ysabel All Underground Alternative was not further analyzed using wildfire behavior models due to the low level of ongoing wildfire impacts from a primarily underground transmission line.

#### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction activities associated with the Santa Ysabel Partial Underground Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. The San Felipe Fireshed would include approximately 5 miles of underground and 900 feet of overhead transmission line for this alternative. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions. Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Burn Probability Model for this alternative through the San Felipe Fireshed (refer to Figure D.15-39) indicates that along the length of this alternative, a total of 8% of the border zone area has a moderate to high probability of wildfire recurrence. Although the burn probability is low for this corridor, if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

**F-1a      Develop and implement a Construction Fire Prevention Plan.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)*

The presence of the short segment of overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the transmission line. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. When combined with the Proposed Project to the south, this alternative would not significantly contribute to additional ignitions above those of the overhead transmission line to which this alternative would connect. Impacts would therefore be adverse but less than significant (Class III) for this very short segment of overhead transmission line. No mitigation is required.

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)*

The 1,500 feet of overhead line associated with the Santa Ysabel All Underground Alternative would not by itself create a linear obstacle to fire suppression. The overhead segment would therefore have an adverse but less than significant impact on firefighting (Class III) due to its short length. No mitigation is required.

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry

vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

#### D.15.18.4 SDG&E Mesa Grande Alternative

This alternative to a one-mile portion of the proposed overhead 230 kV route was proposed by the landowner and also by SDG&E in order to reduce the visibility of the overhead line west of Mesa Grande Road. It would diverge from the proposed route at MP 102.2, and rejoin it before MP 104.

##### Environmental Setting

This alternative would be 1.8 miles overhead, and would pass through a small section of the San Felipe Fireshed (refer to the discussion in Section D.15.2.5). This rural fireshed primarily contains private ranch land (61%) within the Santa Ysabel and San Felipe Valleys. The Mesa Grande and Santa Ysabel Reservations also cover a large portion of the fireshed (28%). The vegetation consists of oak woodlands in the valleys with dense chaparral and scrub on the slopes. This area burned in the 2007 Witch fire.

##### Environmental Impacts and Mitigation Measures

A Wildfire Containment Conflict Model was not carried out for this alternative due to its short length.

**Burn Probability Model Results.** High fire probability areas in the SDG&E Mesa Grande Alternative corridor were identified using the FlamMap Burn Probability Model carried out for the Proposed Project (refer to Figure D.15-21). See Section D.15.4.3, Approach to Data Collection and Analysis, for a description of the modeling analysis. The model output indicates that the burn probability along this alternative route is primarily low with patches of moderate burn probability areas.

**Fire Behavior Trend Model Results.** Fire Behavior Trend Models were used to assess the potentially damaging impacts to communities due to ignitions in the border zone. The resulting data were analyzed for the SDG&E Mesa Grande Alternative route and compared under normal and extreme fire weather

conditions. See Section D.15.1.2, Approach to Data Collection – Fire Behavior Modeling, for modeling parameters. The model results indicate that, during normal weather conditions, ignitions started within the corridor would burn toward the northeast within sections of the 0.5-mile wide border zone putting zero homes and as many as 409 acres at risk during two burn periods. A wildfire started where the corridor parallels SR79 and SR78 would obstruct these transportation routes. Figure D.15-42 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for this alternative.

Extreme fire weather conditions would cause ignitions started within the corridor to burn extensive areas to the southwest including the surrounding private ranch lands and sections of Mesa Grande Road. The potential burn area from a wildfire started along the SDG&E Mesa Grande Alternative would be eight times greater during extreme Santa Ana weather conditions compared to normal conditions compared to normal conditions, putting as many as four households and 3,295 acres at risk during two burn periods.

### Construction Impacts

#### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with the SDG&E Mesa Grande Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. The San Felipe Fireshed would include approximately 5 miles of underground and 900 feet of overhead transmission line for this alternative. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions. Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Burn Probability Model for this alternative through the San Felipe Fireshed (refer to Figure D.15-39) indicates that along the length of this alternative, a total of 1% of the border zone area has a moderate probability of wildfire recurrence. Although the burn probability is low for this corridor, if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

#### *Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

##### **F-1a      Develop and implement a Construction Fire Prevention Plan.**

Figure D.15-42. Mesa Grande Alternative Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

## Operational Impacts

### ***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)***

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the transmission line. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Santa Ysabel Fireshed is a high-risk fireshed based on its wildfire history and fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting four or more households and 3,295 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

### ***Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire***

**F-2a      Establish and maintain adequate line clearances.**

**F-1e      Contribute to defensible space grants fund.**

### ***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The 1.8 miles of overhead transmission line associated with the SDG&E Mesa Grande Alternative route would not by itself create a significant linear obstacle to fire suppression, defined as 1.5 contiguous miles of very high conflict criteria. The overhead segment would therefore have an adverse but less than significant impact on firefighting (Class III) due to its short length. No mitigation is required.

### ***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of

trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.19 Inland Valley Link Alternatives

Four alternatives are considered within the Inland Valley Link: the CNF Existing 69 kV Route Alternative, the Oak Hollow Road Underground Alternative, the San Vicente Road Transition Station Alternative, and the Chuck Wagon Road Alternative.

### D.15.19.1 CNF Existing 69 kV Route Alternative

This 0.5-mile alternative segment would start at MP 111.3 where the proposed 230 kV and existing 69 kV transmission lines would be routed west for 0.5 miles and then south for approximately 0.5 miles to avoid Cleveland National Forest (CNF). The alternative would remain in the existing 69 kV ROW heading southwest through Cleveland National Forest to rejoin the proposed route at MP 111.8. This alternative would be 0.5 miles shorter than the Proposed Project and the existing 69 kV transmission line would not need to be relocated out of the existing ROW.

## Environmental Setting

This route is located within the Santa Ysabel Fireshed (refer to the discussion in Section D.15.2.6). This fireshed contains a large portion of private lands (57%) interspersed within public wildlands (BLM and CNF; 41%). This expanding WUI places a greater amount of assets at risk when a wildfire occurs. The high fire risk of the area was substantiated during the 2007 Witch and 2003 Cedar Fires burned through 86% and 64% of the fireshed area, respectively. Due to repetitive wildfire events, much of the vegetation consists of degraded, non-native grasslands in the valleys with dense chaparral and scrub on the slopes.

## Environmental Impacts and Mitigation Measures

The CNF Existing 69 kV Route Alternative was not modeled separately for wildfire behavior due to the proximity to the Proposed Project route which includes this area in the models (MPs 111.5-112.5). Refer to the Proposed Project model results for the Santa Ysabel Fireshed in Section D.15.8.

## Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

The construction impacts associated with the changes this short segment of transmission line would have on the Proposed Project would not increase the probability of igniting a catastrophic wildfire over the risk that would exist for the Proposed Project. Construction activities associated with this alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. This is a high-risk fireshed based on wildfire history, and if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather. The full text of all mitigation measures can be found in Appendix 12.

***Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire***

**F-1a      Develop and implement a Construction Fire Prevention Plan.**

## Operational Impacts

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)***

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Santa Ysabel Fireshed is a high-risk fireshed based on its wildfire history (see Section D.15.8, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting households and natural resources at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line in the immediate vicinity of this alternative for the entire length of the alternative. In Santa Ana wind conditions and in areas with wildland fuels, the alternative 230 kV line would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the alternative. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the alternative route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

**F-2a        Establish and maintain adequate line clearances.**

**F-2b        Install existing conductors on steel poles.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)*

The 1.3 miles of overhead transmission line associated with the SDG&E Mesa Grande Alternative route would not by itself create a significant linear obstacle to fire suppression, defined as 1.5 contiguous miles of very high conflict criteria. The overhead segment would therefore have an adverse but less than significant impact on firefighting (Class III) due to its short length. No mitigation is required.

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread

(Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.19.2 Oak Hollow Road Underground Alternative

The purpose of this alternative would be to extend the proposed underground to the east of Mount Gower County Open Space Preserve so the line would be underground through the valley area. The alternative would require 0.6 miles of additional underground 230 kV transmission line, and the existing 69 kV would remain overhead.

#### Environmental Setting

This alternative would be located within the Santa Ysabel Fireshed (refer to the discussion in Section D.15.2.6). This fireshed contains a large portion of private lands (57%) interspersed within public wildlands (BLM and CNF, 41%). This expanding WUI creates an elevated fire risk due to increased human caused ignitions in the surrounding wildlands and places a greater amount of assets at risk when a wildfire occurs. The high fire risk of the area was substantiated during the 2007 Witch and 2003 Cedar Fires which burned through 86% and 64% of the fireshed area, respectively. Due to repetitive wildfire events, much of the vegetation consists of degraded, non-native grasslands in the valleys with dense chaparral and scrub on the slopes.

#### Environmental Impacts and Mitigation Measures

The Oak Hollow Road Underground Alternative route was not assessed according to wildfire behavior models due to its short length and the low fire risk of an entirely underground route.

## Construction Impacts

### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with the Oak Hollow Road Underground Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

The Santa Ysabel Fireshed is a high-risk fireshed based on wildfire history, and if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

### *Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

#### **F-1a Develop and implement a Construction Fire Prevention Plan.**

## Operational Impacts

### *Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (No Impact)*

The Oak Hollow Road Underground Alternative route would be a potential source of wildfire ignitions only during the construction phase of the project. The long-term operation of this underground route has a negligible impact on the overall fire risk in this area due to a negligible increase in facilities maintenance activity for an entirely underground alternative (No Impact).

### *Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (No Impact)*

The Oak Hollow Road Underground Alternative route would have no impact on fire suppression activities due to a lack of an overhead component, and therefore no introduction of an overhead obstacle to fire-fighting (No Impact).

### *Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass,

medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.19.3 San Vicente Transition Alternative

The alternative would move the transition structure from its proposed location along San Vicente Road (MP 121.9) approximately 0.3 miles west to MP 122.2. The underground line would follow San Vicente Road within a 60-foot ROW for an additional 2,100 feet and would cross under an existing Creelman–Los Coches 69 kV transmission line, before it would turn north and would travel through open space for approximately 200 feet to the overhead transition point.

#### Environmental Setting

This alternative would be located within the Ramona Fireshed (refer to the discussion in Section D.15.2.7). A total of 98% of the Ramona Fireshed burned in the 2003 Cedar Fire. This area is considered a very high risk fire corridor due the topography and Santa Ana wind exposure. The Cedar Fire significantly reduced the fuel load in the area but the chaparral regenerates quickly if undisturbed. This fireshed contains a large portion of private lands (53%) interspersed within federal, state, county and city public wildlands. This extensive WUI in this fireshed places a greater amount of assets at risk when a wildfire occurs, as experienced during the Cedar Fire.

## Environmental Impacts and Mitigation Measures

The San Vicente Road Transition Alternative was not analyzed using wildfire behavior models due to the low level of potential wildfire impacts from this short-distance overhead and primarily underground alternative.

### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

The construction impacts associated with the changes this short segment of transmission line would have on the Proposed Project would not increase the probability of igniting a catastrophic wildfire over the risk that would exist for the Proposed Project. Construction activities associated with this alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. This is a high-risk fireshed based on wildfire history, and if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

***Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire***

**F-1a      Develop and implement a Construction Fire Prevention Plan.**

### Operational Impacts

***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class III)***

The presence of the short segment of overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the transmission line. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. When combined with the Proposed Project to the south, this alternative would not significantly contribute to additional ignitions above those of the overhead transmission line to which this alternative would connect. Impacts would therefore be adverse but less than significant (Class III) for this very short segment of overhead transmission line. No mitigation is required.

***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

Due to the short length of overhead line, the San Vicente Road Transition Alternative route would have a less than significant impact on wildfire containment (Class III).

***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

***Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread***

**B-3a Prepare and implement a Weed Control Plan.**

#### D.15.19.4 Chuck Wagon Road Alternative

This alternative would diverge from the proposed route in San Vicente Boulevard, turning south in Chuck Wagon Road approximately 0.2 miles east of the proposed transition point at MP 121.7. It would continue south for approximately 1.6 miles before passing under the existing Creelman–Los Coches 69 kV transmission line ROW. At this point, the route would transition to overhead and turn west for approximately 1.2 miles to rejoin the proposed route at MP 125.6.

#### Environmental Setting

The underground portion of the route crosses through residential areas that do not contain extensive fire fuels and therefore was not analyzed in this wildfire impacts analysis. This route is located within the Ramona Fireshed (refer to the discussion in Section D.15.2.7). A total of 98% of the Ramona Fireshed

burned in the 2003 Cedar Fire. This area is considered a very high-risk fire corridor due to its topography and Santa Ana wind exposure. The Cedar Fire significantly reduced the fuel load in the area, but chaparral regenerates quickly if undisturbed. This fireshed contains a large portion of private lands (53%) interspersed within federal, state, county and city public wildlands. The extensive WUI places a high number of assets at risk when a wildfire occurs, as experienced during the Cedar Fire.

### Environmental Impacts and Mitigation Measures

**Burn Probability Model Results.** High fire probability areas within the half-mile-wide border zone of the Poway Fireshed were identified using the FlamMap Burn Probability Model. See Section D.15.1.2, Approach to Data Collection – Fire Behavior Models, for a description of the modeling analysis. The model output indicates that a total of 26% of the border zone area along the overhead portion of the route is rated as having a moderate to high burn probability (Figure D.15-43). This section of the route is a little over a mile long, with a total of 144 acres within the border zone that have a moderate to high burn probability. The moderate and high burn probability areas occur where the underground section transitions above ground before MP 2 and also at MP 2.5.

**Fire Behavior Trend Model Results.** During normal weather conditions, ignitions started within the overhead Chuck Wagon Alternative corridor would burn to the northeast within the 0.5-mile wide border zone putting zero homes and as many as 492 acres at risk during two burn periods. Figure D.15-44 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Chuck Wagon Road Alternative through the Ramona Fireshed.

Extreme fire weather conditions would cause ignitions started within the overhead portion of the corridor to burn extensive areas to the southwest including the town of Fernbrook and Irvings Crest. Four cell phone towers would potentially be impacted by a wildfire within this area, reducing means of communication. The potential burn area from a wildfire started along the overhead Chuck Wagon Road Alternative would be 14 times greater during extreme Santa Ana weather conditions compared to normal weather conditions, putting as many as 40 homes and 6,883 acres at risk during two burn periods.

**Wildfire Containment Conflict Model Results.** Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Chuck Wagon Road Alternative through the Ramona Fireshed 24% present a high conflict, 37% a moderate conflict, and 39% a low conflict (Figure D.15.45). No significant conflict area is identified by the model.

Figure D.15-43. Chuck Wagon Road Alternative Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-44. Chuck Wagon Road Alternative Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-45. Chuck Wagon Road Alternative Wildfire Containment Conflict Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

## Construction Impacts

### *Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with this alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. This is a moderate-risk fire based on burn probability and wildfire history. However, if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel, putting as many as 40 homes at risk during two burn periods. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather and reduce the number of homes at risk to zero.

### *Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

#### **F-1a Develop and implement a Construction Fire Prevention Plan.**

## Operational Impacts

### *Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Ramona Fireshed is a high-risk fireshed based on its wildfire history, fuels present, and assets at risk (see Section D.15.9), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 40 or more households and 6,883 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

**F-2a Establish and maintain adequate line clearances.**

**F-1e Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)*

The 1.8 miles of overhead transmission line associated with the Chuck Wagon Road Alternative route would not by itself create a significant linear obstacle to fire suppression, defined as 1.5 contiguous miles of very high conflict criteria. The overhead segment would therefore have an adverse but less than significant impact on firefighting (Class III) due to its short length. No mitigation is required.

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.20 Coastal Link Alternatives

Four alternatives are considered within the Coastal Link: the Pomerado Road to Miramar Area North Alternative, the Los Peñasquitos Canyon Preserve and Mercy Road Alternative, the Black Mountain to Park Village Road Underground Alternative, and the Coastal Link System Upgrade Alternative.

### D.15.20.1 Pomerado Road to Miramar Area North Alternative

This alternative would be underground with the exception of the east and west ends where the line is overhead within existing SDG&E transmission ROWs. This alternative would exit the Sycamore Substation at MCAS Miramar overhead westerly within an existing ROW toward Pomerado Road. The line would transition to underground beneath Pomerado Road in the vicinity of Legacy Road, then continuing underground in Miramar Road, Kearny Villa Road, Black Mountain Road, Activity Road, Camino Ruiz, Miralani Drive, Arjons Drive, Trade Place, Camino Santa Fe, Carroll Road/Carroll Canyon Road and Scranton Road. At the western end, the line would transition to overhead and would be located within the existing 230 kV ROW heading northward into the Peñasquitos Substation.

#### Environmental Setting

The Pomerado Road Alternative falls within the Peñasquitos Fireshed. Refer to Section D.15.2.9 and Figure D.15-15 for a detailed description and map of the Peñasquitos Fireshed assessment area. This urban area is densely populated with few remaining wildlands contained in MCAS Miramar and Los Peñasquitos Canyon Preserve. The humid, coastal influence present within this fireshed enables the growth of dense chaparral and coastal sage scrub. The wildfire history within this fireshed is minimal due to the limited amount of wildlands, the extent of urban development and the humid coastal weather, making this a low fire risk area.

#### Environmental Impacts and Mitigation Measures

**Burn Probability Model Results.** High fire probability areas within the half-mile-wide Pomerado Road Alternative border zone were identified using the FlamMap Burn Probability Model. See Section D.15.4.3, Approach to Data Collection and Analysis, for a description of the modeling analysis. The model output indicates that the alternative route border zone area contains 1% very high burn probability areas, 2% high burn probability areas, 4% moderate burn probability areas, and 93% low burn probability areas (refer to Figure D.15-46). The moderate to very high burn probability areas occur primarily where the corridor crosses steep, vegetated slopes within Los Peñasquitos Canyon Preserve.

The underground portion of the Pomerado Road Alternative was not further analyzed using wildfire behavior models due to the low level of potential wildfire-related impacts from this underground transmission line that runs through primarily urban developments in the greater San Diego area.

**Fire Behavior Trend Model Results.** During normal weather conditions, ignitions started within the Pomerado Road Alternative overhead corridor would burn to the northeast within the border zone that crosses Los Peñasquitos Canyon Preserve. An ignition started within the Preserve would impact the surrounding urban community of Sorrento Valley, putting zero homes and as many as 230 acres at risk during two burn periods. Figure D.15-47 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Pomerado Road Alternative through the Peñasquitos Fireshed.

Extreme fire weather conditions would cause ignitions started within the overhead portion of the corridor to burn towards the southwest, bounded by the I-5 and I-805, which create a concrete fuel break that the fire would not easily jump. A wildfire spreading through this section of Los Peñasquitos Canyon Preserve would impact the surrounding urban areas and potentially shut down the two major interstates. The potential burn area from a wildfire started along the overhead segment of the Pomerado Road Alternative would be almost two times greater during extreme Santa Ana weather conditions compared to normal weather conditions, putting 42 homes and 376 acres at risk in two burn periods.

**Wildfire Containment Conflict Model Results.** Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Pomerado Road to Miramar Area North Alternative through the Peñasquitos Fireshed 7% present a very high conflict, 18% a high conflict, and 75% no conflict due to being underground (Figure D.15-48). No significant conflict area is identified by the model due to the indefensible nature of this landscape.

### Construction Impacts

***Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)***

Construction activities associated with the Pomerado Road to Miramar Area North Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Although the burn probability is low in this fireshed, if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather, reducing the number of homes at risk from 42 to zero. The full text of all mitigation measures can be found in Appendix 12.

***Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire***

**F-1a      Develop and implement a Construction Fire Prevention Plan.**

Figure D.15-46. Pomerado Road to Miramar Area North Alternative Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-47. Pomerado Road to Miramar Area North Alternative Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-48. Pomerado Road to Miramar Area North Alternative Wildfire Containment  
Conflict Model

[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

## Operational Impacts

### *Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)*

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Peñasquitos Fireshed is a moderate-risk fireshed based on its wildfire history and fuels present, however numerous assets are at risk (see Peñasquitos Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 42 or more households and 376 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Wood poles currently support the existing 69 kV transmission line and distribution circuits in the immediate vicinity of the alternative for 0.2 miles from MP PM-10.6 to MP PM-10.8. In Santa Ana wind conditions and in areas with wildland fuels, the alternative would create a hazard in combination with these wood poles because high winds could cause the poles to come into contact with the nearby conductors of the alternative. Wood poles have less structural integrity than steel poles, and a pole failure during an extreme Santa Ana wind event could come into contact with the adjacent conductor and start a wildfire with damaging impacts to communities, firefighters, and natural resources. The increased ignition risk associated with the presence of wood poles within 100 feet of the alternative route is considered a significant impact.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances, elimination of nearby wood poles, and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the presence of wood poles within 100 feet of the Proposed Project route is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the adjacent 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

*Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire*

**F-2a Establish and maintain adequate line clearances.**

**F-2b Install existing conductors on steel poles.**

**F-1e Contribute to defensible space grants fund.**

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)*

The 2.1 miles of overhead transmission line associated with the Pomerado Road to Miramar Area North Alternative route would not create a significant linear obstacle to fire suppression, defined as 1.5 contiguous miles of very high conflict criteria, due to the indefensible nature of the landscape through which it would pass. The overhead segment would therefore have an adverse but less than significant impact on firefighting (Class III). No mitigation is required.

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.20.2 Los Peñasquitos Canyon Preserve–Mercy Road Alternative

This alternative route would bypass the Chicarita Substation and connect to existing ROW along Scripps Poway Parkway in the vicinity of Ivy Hill Drive. The line would then transition to underground and follow Scripps Poway Parkway/Mercy Road, Mercy Road, Black Mountain Road, and finally Park Village Drive, where the alternative route would rejoin the proposed route.

#### Environmental Setting

The Los Peñasquitos Canyon Preserve–Mercy Road Alternative route travels underground through urban developments for 1.3 miles and about 0.5 miles of Los Peñasquitos Canyon Preserve. The Los Peñasquitos Canyon Preserve–Mercy Road Alternative is contained within the Peñasquitos Fireshed. Refer to Section D.15.2.9 and Figure D.15-13 for a detailed description and map of the Peñasquitos Fireshed assessment area. This urban area is densely populated with relatively few remaining wildlands which are contained in MCAS Miramar and Los Peñasquitos Canyon Preserve. The humid, coastal influence present within this fireshed enables the growth of dense chaparral and coastal sage scrub. The wildfire history within this fireshed is minimal due to the limited amount of wildlands, the extent of urban development and the humid coastal weather, making this a low fire risk area.

**Burn Probability Model.** High fire probability areas within the half-mile-wide Pomerado Road Alternative border zone were identified using the FlamMap Burn Probability Model. See Section D.15.4.3, Approach to Data Collection and Analysis, for a description of the modeling analysis. The model output indicates that the alternative route border zone area contains 1% very high burn probability areas, 2% high burn probability areas, 4% moderate burn probability areas, and 93% low burn probability areas (refer to Figure D.15-49). The moderate to very high burn probability areas occur primarily where the corridor crosses steep, vegetated slopes.

The underground portion of this alternative was not further analyzed using wildfire behavior models due to the low level of potential wildfire-related impacts from this underground transmission line.

#### Environmental Impacts and Mitigation Measures

##### Construction Impacts

*Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with the Los Peñasquitos Canyon Preserve–Mercy Road Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

The Peñasquitos Fireshed is a high-risk fireshed based on the number of homes at risk, even though the fireshed supports only patchy vegetation. If construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

**F-1a      Develop and implement a Construction Fire Prevention Plan.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (No Impact)*

The Los Peñasquitos Canyon Preserve–Mercy Road Alternative route would be a potential source of wildfire ignitions only during the construction phase of the project. The long-term operation and maintenance of this underground route has a negligible impact on the overall fire risk due to a negligible increase in facilities maintenance activity for an entirely underground alternative (No Impact).

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (No Impact)*

The entirely underground Los Peñasquitos Canyon Preserve–Mercy Road Alternative route would no impact on firefighter safety and suppression tactics during a wildfire event (No Impact).

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

Figure D.15-49. Los Peñasquitos Canyon Preserve–Mercy Road Alternative Burn Probability Model

[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

### D.15.20.3 Black Mountain to Park Village Road Underground Alternative

This alternative would deviate from the Proposed Project alignment where the route approaches Black Mountain Road. Under this alternative, the line would remain underground but would be located underneath Black Mountain Road and would turn west onto Park Village Drive, following the project alignment into the Peñasquitos Substation via the Los Peñasquitos Canyon Preserve.

#### Environmental Setting

The Black Mountain to Park Village Road Underground Alternative route travels through urban developments for 1 mile. This alternative route falls within the Peñasquitos Fireshed. Refer to Section D.15.2.9 and Figure D.15-13 for a detailed description and map of the Peñasquitos Fireshed assessment area. This urban area is densely populated with relatively few remaining wildlands which are contained in MCAS Miramar and Los Peñasquitos Canyon Preserve. The humid, coastal influence present within this fireshed enables the growth of dense chaparral and coastal sage scrub. The wildfire history within this fireshed is minimal due to the limited amount of wildlands, the extent of urban development and the humid coastal weather, making this a low fire risk area.

#### Environmental Impacts and Mitigation Measures

##### Construction Impacts

*Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with the Black Mountain to Park Village Road Underground Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

The Peñasquitos Fireshed is a high-risk fireshed based on the number of homes at risk, even though the fireshed supports only patchy vegetation. If construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

**F-1a      Develop and implement a Construction Fire Prevention Plan.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (No Impact)*

The Black Mountain to Park Village Road Underground Alternative route would be a potential source of wildfire ignitions only during the construction phase of the project. The long-term operation of this underground route would have a negligible impact on the overall fire risk in this area due to a negligible increase in facilities maintenance activity for an entirely underground alternative (No Impact).

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (No Impact)*

The Black Mountain to Park Village Road Underground Alternative route would have no impact on fire-fighter safety and suppression tactics during a wildfire event (No Impact).

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The

Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

#### D.15.20.4 Coastal Link System Upgrade Alternative

The Coastal Link System Upgrade Alternative would be a system modification to install a third 230/69 kV transformer at the existing Sycamore Canyon Substation. Expansion of the Sycamore Canyon Substation would occur within the existing substation easement. Additionally, SDG&E would either (a) install a new 230/138 kV transformer at the existing Encina Substation or (b) upgrade (reconductor) the existing Sycamore Canyon–Chicarita 138 kV circuit using 34 existing wood frame structures.

##### Environmental Setting

The potential reconductoring for the Coastal Link System Upgrade Alternative would occur in the Peñasquitos Fireshed. Refer to Section D.15.2.9 and Figure D.15-13 for a detailed description and map of the Peñasquitos Fireshed assessment area. This urban area is densely populated with relatively few remaining wildlands which are contained in MCAS Miramar and Los Peñasquitos Canyon Preserve. The humid, coastal influence present within this fireshed enables the growth of dense chaparral and coastal sage scrub. The wildfire history within this fireshed is minimal due to the limited amount of wildlands, the extent of urban development and the humid coastal weather, making this a low fire risk area based on fuels present, but a high risk fireshed based on the number of homes at risk during extreme weather conditions.

##### Environmental Impacts and Mitigation Measures

##### Construction Impacts

*Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with the Coastal Link System Upgrade Alternative would include the use of heavy equipment for the installation of conductors should the reconductoring be determined to be necessary. Maintenance activities would not increase over baseline conditions.

The Peñasquitos Fireshed is a high-risk fireshed based on the number of homes at risk, even though the fireshed supports only patchy vegetation. If construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

**F-1a Develop and implement a Construction Fire Prevention Plan.**

Operational Impacts

*Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (No Impact)*

Because the potential reconductoring would replace an already-existing transmission line, the presence of the line would not increase the probability of a wildfire over baseline conditions (No Impact).

*Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (No Impact)*

Because the potential reconductoring would replace an already-existing transmission line, the presence of the line would not create an obstacle to firefighting over baseline conditions (No Impact).

*Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)*

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.21 Top of the World Substation Alternative

The substation site would be located approximately one mile west of the proposed Central East Substation on Vista Irrigation District land. The transmission line routes into the substation would follow the Proposed Project route to approximately MP 92.7, then the alternative 500 kV route would turn west for 1.1 miles to enter the alternative site. Exiting the substation the line would travel southwest for 400 feet and then west and north-northwest to rejoin the Proposed Project around MP 95.

### Environmental Setting

The Top of the World Substation Alternative would start at Proposed Project MP 92.7 in the town of San Felipe. The route runs overhead for 6.1 miles south and west connecting to the proposed Top of the World Substation where the 500 kV lines are transferred to 230 kV lines then connects back to the Proposed Project route at MP 95. This route is entirely overhead for a total of 6.1 miles and is located in the San Felipe Fireshed (refer to the discussion in Section D.15.2.5). This rural fireshed primarily contains private ranch land (61%) within the Santa Ysabel and San Felipe Valleys. The Mesa Grande and Santa Ysabel Reservations also cover a large portion of the fireshed (28%). The vegetation consists of oak woodlands in the valleys with dense chaparral and scrub on the slopes. The 2007 Witch Fire burned through this area.

### Environmental Impacts and Mitigation Measures

**Burn Probability Model Results.** High probability areas along the transmission corridor indicate areas where fires are very likely to burn and cause damaging or harmful impacts to the transmission facilities and the communities. These high burn probability areas within the border zone were identified using the FlamMap Burn Probability Model. See Section D.15.4.3, Approach to Data Collection and Analysis, for a description of the modeling analysis.

The moderate to very high burn probability areas occur where the corridor crosses areas of dense vegetation and fire fuels near the Santa Ysabel Reservation. The model output indicates that the border zone area contains 23% high burn probability areas, 34% moderate burn probability areas, and 43% low burn probability areas (refer to Figure D.15-50).

**Fire Behavior Trend Model Results.** During normal weather conditions, ignitions started within the corridor would burn toward the east within the border zone and further to the east in sections with heavy fuel loading putting one home and as many as 1,920 acres at risk during two burn periods.

Ignitions started where the line crosses through the community of San Felipe would impact homes within a close proximity the transmission corridor. A wildfire started where the corridor crosses County Road 2 would obstruct this transportation route. Figure D.15-51 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Top of the World Substation Alternative in the San Felipe Fireshed.

Extreme fire weather conditions would cause ignitions started within the corridor to burn extensive areas to the southwest potentially including a large portion of the Santa Ysabel Reservation, the towns of San Felipe and Morettis, and surrounding private lands. A fire started in the northern section of the route could

burn all the way to Lake Henshaw, which could potentially obstruct State Routes 76 and 79. The potential burn area from a wildfire started along the Top of the World Substation Alternative would be more than six times greater during extreme Santa Ana weather conditions compared to normal conditions, putting 15 homes and 12,286 acres at risk in two burn periods.

**Wildfire Containment Conflict Model Results.** Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the Top of the World Substation Alternative through the San Felipe Fireshed 18% presents a high conflict, 55% a moderate conflict, and 27% a low conflict (Figure D.15-52). No significant conflict area is identified by the model due to the indefensible nature of the landscape through which this alternative would pass.

### Construction Impacts

*Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)*

Construction activities associated with the Top of the World Substation Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. The use of heavy equipment and the presence of personnel would increase the wildfire ignition potential in the project construction areas compared with existing conditions.

The burn probability in the corridor and the wildfire history in this fireshed indicate that this is a high risk area, and if construction were to take place during severe fire weather, a potential ignition could have damaging impacts due to the use of heavy equipment and the presence of personnel. This impact is considered significant but can be mitigated to a less than significant level (Class II) through implementation of Mitigation Measure F-1a, Develop and implement a Construction Fire Prevention Plan, which would prohibit construction during severe fire weather. The full text of all mitigation measures can be found in Appendix 12.

*Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire*

**F-1a      Develop and implement a Construction Fire Prevention Plan.**

Figure D.15-50. Top of the World Substation Alternative Burn Probability Model  
[CLICK HERE TO VIEW](#)

Figure D.15-51. Top of the World Substation Alternative Fire Behavior Trend Model  
[CLICK HERE TO VIEW](#)

Figure D.15-52. Top of the World Substation Alternative Wildfire Containment Conflict Model  
[CLICK HERE TO VIEW](#)

*This page intentionally blank.*

## Operational Impacts

### ***Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)***

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Ranchita Fireshed is a moderate-risk fireshed based on its wildfire history, fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 15 or more households and 12,286 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

### ***Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire***

**F-2a        Establish and maintain adequate line clearances.**

**F-1e        Contribute to defensible space grants fund.**

### ***Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)***

The overhead transmission line associated with the Top of the World Substation Alternative route would not create a significant obstacle to fire suppression, defined as 1.5 contiguous miles of very high conflict criteria, due to the indefensible nature of the landscape through which it would pass. The overhead segment would therefore have an adverse but less than significant impact on firefighting (Class III). No mitigation is required.

### ***Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)***

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of

trees and shrubs involved with the construction and maintenance of the alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a “spotting” effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the alternative project ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the transmission line.

*Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread*

**B-3a Prepare and implement a Weed Control Plan.**

## D.15.22 Mitigation Monitoring, Compliance, and Reporting Table

Table D.15-28 presents the mitigation monitoring, compliance and reporting table for Fire and Fuels Management. Mitigation measures not originating in this section do not appear in the table; they appear only in the mitigation monitoring, compliance and reporting table for the section in which they were originally recommended. For a summary of all impacts and their respective mitigation measures, please see the Impact Summary Tables at the end of the Executive Summary.

Sections D.15.13 and D.15.14 recommend mitigation measures for the projects described under Future Transmission System Expansion and Connected Actions/Indirect Effects. Those mitigation measures are presented for consideration by the agencies that will issue permits for construction of the connected and future projects. Because those projects would not be constructed as a result of approval of the Sunrise Powerlink Project, the recommended mitigation measures are not included in this mitigation monitoring table.

Table D.15-28. Mitigation Monitoring Program – Fire and Fuels Management

MITIGATION MEASURE	<p><b>F-1a: Develop and implement a Construction Fire Prevention Plan.</b> SDG&amp;E shall develop a multi-agency Construction Fire Prevention Plan for the SRPL and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include: CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies. SDG&amp;E shall provide a draft copy of this Plan to each listed agency at least 90 days before the start of any construction activities. Comments on the Plan shall be provided by SDG&amp;E to all other participants, and SDG&amp;E shall resolve each comment in consultation with CAL FIRE. The final Plan shall be approved by CAL FIRE at least 30 days prior to the initiation of construction activities. SDG&amp;E shall fully implement the Plan during all construction and maintenance activities.</p> <p>All construction work on the SRPL shall follow the Construction Fire Prevention Plan guidelines and commitments, and Plan contents are to be incorporated into the standard construction contracting agreements for the construction of the SRPL. Primary Plan enforcement responsibility shall remain with SDG&amp;E.</p> <p>At a minimum, Plan contents shall include the requirements of Title 14 of the California Code of Regulations, Article 8 #918 "Fire Protection" (Refer to Section D.15.3), all components of the draft SDG&amp;E Draft Fire Plan in Appendix 3D, and the elements listed below:</p> <ul style="list-style-type: none"> <li>• During the construction phase of the project, SDG&amp;E shall implement ongoing fire patrols during the fire season as defined each year by local, State, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods.</li> <li>• Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), SDG&amp;E shall update in writing the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CPUC, BLM, and to State and federal fire agencies.</li> <li>• During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and Local Responsibility Areas (LRA), and when the USFS Project Activity Level (PAL) is Very High on CNF (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. Utility and contractor personnel shall be informed of changes to the Red Flag event status and PAL as stipulated by CAL FIRE and CNF.</li> <li>• All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition.</li> </ul>
--------------------	--

Table D.15-28. Mitigation Monitoring Program – Fire and Fuels Management

	<ul style="list-style-type: none"> <li>Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect.</li> <li>Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Plan.</li> </ul>
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies will review SDG&E's Construction Fire Prevention Plan and ensure its implementation.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL
Responsible Agency	CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies.
Timing	Minimum 90 days prior to construction for draft of Construction Fire Prevention Plan. Minimum 30 days prior to construction for final Plan.
<b>MITIGATION MEASURE</b>	<b>F-1b: Finalize and implement SDG&amp;E 2006 Draft Fire Plan for Electric Standard Practice.</b> The draft SDG&E Plan is presented in Appendix 3D. SDG&E shall finalize and adopt this plan for Company-wide implementation, and the Final Plan shall, at a minimum, include all of the provisions of the Draft Plan and the Construction Fire Plan (per Mitigation Measure F-1a). The plan shall be revisited and updated once every five years to incorporate new regulations, practices, technologies, and fire science research. SDG&E shall submit the Plan for review and approval by the following agencies at least 90 days prior to energizing the Proposed Project: CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP will review and approve the SDG&E Fire Plan for Electric Standard Practice. CPUC and BLM will verify adoption of plan.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL
Responsible Agency	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP
Timing	Review and approval of Plan minimum 90 days prior to energizing the Proposed Project or Alternatives. Revision ever 5 years thereafter.

**Table D.15-28. Mitigation Monitoring Program – Fire and Fuels Management**

<b>MITIGATION MEASURE</b>	<p><b>F-1c: Ensure coordination for emergency fire suppression.</b> SDG&amp;E shall ensure that personnel, construction equipment, and aerial operations do not create obstructions to firefighting equipment or crews. The following provisions shall be defined based on consultation with fire agencies.</p> <p>Onsite SDG&amp;E and contracted personnel shall coordinate fire suppression activities through the active Fire Incident Commander, and emergency ingress and egress to construction-related access roads shall remain unobstructed at all times.</p> <p>Construction in the work area shall cease in the event of a fire within 1,000 feet of the work area. The work area includes the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. SDG&amp;E shall contact CAL FIRE and CNF dispatch seven days prior to helicopter use and shall provide dispatch centers with radio frequencies being used by the aircraft, aircraft identifiers, the number of helicopters that will be used while working on or near SRA and CNF lands at any given time, and the flight pattern of helicopters to be used. Should a wildfire occur within one (1) mile of the work area, upon contact from the CAL FIRE Incident Commander and/or Forest Aviation Officer, helicopters in use by SDG&amp;E shall immediately cease construction activities and not restart aerial operations until authorized by the appropriate fire agency.</p>
<b>Location</b>	Along entire Proposed Project and Alternatives
<b>Monitoring / Reporting Action</b>	CAL FIRE and CNF will ensure SDG&E: (1) coordinates fire suppression activities through the active Fire Incident Commander, (2) keeps emergency ingress and egress to construction-related access roads unobstructed at all times, (3) ceases work in the event of a fire, (4) contacts CAL FIRE and CNF prior to helicopter use.
<b>Effectiveness Criteria</b>	<ul style="list-style-type: none"> <li>• Access roads unobstructed at all times</li> <li>• Work stops in the event of fire</li> <li>• Pre-reporting of helicopter use</li> <li>• Cessation of helicopter use in the event of fire</li> </ul>
<b>Responsible Agency</b>	CPUC; BLM, CAL FIRE, CNF
<b>Timing</b>	Throughout construction and 7 days prior to any helicopter use.
<b>MITIGATION MEASURE</b>	<p><b>F-1d: Remove hazards from the work area.</b> The Applicant shall clear brush and dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.</p>
<b>Location</b>	Along entire Proposed Project and Alternatives
<b>Monitoring / Reporting Action</b>	CPUC/BLM monitor SDG&E work areas.
<b>Effectiveness Criteria</b>	Work areas remain clear of brush and dead and decaying vegetation
<b>Responsible Agency</b>	CPUC; BLM
<b>Timing</b>	Prior to start and during construction and maintenance activities.
<b>MITIGATION MEASURE</b>	<p><b>F-1e: Contribute to defensible space grants fund.</b> SDG&amp;E shall contribute an annual sum to a fund that shall be distributed as homeowner grants for the creation of defensible space around homes, to promote compliance with PRC 4291, and to facilitate firefighting efforts and reduce structure damage from wildfires potentially ignited by the transmission line. The dollar value of the contribution is \$2000 USD in 2008 per home determined to be affected through Fire Behavior Model analysis (Table D.15-25). Grants from the fund shall be distributed to those homeowners at highest risk of sustaining structure damage from an ignition-related to the transmission line, as demonstrated by the Fire Behavior Trend Model results. The mechanism for grants distribution shall be determined through agency negotiations and detailed in the Memorandum of Understanding (Mitigation Measure F-3b).</p>
<b>Location</b>	Along entire Proposed Project and Alternatives

Table D.15-28. Mitigation Monitoring Program – Fire and Fuels Management

Monitoring / Reporting Action	CPUC/BLM verifies SDG&E contributes sum to fund.
Effectiveness Criteria	Annual contributions are made according to MOU and Table D.15-25
Responsible Agency	CPUC/BLM
Timing	Annually
<b>MITIGATION MEASURE</b>	<p><b>F-2a: Establish and maintain adequate line clearances.</b> The Applicant shall establish adequate conductor clearances prior to energizing the project by removing all vegetation from within 15 radial feet of new and relocated overhead 69 kV, 230 kV, and 500 kV conductors under maximum sag and sway. Only trees and vegetation with a mature height of 15 feet or less shall be permitted within the ROW. In addition, tree branches that overhang the ROW within 15 horizontal feet of any conductor shall be trimmed or removed, as appropriate, including those on steep hillsides that may be many vertical feet above the facility. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.</p> <p>During the life of the project, the Applicant shall maintain adequate conductor clearances by inspecting the growth of vegetation along the entire length of the overhead transmission line at least once each spring and documenting the survey and results in a report submitted to the CPUC before June 1 of each year. Conductor clearance of 15 radial feet under maximum sag and sway shall be maintained at all times.</p> <p>Maximum sag and sway shall be computed based on ambient temperatures of no less than 120 degrees Fahrenheit and wind gusts of no less than 100 miles per hour.</p>
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E established adequate conductor clearance.
Effectiveness Criteria	Adequate (15 foot) conductor clearance is maintained
Responsible Agency	CPUC; BLM
Timing	Prior to energizing the project, and during the lifetime of the project.
<b>MITIGATION MEASURE</b>	<p><b>F-2b: Install existing conductors on steel poles.</b> Where construction of the Proposed Project or an alternative would result in the relocation of existing 69 kV transmission lines, these lines shall be relocated onto steel poles using vertical conductor construction. Also, all existing 69 kV or distribution lines with poles located within 100 feet of the Proposed Project or alternative shall be reconstructed so the existing conductors are on steel poles using vertical conductor construction to eliminate pole combustion hazard potential, increase wind loading capacity, and reduce mid-line slap ignition potential. This measure shall not apply to conductors that would be underbuilt on steel poles or lattice towers or installed underground.</p>
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E installs existing conductors on steel poles.
Effectiveness Criteria	Existing conductors are installed on steel poles, and wood poles are removed
Responsible Agency	CPUC; BLM
Timing	During construction

**Table D.15-28. Mitigation Monitoring Program – Fire and Fuels Management**

<b>MITIGATION MEASURE</b>	<p><b>F-3a: Construct and maintain fuelbreaks.</b> SDG&amp;E shall construct and maintain fuelbreaks at targeted locations along the transmission line where significant conflicts with fire containment are created. SDG&amp;E shall purchase or secure by other means complete and total vegetation management rights for the life of the project for the area within ¼ miles of the transmission centerline between project mileposts:</p> <ul style="list-style-type: none"> <li>• MP 85-86.5, and 90-92.5</li> <li>• MP 104-105.5</li> <li>• MP 110-112.5, and 114-115.5</li> <li>• MP 126-128.5, and 130.5-131.5</li> <li>• MP 131.5-133</li> <li>• SYR 2.5-4.5, and 6-9</li> <li>• I8 41.5-43.5, 44-47, and 62-63.5</li> <li>• MRD 10.5-13, and 15-16.5</li> <li>• LEAPS 2-4</li> </ul> <p>The fuelbreak design plans shall be submitted to CPUC, BLM, ABDSP, and U.S. Forest Service, as appropriate, for review and approval at least 90 days before the commencement of project construction. Vegetation fuel load in the fuel break shall be reduced to and maintained at a level not to exceed 12 tons/acre as determined by the National Wildfire Coordination Group Stereo Photo Series for Quantifying Natural Fuels for the appropriate vegetation type series. Fuelbreaks shall be constructed prior to transmission line energizing. The following fuelbreak performance criteria are to be met:</p> <ul style="list-style-type: none"> <li>• At its most intensive, vegetation reduction shall be carried out to maintain a native grass cover to minimize water quality impacts due to erosion and sedimentation. In addition, vegetation on slopes greater than 45% shall be limited to hand treatment of hazardous trees to avoid causing erosion.</li> <li>• Herbicidal treatments shall be restricted to ground-based applications. A colorant or dye shall be added to the herbicide mixture to determine location of coverage. A surfactant shall be added to the herbicide mixture to facilitate targeted absorption. Herbicide applications shall be performed by licensed professionals in accordance with each material's label instructions and in compliance with Sempra's "Physical and Climatic Target Area Evaluation Form."</li> <li>• Dead and decaying vegetation within the Wire Zone (ROW) shall be cut to 18 inches or less in height, and removed or chipped and spread onsite in piles no higher than six (6) inches.</li> <li>• Trees greater than four (4) inches DBH, except those whose crowns are separated from other tree crowns by at least 150 feet in all directions, shall be removed and treated with herbicidal and fungicidal stump applications; communities of shrubs greater than 1,000 square feet and greater than five (5) feet tall shall be thinned or removed; and, dead and decaying vegetation shall be cut to 18 inches or less in height or removed. All cut vegetation shall be either removed or chipped and spread onsite in piles no higher than six (6) inches.</li> <li>• SDG&amp;E shall develop and implement a post-fire assessment protocol, which shall include site inspection and vegetation inventory, debris and hazard removal, damage assessment, site monitoring, native species restoration as appropriate, facilities redesign/reconstruction as appropriate, and adaptive modification to fuelbreak maintenance activities as appropriate.</li> <li>• SDG&amp;E shall report all fuelbreak maintenance and post-fire assessments on an annual basis to CAL FIRE or CNF as appropriate.</li> </ul> <p>Should complete vegetation management rights be impossible to secure, SDG&amp;E shall make financial contributions to either CAL FIRE or CNF (as appropriate) for offsite fuelbreak creation. The contributions shall be between \$1,000 to \$4,000 per acre for initial fuelbreak construction, plus between \$250 and \$1,000 per acre per year for fuelbreak maintenance. The exact financial contribution shall be determined by CAL FIRE or CNF based on actual costs of compensatory fuelbreak construction and maintenance as observed in the field.</p>
<b>Location</b>	Along entire Proposed Project and Alternatives along MP stated above.

Table D.15-28. Mitigation Monitoring Program – Fire and Fuels Management

Monitoring / Reporting Action	CPUC, BLM, ABDSP, and U.S. Forest Service shall review fuelbreak design plans and ensure SDG&E constructs and maintains fuelbreaks.  Should complete vegetation management rights be impossible to secure, CPUC or BLM will ensure SDG&E makes a financial contributions to either CAL FIRE or CNF (as appropriate) for offsite fuelbreak creation.
Effectiveness Criteria	Fuelbreaks along stated mileposts are constructed and maintained
Responsible Agency	CPUC; BLM, ABDSP, U.S. Forest Service
Timing	Minimum 90 days prior to project construction and during lifetime of the project.
MITIGATION MEASURE	<p><b>F-3b: Prepare and implement a Multi-agency Fire Prevention MOU.</b> A Memorandum of Understanding (MOU) for the SRPL shall be created and implemented between SDG&amp;E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate using the existing Southwest Powerlink MOU as a template. The purpose of this Multi-agency Fire Prevention MOU is to efficiently coordinate all aspects of agency and utility fire prevention plans and practices. The MOU shall integrate the following components of the utility fire plan with existing agency fire plans: fire prevention, firefighter safety, emergency communication, firefighter training of both ground and aerial utility personnel, and others as appropriate. Financial commitments of each participating organization to pre-fire planning, preparedness, and prevention programs shall be stipulated in the MOU. The MOU shall require inter-agency coordination and assistance for the construction and regular maintenance of targeted fuel breaks in conjunction with the SRPL transmission corridor (Mitigation Measure F-3a). This MOU shall be periodically reviewed and updated at a minimum of once every five years to accommodate changes in regulations and environmental conditions. A community education and outreach program on the fire prevention plans and practices implemented by the MOU shall be adopted.</p> <p>A key element of the MOU shall be ensuring immediate transmission line de-energizing during fire emergencies and ensuring adequate and immediate communication to fire agencies of line de-energizing. SDG&amp;E shall provide all appropriate local, State, and federal fire dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1,000 feet of the transmission corridor to maintain fire-fighter safety, and re-energizing shall require notification of all fire agencies.</p>
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that MOU is created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate.
Effectiveness Criteria	MOU is drafted, agreed upon, and reviewed every five (5) years
Responsible Agency	CPUC; BLM
Timing	Prior to project construction, and reviewed and updated every five years.

## D.15.23 References

- Alexander, M.E. 2003. Understanding Fire Behavior – the Key to Effective Fuels Management. Invited Keynote Address at FERIC Sponsored Fuels Management Workshop, October 6-8, 2003, Hinton, Alberta. 14 p. [download at <http://fire.feric.ca/>]
- ArcInfo. 2005. ArcGIS software version 9.0. ESRI.
- Baxter, G. 2006. Results of Experimental Burns on Grass Plots with Mowing Treatments, Slave Lake, Alberta. Forest Engineering Research Institute of Canada.
- Beaver, A. 2001 Wildland Fire Safety Conference, Evaluating Risk and Reward Relationship in Wildland Firefighter Safety. Yukon Fire Management Division. Yukon, Canada.
- Beck, J.A.; Alexander, M.E.; Harvey, S.D.; Beaver, A.K. 2002. Forecasting Diurnal Variations in Fire Intensity to Enhance Wildland Firefighter Safety. *Int. J. Wildland Fire* 11:173-182.
- BLM (Bureau of Land Management). 2007. Personal communication between Anne Coronado (Aspen), and Ron Woychak. June 4.
- Brown, James K.; Smith, Jane Kapler, eds. 2000. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257 p.
- CAL FIRE (California Department of Forestry and Fire Protection), 2007b. Personal communication between Marisa Mitchell (Aspen) and Thomas Porter. October 3.
- CAL FIRE. 2007a. CAL FIRE website at: [http://www.fire.ca.gov/fire\\_er\\_content/downloads/costrecovery.pdf](http://www.fire.ca.gov/fire_er_content/downloads/costrecovery.pdf), viewed May 27, 2007.
- CAL FIRE (California Department of Forestry and Fire Protection). 2006. [www.fire.ca.gov/about\\_content/downloads/20LACREsDec\\_06.pdf](http://www.fire.ca.gov/about_content/downloads/20LACREsDec_06.pdf)
- CAL FIRE (California Department of Forestry and Fire Protection). 2005. Initial statement of reasons to amend Title 14 of the California Code of Regulations (14 CCR), Division 1.5, Chapter 7 Fire Protection, Subchapter 3., Article 3. October 28.
- Campbell, D. 1998. The Campbell Prediction System. Second printing of second edition. Ojai Printing and Publishing Company, Ojai, California. 142 p.
- CARB (California Air Resources Board). 2007. Air Quality Information Page, Real-Time Query Tool (available at: <http://www.arb.ca.gov/aqmis2/paqdselect.php>). Accessed December 3.
- City of San Diego. 2007. City of San Diego Fire Department Website at [www.sandiego.gov/fireandems/](http://www.sandiego.gov/fireandems/). Accessed June 5.
- Cleveland National Forest. 2007. Personal communication between Anne Coronado (Aspen), and Rich Hawkins, Fire Officer, CNF.
- CN Utility Consulting. 2004. Utility Vegetation Management Final Report (CNUC Final Vegetation Report). [http://www.cnutility.com/images/uvm\\_final\\_report.pdf](http://www.cnutility.com/images/uvm_final_report.pdf)
- FERC 2006. Utility Vegetation Management and Bulk Electric Reliability Report from the Federal Energy Regulatory Commission, September 7, 2004. <http://www.ferc.gov/industries/electric/indus-act/reliability/veg-mgmt-rpt-final.pdf>
- Harry, G. 2007. Grassy Knowns. [http://www.wildfiremag.com/tactics/grassy\\_knowns/index.html](http://www.wildfiremag.com/tactics/grassy_knowns/index.html). International Association of Wildland Fire. Wildfire Magazine, Chicago, IL.

- Imperial County Fire Department. 2007. Personal communication between Anne Coronado (Aspen), and Assistant Fire Chief Estrada. June 5.
- Johnson, M. L.J. Rew, B.D. Maxwell and S. Sutherland. 2006. The Role of Wildfire in the Establishment and Range Expansion of Nonnative Plant Species into Natural Areas: A review of current literature
- Keeley, J.E. 1998. Postfire ecosystem recovery and management: the October 1993 large fire episode in California. Pages 69-90 in J. M. Moreno, editor. Large forest fires. Backhuys Publishers, Leiden, The Netherlands.
- Keeley, J.E. 2002. *Native American impacts on fire regimes of the California coastal ranges*. Journal of Biogeography, vol. 29, pp.303-320.
- Keeley, J.E. 2004. Invasive Plants and Fire Management in California Mediterranean-climate Ecosystems. In M. Arianoutsou (ed) 10<sup>th</sup> MEDECOS – International Conference on Ecology, Conservation and Management, Rhodes Island, Greece, electronic, no page numbers.
- Keeley, J.E. and C.J. Fotheringham. 2003. *Impact of past, present and future fire regimes on North American Mediterranean shrublands*, pp.218-262. In T.T. Veblen, W.L. Baker, G. Montenegro, and T.W. Swetnam (eds.), Fire and Climatic Change in Temperate Ecosystems of the Western Americas. Springer-Verlang, New York.
- Keeley, J.E., and C.J. Fotheringham. 2006. Wildfire Management on a Human-Dominated Landscape: California Chaparral Wildfires in The Wildfire Reader: A century of Failed Forest Policy, George Wuertner, Ed. 116-131.
- Keeley, J.E., C.J. Fotheringham, and Moritz. 2004. Journal of Forestry. “Lessons from the October 2003 Wildfires in Southern California.” October/November.
- Marshall, S. and Gig Conaughton. 10/7/2004. ‘Hunter charged with starting Cedar Fire’. North County Times.
- MGRA (Mussey Grade Road Alliance), 2007. Appendix B: Power Line Fires. Phase 1 Direct Testimony on the Sunrise Powerlink Transmission Line Project. May 31.
- National Fire Protection Association (NFPA): Fire Fighter fatalities database, 1980 to 1999: Electrical hazards during wildfire suppression activities, 1980-1999. Quincy, MA. 2001
- Poway Fire Department. 2007. Poway Fire Department Website at <http://www.ci.poway.ca.us/firedept>. Accessed June 5.
- San Bernardino Fire Information Joint Information Center (SBFIJIC). 2003. ‘California Wildfire Information: Cedar Fire’. [www.esri.com/jicfire/fireinfo/cedar fire.html](http://www.esri.com/jicfire/fireinfo/cedar%20fire.html) (accessed on 1/31/2007)
- San Diego County. 2007. San Diego County Website at [http://www.sdcounty.ca.gov/dplu/fire\\_resistant.html](http://www.sdcounty.ca.gov/dplu/fire_resistant.html). Accessed June 5.
- San Diego Gas & Electric. 2007. Response PD-27 to CPUC Energy Division Data Request No. 17. August 24.
- San Diego Geographic Information Source (SanGIS) [www.sangis.org](http://www.sangis.org) (accessed 1/31/2007)
- San Diego Natural History Plant Atlas. 2007. [http://www.sdplantatlas.org/\(S\(rwqiyonlnnsh4g55t3tvbw45\)/index.aspx](http://www.sdplantatlas.org/(S(rwqiyonlnnsh4g55t3tvbw45)/index.aspx). San Diego Natural History Museum, San Diego, CA.
- Schroeder, M.J., et al. 1964. Synoptic weather types associated with critical fire weather. Washington, D.C. U.S. Department of Commerce, National Bureau of Standards, Institute for Applied Technology, AD 449-630. 372 p.

- Scott, Joe H.; Burgan, Robert E. 2005. *Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model*. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72p.
- SDAPCD (San Diego Air Pollution Control District). 2007. Notice of Intent to Declare Firestorm 2007 an Exceptional Event (available at: <http://www.sdapcd.org/air/reports/firestorm.pdf>). Accessed December 3.
- SDG&E (San Diego Gas and Electric), 2007a. Response to MGRA (Mussey Grade Road Alliance) Data Request No. 1 for the Sunrise Powerlink Project. January 12.
- SDG&E (San Diego Gas and Electric), 2007b. Response to CPUC (California Public Utilities Commission) Energy Division Data Request No. 17 for the Sunrise Powerlink Project. September 14 and November 9.
- SDG&E (San Diego Gas and Electric), 2007c. Response to MGRA (Mussey Grade Road Alliance) Data Request No. 1 for the Sunrise Powerlink Project. August 29.
- Stratton, R. D. 2004. Assessing the effectiveness of landscape fuel treatments on fire growth and behavior. *Journal of Forestry* 102(7): 32-40.
- Thierrault, S. 2001. *Wildfire Smoke: A guide for public health officials*. Missoula City-County Health Department, Missoula, MT.
- U.S. Dept. of Health & Human Services, National Institute for Occupational Safety and Health (NIOSH): *Firefighters Exposed to Electrical Hazards During Wildland Fire Operations*: Hazard ID 15, Jan.2002.
- U.S. EPA (U.S. Environmental Protection Agency). 1996. AP-42, Fifth Edition Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources. Chapter 13.1, Wildfires and Prescribed Burning. October.
- USDA, 2000. *Wildland Fire in Ecosystems: Effects of Fire on Fauna*. Rocky Mountain Research Station General Technical Report. RMRS-GTR-42-volume 1. January.
- USDA, 2000. *Wildland Fire in Ecosystems: Effects of Fire on Flora*. Rocky Mountain Research Station General Technical Report. RMRS-GTR-42-volume. December.
- USDA, 2002. *Wildland Fire in Ecosystems: Effects of Fire on Air*. Rocky Mountain Research Station General Technical Report. RMRS-GTR-42-volume 5. December.
- USDA, 2005. *Wildland Fire in Ecosystems: Effects of Fire on Soil and Water*. Rocky Mountain Research Station General Technical Report. RMRS-GTR-42-volume 4. September.
- USFS (United States Department of Agriculture, Forest Service), 2007b. Personal communication between Marisa Mitchell (Aspen) and Richard Hawkins. October 3.
- USFS (United States Department of Agriculture, Forest Service). 2005. *Cleveland National Forest Land Management Plan, Part 2*.
- USFS (United States Department of Agriculture, Forest Service). 2002. *Improving Fire Hazard Assessment at the Urban-Wildland Interface: Case Study in South Lake Tahoe, CA*. L. de Jong. Pacific Southwest Research Station Center for Urban Forest Research Internal Report: Fire-1
- USFS Remote Sensing Lab Data (hard copy of data received on 4/10/2007)
- Wiedinmyer, C. and J.C. Neff, 2007 *Estimates of CO2 from fires in the United States: implications for carbon management*. *Carbon Balance and Management* 2007, 2:10.
- Yahner, Richard, H. 2004. *Journal of Arboriculture*. "Wildlife responses to more than 50 years of vegetation management on a Pennsylvania Right of Way." March.