3.7 Hazards, Health, and Safety

This section contains a description of the environmental setting, regulatory setting, and potential impacts associated with the construction and operation of the proposed project and alternatives with respect to hazards and health and safety issues that may currently exist in the project area. Seismic conditions are addressed in Section 3.6, "Geology, Soils, Minerals, and Paleontology"; flooding is addressed in Section 3.8, "Hydrology and Water Quality"; emergency services and waste management are discussed in Section 3.11, "Public Services and Utilities"; and traffic is addressed in Section 3.14, "Traffic and Transportation."

3.7.1 Environmental Setting

The EITP traverses land used for various purposes including open-space recreation and preserve, residential housing, and commercial businesses. Hazardous material sites may be encountered in the area during construction and operation due to the fuel facilities, underground gas storage tanks, and pipelines in the project vicinity. Existing and past land use activities are potential indicators of hazardous material storage and use. Past and current land uses that could have resulted in unknown contamination include (1) rural residences and farms that could have old or inactive underground fuel tanks (USTs), (2) agricultural properties that could have pesticide-polluted runoff from farming operations, and (3) commercial and industrial sites (historical and current) that could have soil or groundwater contamination from unreported hazardous substance spills. The primary reason to define potentially hazardous sites is to protect the health and safety of EITP construction and operations personnel and to minimize public exposure to hazardous materials during construction and waste handling. If encountered, contaminated soil may qualify as hazardous waste, thus requiring handling and disposal according to local, state, and federal regulations.

The following are summary definitions of hazardous materials and hazardous waste:

- **Hazard:** Any naturally occurring or human-made physical condition in the surrounding environment that would pose a public safety risk.
- **Hazardous Material:** Hazardous materials can be in the form of explosives, flammable and combustible substances, poisons, radioactive materials, pesticides, and petroleum products. These substances are most often released as a result of motor vehicle or equipment accidents or because of chemical accidents during industrial use. These substances have the potential to leach into soils, surface water, and groundwater due to spills if not properly contained (Federal Emergency Management Agency [FEMA] n.d.).
- **Hazardous Waste:** A waste may be considered hazardous if it exhibits certain hazardous properties ("characteristics") or if it is included on a specific list of wastes the U.S. Environmental Protection Agency (U.S. EPA) has determined are hazardous ("listing" a waste as hazardous). U.S. EPA's regulations in the Code of Federal Regulations (CFR) define four hazardous waste characteristic properties: ignitability, corrosivity, reactivity, and toxicity (40 CFR 261.21-261.24; U.S. EPA 2010a).

Exposure to hazardous materials or wastes can occur during normal use, handling, storage, transportation, and disposal. Exposure may also occur due to hazardous compounds existing in the environment such as fuels in underground storage tanks, pipelines, or areas where chemicals have leaked into the soil or groundwater.

3.7.1.1 Hazardous Waste Sites and Permitted Facilities in California and Nevada

As required by the CEQA, the Cortese list data sources were reviewed to determine sites potentially containing hazardous material or waste near the project right-of-way (ROW) within California. The Cortese list includes hazardous waste facilities subject to corrective action, and sites designated as hazardous waste property, hazardous waste disposal areas, contaminated sites, and abandoned sites. Review of readily available online environmental databases, including the California State Water Resources Control Board (SWRCB) Geotracker (SWRCB 2010) and

the California Department of Toxic Substances Control (DTSC) EnviroStor (DTSC 2009) databases, indicates there are two hazardous facilities sites in California and Nevada (Table 3.7-1).

Table 3.7-1 Hazardous Waste Facilities in California and Nevada

Site Name	Address	City, County, State	Site/Facility Type	Cleanup Status	Distance from Proposed Route	Distance from Nearest Alternative
Molycorp – Mountain Pass	PO Box 124	Mountain Pass, San Bernardino County, California	Cleanup Program Site	Open Case (Site Assessment) The Molycorp Mine, a lanthanide mining and milling operation, discharged contaminated wastewater to the Ivanpah Dry Lake between 1980 and 1998. An agreement with the RWQCB requires cleanup and abatement of a groundwater plume that developed below the discharge points.	<6.5 miles (actual distance is undetermined)	Near the Mountain Pass Telecom. Alternative
Biogen Power Plant	Off I-15, near Ivanpah	Primm, Clark County, Nevada	Land Disposal Site	Closed Case	The landfill is closed and is located underneath the Primm Golf Course (greater 0.4 miles from the project)	Near the Primm Golf Course Telecom. Alternative

Source: https://Geotracker.Waterboards.Ca.Gov
Key:
RWQCB = Regional Water Quality Control Board

Molycorp Mine

The Molycorp Mine was originally opened in the early 1950s near the town of Mountain Pass, California, and is an active lanthanide mining and milling operation. According to the Toxic Release Inventory Database, the Molycorp Mine emits air quality contaminates, but there are no surface water discharges and no underground injection. Lead compounds are shipped off-site for disposal (EPA 2010a). The Molycorp Mine has a history of contamination. Under a 1994 settlement, Molycorp agreed to close the drum yard and the concrete casting and staging areas at the Mountain Pass Facility in order to remove all drummed wastes and close all lead waste impacted areas. By the end of 2003, DTSC Geology, Permitting, and Corrective Action Branch accepted the closure certification of these units and released Molycorp from closure financial responsibility (DTSC 2010). According to Envirostor, the Molycorp Mountain Pass Facility currently has a non-operating hazardous waste facility (DTSC 2010). There is also groundwater contamination associated with the on-site evaporation pond (Cass 2010).

The Mountain Pass Telecommunication Alternative follows the route of the Molycorp wastewater pipeline down the mountain, and both the Mountain Pass and Golf Course Telecommunication Alternatives follow its path along a portion of Nipton Road. The Molycorp Pipeline also has a history of contamination. Between 1984 and 1993, Molycorp reported over 40 spills from the pipeline, totaling 727,000 gallons. In 1996, there were at least 11 spills from pipeline ruptures, totaling in excess of 350,000 gallons. Some of the waste contained heavy metals and low levels of radioactivity, up to 100 times acceptable (background) levels. In 1997, the Lahontan Regional Water Quality Control Board (RWQCB) issued Cleanup and Abatement Order 6-97-66, and Molycorp completed the cleanup in 1998. More than half of the wastes were radioactive. In 1998, the Lahontan RWQCB issued orders requiring Molycorp to cease

disposing of and clean up radioactive and hazardous waste in ponds on the playa and at the mill site and subsequently identified additional areas of the pipeline that required remediation and developed a plan for pipeline removal. Following a civil suit from county prosecutors for violating state drinking water safety laws, Molycorp temporarily suspended operations at the mine and mill in September 1998 until environmental reviews were complete and a solution to its wastewater issues was reached (EPA 2010b). Much of the contamination along the pipeline has been removed (Cass 2010).

Contamination has also occurred at the evaporation pond sites. The wastewater pipeline discharged to two different sets evaporation ponds. From 1980 to 1987, wastewater was discharged to the Old Ivanpah Evaporation Ponds located approximately 10 miles east of the mine along Nipton Road. Operations at the Old Ivanpah Evaporation Ponds were discontinued when it was discovered that the underlying groundwater was contaminated with total dissolved solids, nitrate, and strontium that appeared to be related to the ponds. In 1987, wastewater discharge was moved to the New Ivanpah Evaporation Ponds, located approximately three miles north of the Old Ivanpah Evaporation Ponds near the center of the Ivanpah Playa. The New Ivanpah Evaporation Ponds location was selected based on naturally poor groundwater quality (high saline and total dissolved solids) that exists beneath the dry lakebed. The wastewater discharged to the New Ivanpah Evaporation Ponds contained elevated total dissolved solids, primarily chloride and sodium with lower concentrations of strontium, nitrate, barium, lead, and radionuclides. The media of concern at the New Ivanpah Evaporation Ponds is surface soils and groundwater. The New Ivanpah Evaporation Ponds has not been formally closed. Groundwater monitoring for total dissolved solids, nitrates/nitrites, strontium, and lead is on-going around the New Ivanpah Evaporation Ponds (Arcadis 2009).

Other Potential Hazardous Materials Sites

The Golf Course Telecommunication Alternative could cross two sites that contain potentially hazardous materials. The Biogen Power Plant, a closed land disposal site, is buried underneath the Primm Golf Course in Primm, Nevada, near milepost (MP) 6 of the telecommunication line. In addition, there are several non-contaminated permitted facilities including gas stations, underground storage tanks (USTs) and land disposal sites near the project ROW and the proposed alternatives. The USTs and land disposal sites are located in both California and Nevada (see Table 3.7-2).

In addition, an underground storage tank may be located at the southeast quadrant of the Interstate 15 (I-15)/Yates Well Road interchange in Nipton, California, near MP 4 of the Golf Course Telecommunication Alternative; a house trailer is currently located at the site (CEC and BLM 2009). Although this site was not listed as a contaminated site and additional information is not known, the site will be reviewed as part of the Phase 1 Environmental Site Assessment for the project. Additional potential sources of contamination to soil and water could pertain to the transport, use, storage, and disposal of fuels and chemicals that would be used for construction and operation activities. The applicant, Southern California Edison (SCE), has committed to conducting Phase I Environmental Site Assessment studies in areas of planned ground disturbance prior to project construction to identify potential contamination in areas to be graded or excavated as part of the proposed project.

3.7.1.2 Airports

Aboveground transmission lines may pose a threat to aviation safety if they are near airports or flight paths. Currently, the Jean Sport Aviation Center is the only operating airport in the project area. Additionally, the Clark County Department of Aviation (CCDOA) is proposing to build the Southern Nevada Supplemental Airport (SNSA) and the Southern Nevada Regional Heliport near the proposed project.

Table 3.7-2 Permitted Facilities (UST and Disposal) in California and Nevada

Site Name	Address	City	Site/Facility Type	Cleanup Status	Distance from Proposed Route	Distance from Nearest Alternative
San Bernardino County, California [a, b]						
Atc-Mountain Pass #89344	Bailey Road 16n 13e Sec11	Mountain Pass	Permitted UST	Active Permit	5.3 miles west-southwest of Ivanpah Substation terminus	Approx. 0.5 miles west of Mountain Pass Telecom. Alternative
North Tailing Pond P-16 (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Community & Co Landfills (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Mountain Pass Mine & Mill Ops (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
New Ivanpah Dry Lake Evap. Pond (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Onsite Evap. Ponds (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Old Evap Pond Closure (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Mountain Pass P-1 Closure (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
East Tailings Pond (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
St-Cal Trans/Mtn Pass	94200 Clark Mountain Road	Nipton	Permitted UST	Active Permit		In ROW of the Mountain Pass Telecom. Alternative
Hidden Hills Lake Test Site[2]	Near Ivanpah Dry Lake	Ivanpah	Military Facility		0.6 miles from MP 31	MP 5 from Alt C.

Table 3.7-2 Permitted Facilities (UST and Disposal) in California and Nevada

Site Name	Address	City	Site/Facility Type	Cleanup Status	Distance from Proposed Route	Distance from Nearest Alternative
Clark County, Nevada [c]						
Primm Valley Texaco	31960 Las Vegas Blvd. South	Primm	Permitted UST	Active Permit	0.25 miles northwest of MP 28	0.5 miles southwest of Alternative C. 0.9 miles west of Alternative D and Subalternative E
Whiskey Pete's Chevron Truck Stop	115 W. Primm Blvd.	Primm	UST for Diesel and Gasoline		0.5 miles east of MP 28	0.8 miles from Alternative E and Subalternative D
Primm Valley Texaco	31960 Las Vegas Blvd. South at Primadonna Hotel & Casino	Primm	UST for Diesel and Gasoline		0.3 miles east of MP 28	0.8 miles from Alternative D and Subalternative E
Primm Valley Travel Center	31900 South Las Vegas Blvd.	Jean	Permitted UST	Active Permit	0.25 miles northwest of MP 28	0.5 miles southwest of Alternative C. 0.9 miles west of Alternative D and Subalternative E
Gold Strike Auto/Truck Plaza	Goodsprings Rd, Hwy 53	Jean	UST for Diesel and Gasoline		6.0 miles northwest of MP 14	12 miles from Alternative D and Subalternative E
Jean Fuel West Shell	2 Goodsprings Rd	Jean	UST for Gasoline		6.0 miles northwest MP 14	12 miles from Alternative D and Subalternative E
South Jean Quarry	Township 26 S Range 60 E Section 06	Jean	Permitted UST Diesel*	Active Permit	Approx. 0.5 miles northwest of MP 19 and 20	Approx. 7.2 miles northeast of Alternatives C, D, and E.

Sources:
[a] https://Geotracker.Waterboards.Ca.Gov
[b] http://www.envirostor.dtsc.ca.gov/public
[c] Nevada Division of Environmental Protection 2009a
* Storage tanks are not federally regulated USTs. Examples of non-regulated tanks are ASTs, farm tanks, and residential tanks.
Key:
MP = Milepost
UST = Underground storage tank

Jean Sport Aviation Center

The Jean Sport Aviation Center is 20 miles south of Las Vegas off of I-15. This public airport, also known as the Jean Airport, is owned and managed by the Clark County Department of Aviation (CCDOA 2006). It is mainly used for sports aviation such as gliding and skydiving. The airport is approximately 5 miles (26,400 feet) north of the proposed project, near MP 20.

Proposed Southern Nevada Supplemental Airport

The proposed SNSA airport, also known as the Ivanpah Valley Airport, would be located south of Jean, Nevada, northwest of the EITP. If approved, the proposed SNSA boundary would be located within 0.5 miles (2,640 feet) north of the MP 26 of the EITP 230-kV transmission line. Additionally, the EITP would cross the Ivanpah Airport Environs Overlay as discussed in Section 3.9, "Land Use." The proposed SNSA is expected to be operational in year 2020, after the scheduled completion of the EITP, which is projected to be operational in 2013. The exact locations of SNSA components, such as runways and navigational equipment, are unknown pending project approval, although several alternatives have been proposed (CCDOA 2006). The SNSA is currently undergoing environmental review and an EIS is being prepared jointly by the BLM and the Federal Aviation Administration (FAA). The EIS is projected to be complete by the fourth quarter of 2012 (FAA and BLM n.d.). For more information about the SNSA land transfer, see Section 3.9, "Land Use."

Proposed Southern Nevada Regional Heliport

The Southern Nevada Regional Heliport is proposed to be located east of I-15 on a vacant, unincorporated Clark County parcel, 5 miles south of Saint Rose Parkway. The proposed heliport would be built to accommodate the demand for helicopter tour services in the Las Vegas area (Southern Nevada Regional Heliport n.d.). The proposed Southern Nevada Regional Heliport would be located approximately 8 miles (42,240 feet) north of the EITP, closest to MP 14 of the proposed transmission line.

Private Airports

There are no private airstrips located within the vicinity of the proposed project.

3.7.1.3 Schools

There are no schools within 50 miles of the proposed project.

3.7.1.4 Emergency Evacuation Routes

Emergency evacuation routes in the Desert region of San Bernardino County are as follows: Interstates 15 and 40, US 95 and 395, and State Routes (SRs) 18, 58, 62, 127, 138, 178, and 247 (SB County 2007b). The emergency evacuation routes in the Desert region of Clark County, Nevada, are as follows: I-15, SRs 164, 161, and 604, and US 95 (Clark County). Further discussion of transportation routes may be found in Section 3.14, "Transportation and Traffic."

The existing 115-kV transmission line aerially spans I-15 in the vicinity of MP 29. The proposed transmission line and telecommunications Path 1 would also span I-15 in the vicinity of MP 29. Transmission Alternative Routes C and D and Subalternative E, and the Golf Course Telecommunications Alternative, would span I-15. The Eldorado Substation and Transmission Alternative Routes A and B would be located in remote areas and would not affect routes identified in emergency response or evacuation plans.

3.7.1.5 Emergency Response Plans

San Bernardino County, California

The San Bernardino Hazardous Waste Management Plan (HWMP) was adopted by the County of San Bernardino Board of Supervisors and approved by the California Department of Health Services in February 1990. The HWMP identifies the types and amounts of wastes generated in the county; establishes programs for managing these wastes; identifies an application review process for siting specified hazardous waste facilities; identifies mechanisms for reducing the amount of waste generated in the county; and identifies goals, policies, and actions for achieving effective hazardous waste management (SB County 2009).

The State Secretary for Environmental Protection designates an agency to serve as the Certified Unified Program Agency (CUPA) for each county. The CUPA structure is designed to focus management of certain environmental programs at the local government level, reducing overlapping and sometimes conflicting requirements that arise if different governmental agencies independently manage health and hazards programs. More specifically, the CUPA program consolidates, coordinates, and uniformly and consistently administers permits, inspection activities, and enforcement activities. CUPAs are charged with providing a comprehensive and balanced environmental management approach to resolve issues using both education and enforcement to minimize risk to human health and the environment and promote fair business practices.

The CUPA for San Bernardino County (except the city of Victorville) is the Hazardous Materials Division of the County Fire Department. The Fire Department manages six hazardous material and hazardous waste programs, which are:

- Hazardous Materials Release Response Plans and Inventory (Business Plan)
- California Accidental Release Program
- Underground Storage Tanks
- Aboveground Petroleum Storage Act/Spill Prevention, Control, and Countermeasure (SPCC)
- Hazardous Waste Generation and Onsite Treatment
- Hazardous Materials Management Plans and Inventory Statements under Uniform Fire Code Article 80

The County Fire Department is also responsible for the continued update of emergency evacuation plans for wildland fire incidents as an extension of the agency's responsibility for Hazard Mitigation Planning in San Bernardino County.

Clark County Hazardous Materials Emergency Response Plan

The Clark County Hazardous Materials Emergency Response Plan (Clark County 2008) establishes guidelines for responding to hazardous material incidents throughout the county. The plan provides emergency response procedures and evacuation plans for dealing with accidental chemical releases and establishes notification procedures for response. The plan also provides information on how to notify the public and on emergency equipment available to the community if an accidental release occurs. A training schedule for local emergency response workers is outlined, and community and facility coordinators are designated. The responsibility for control of hazardous materials lies with the owner; however, if an incident results in loss of control of a hazardous material, local governments must take action to limit the effect on life, property, and the environment.

Clark County Multi-Jurisdictional Hazard Mitigation Plan

The Clark County Multi-Jurisdictional Hazard Mitigation Plan establishes a strategy to implement improvements and programs to reduce community and regional impacts in the event of a natural disaster. The Hazard Mitigation Plan identifies the potential hazards, the extent of the risks posed by the hazards, the vulnerabilities of each

jurisdiction to these hazards, and actions that are currently in place or would be initiated to mitigate or reduce the potential impact of the hazards The Clark County Fire Department is the lead agency for hazardous events. The Clark County and Las Vegas Fire Departments are responsible for the continued update of emergency evacuation plans for wildland fire incidents as an extension of the agency's responsibility for Hazard Mitigation Planning in Clark County (Clark County 2005).

3.7.1.6 Electromagnetic Fields

Due to public concern about electromagnetic fields (EMFs), this section defines the phenomenon and presents a summary of research about EMFs to inform both the public and decision-makers. Health effects from exposure to the electrical field component of EMFs from power lines is typically not of concern, since these fields are effectively shielded by materials such as trees and walls. Therefore, most of the following information focuses on exposure to magnetic fields from power lines. Moreover, the CPUC does not consider EMFs, in the context of CEQA, as an environmental impact because there is no agreement among scientists that EMFs create a potential health risk and because CEQA does not define or adopt standards for defining any potential risk from EMFs.

Defining Electric and Magnetic Fields

Electric and magnetic fields are components of electromagnetic fields. Electric fields are produced by stationary electric charges, and magnetic fields are produced by moving electrical charges. Naturally occurring electromagnetic fields produced by weather and the Earth's geomagnetic field are not of concern. Electric and magnetic fields are also caused by human activity such as communications, appliances, and the generation, transmission, and local distribution of electricity. Both types of fields exist near power lines.

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

Electric power flows across transmission systems from generating sources to serve electrical loads (demands) within the community. The apparent power (measured in multiples of watts) passing through a transmission line is determined by the transmission line's voltage and the current, which is measured in amperes, or amps. The higher the voltage of the transmission line, the lower the amount of current needed to deliver the same amount of power. For example, a 115-kV transmission line with 200 amps of current will transmit approximately 40,000 kilowatts (kW) of power, but a 230-kV transmission line requires only 100 amps of current to deliver the same 40,000 kW.

Electric Fields

Electric fields from power lines are created whenever the lines are energized, with the strength of the field directly dependent on the voltage of the line creating it. Electric field strength is typically described in terms of kilovolts per meter (kV/m). Electric field strength is attenuated (reduced) rapidly as the distance from the source increases. Electric fields are attenuated at many receptors because they are effectively shielded by most objects such as trees, houses, or the human body. Measuring an electric field with instruments is difficult because the devices themselves alter the levels recorded. Determining an individual's exposure to electric fields requires understanding of many variables, including the electric field itself, how effectively the person is grounded, and his or her body surface area within the electric field.

Electric fields in the vicinity of power lines can cause the same phenomenon as the static electricity experienced on a dry winter day, or with clothing just removed from a clothes dryer, and may result in small nuisance electric discharges when a person touches long metal fences, pipelines, or large vehicles. Electric shock may occur if people come into contact with energized wires, which generally occurs accidentally.

Magnetic Fields

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

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

EMFs in the Proposed Project Area

Subtransmission Lines

The project consists of replacing approximately 35 miles of single-circuit 115-kV subtransmission with 35 miles of 230-kV transmission line. With the exception of a short segment of the transmission line that would run adjacent to the city of Primm, Nevada, near the Desert Oasis Apartment Complex, the line is located in undeveloped, rural areas.

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

In developed areas, public exposure to EMFs is more widespread and encompasses a very broad range of field intensities and durations. In the developed areas of the proposed 230-kV route, EMFs are prevalent from the use of electronic appliances or equipment and existing electric distribution lines. In general, distribution lines exist throughout developed portions of the community and are the predominant source of public exposure to power line EMFs except in the immediate vicinity of transmission corridors.

The proposed transmission line and telecommunications system would cross lands in Boulder City and Primm, Nevada, and predominantly undeveloped land managed by the BLM. Most land that would be crossed by the proposed transmission line and telecommunications system is undeveloped, including the land under the jurisdiction of Boulder City.

Substations

At substations, station buswork, substation equipment, and subtransmission and distribution lines all contribute electromagnetic fields to the immediate environment. However, the most significant contributors to the EMFs are the transmission, subtransmission, and distribution lines. Therefore, the transmission line magnetic fields described above are also produced in the immediate area of substations.

The project substation would be located on undeveloped land managed by the BLM. The proposed Ivanpah Substation would be approximately 2 miles from the Primm Valley Golf Course and approximately 6 miles from Primm, Nevada.

Scientific Background and Regulations Applicable to EMFs

EMF Research

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

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

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

Since 1979, public interest and concern specifically focused on magnetic fields from power lines has increased. This increase has generally been attributed to publication of the results of a single epidemiological study (Wertheimer and Leeper 1979). This study observed an association between the wiring configuration on electric power lines outside of homes in Denver and the incidence of childhood cancer. Following publication of the Wertheimer and Leeper study, many epidemiological, laboratory, and animal studies of EMFs have been conducted. Research on ambient magnetic fields in homes and buildings in several western states found average magnetic field levels within most rooms to be approximately 1 mG, while in a room with appliances present, the measured values ranged from 9 to 20 mG (Severson et al. 1988, Silva 1988). Immediately adjacent to appliances (within 12 inches), field values are much higher, as illustrated in Tables 3.7-3 and 3.7-4. These tables indicate typical sources and levels of electric and magnetic field exposure the general public experiences from appliances.

Table 3.7-3 Typical Electric Field Values for Appliances, at 12 Inches Distance

Appliance	Electric Field Strength (kV/m)
Electric Blanket	0.25*
Broiler	0.13
Stereo	0.09
Refrigerator	0.06
Iron	0.06
Hand Mixer	0.05
Phonograph	.04
Coffee Pot	.03
* 1–10 kV/m next to blanket wires	

Source: Enertech 1985
Key: kV/m = Kilovolts per meter

Table 3.7-4 Magnetic Fields from Household Appliances

Appliance	Magnetic Field (mG) 12" Distant	Magnetic Field (mG) Maximum
Electric Range	3–30	100–1,200
Electric Oven	2–25	10–50
Garbage Disposal	10–20	850–1,250
Refrigerator	0.3–3	4–15
Clothes Washer	2–20	10–400

Table 3.7-4 Magnetic Fields from Household Appliances

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

Source: Gauger 1985

Methods to Reduce EMF

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

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

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

Scientific Panel Reviews

Numerous panels of expert scientists have convened to review the data relevant to the question of whether exposure to power-frequency EMFs is associated with adverse health effects. These evaluations have been conducted in order to advise governmental agencies or professional standard-setting groups. These panels of scientists first evaluate the available studies individually, not only to determine what specific information they can offer, but also to assess the validity of their experimental design, methods of data collection, analytical rigor, and conclusions relative to the nature and quality of the data presented. Subsequently, the individual studies, with their previously identified strengths and weaknesses, are evaluated collectively in an effort to identify whether there is a consistent pattern or

trend in the data that would lead to a determination of possible or probable hazards to human health resulting from exposure to these fields.

These reviews include those prepared by international agencies such as the World Health Organization (WHO) (WHO 1984, 1987, and 2001), as well as governmental agencies of a number of countries, such as the U.S. EPA, the National Radiological Protection Board of the United Kingdom, the Health Council of the Netherlands, and the French and Danish Ministries of Health. As explained further below, these scientific panels have varied conclusions on the strength of the scientific evidence suggesting that power-frequency EMF exposures pose any health risk.

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

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

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

On behalf of the CPUC, the California Department of Health Services (DHS) completed a comprehensive review of existing studies related to EMFs from power lines and potential health risks. This risk evaluation was undertaken by three DHS staff scientists from 2000 to 2002. Each of these scientists is identified in the review results as an epidemiologist. The results of this review, An Evaluation of the Possible Risks from EMFs from Power Lines, Internal Wiring, Electrical Occupations, and Appliances, were published in June 2002. The conclusions were:

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

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

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

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

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

Policies, Standards, and Regulations

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

International Guidelines

The International Radiation Protection Association, in cooperation with WHO, has published recommended guidelines (INRC 1998) for electric and magnetic field exposures. For the general public, the limits are 4.2 kV/m for electric fields, and 833 mG for magnetic fields. Neither of these organizations has any governmental authority or recognized jurisdiction to enforce these guidelines. However, because they were developed by a broad base of scientists, these guidelines are considered by utilities and regulators when reviewing EMF levels from electric power lines.

National Guidelines

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

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

State Guidelines

Several states have adopted limits for electric field strength within transmission line ROWs. Florida and New York are the only states that currently limit the intensity of magnetic fields from transmission lines. These regulations include limits within the ROW as well as at the edge of the ROW and cover a broad range of values. Table 3.7-5 lists the states regulating EMFs and their respective limits. The magnetic field limits were based on an objective of preventing field levels from increasing beyond levels currently experienced by the public and are not based upon any link between scientific data and health risks (Morgan 1991).

Table 3.7-5 EMF Regulated Limits (by State)

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

Source: Public Utilities Commission of Texas

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

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

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

- 100 feet for lines from 50 to 133 kV

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

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

CPUC Guidelines

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

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

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

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

3.7.1.7 Other Safety Considerations

Transmission line structures used to support overhead transmission lines must meet the requirements of the CPUC, General Order No. 95, Rules for Overhead Electric Line Construction. Transmission support structures are designed to withstand different combinations of loading conditions including extreme winds. This design code and the National Electrical Safety Code include loading requirements related to wind conditions. Failures of transmission line support structures are extremely rare. Earthquake conditions could result in damage or faults to underground transmission lines; however, the project would be designed for dynamic loading under variable wind conditions that generally exceed earthquake loads; seismic conditions are discussed under Section 3.8, "Geology, Soils, Minerals, and Paleontology."

Pipeline Crossings

The proposed Eldorado–Ivanpah Transmission Line would be near or immediately adjacent to various pipelines that transmit gasoline, diesel, jet fuel, and natural gas (Clark County 2006b). There are also at least three major gas pipelines buried underground in both California and Nevada that may be located near the transmission ROW. The proposed telecommunications route would cross the Calnev pipeline (underground gas pipeline) at MP 6. Transmission Alternative Routes C and D and the Mountain Pass and Golf Telecommunications Alternatives would also cross the Calnev pipeline at various MPs as shown in Table 3.7-6 and Figure 2-3a Maps 1 through 5.

Table 3.7-6 Pipeline Crossings

MP	EITP Component
4.46	Transmission Alternative Route C
0.87	Transmission Alternative Route D
6.26	Proposed Telecommunications Route
7.02	Mountain Pass Telecommunications Alternative
9.10	Mountain Pass Telecommunications Alternative
9.10	Golf Course Telecommunications Alternative
12.91	Mountain Pass Telecommunications Alternative
13.70	Mountain Pass Telecommunications Alternative
13.70	Golf Course Telecommunications Alternative

Powerline Crossings

The proposed Eldorado–Ivanpah Transmission Line would be near or immediately adjacent to the Los Angeles Department of Water and Power (LADWP) powerlines for most of its length and NV Energy powerlines for a portion of its length. The proposed transmission line would cross below existing powerlines at multiple locations. Alternative A would eliminate several transmission crossovers near the Eldorado Substation by using a new ROW adjacent to the LADWP Alternating Current (AC) transmission corridor near McCullough Pass. Overhead lines that would be near or immediately adjacent to the proposed Eldorado–Ivanpah Transmission Line would be identified by the applicant (APM W-13), and a power outage associated with the crossings is not anticipated.

3.6.1.8 Fire Hazards

Wildfires consist of uncontrolled fire spreading through vegetative fuels and they increase safety risks for people and structures. Wildfires are caused by arson, campfires, the improper burning of debris, accidental ignition caused by the use of gas powered vehicles or tools or other anthropogenic activities, and lightning. Wildfire behavior may vary due to individual fire characteristics, topography, fuels (type and quantity of available flammable material, referred to as the fuel load) and weather conditions (temperature, humidity, wind, and lightning).

The proposed project area is situated primarily in open desert characterized by minimal vegetation and vacant land with sparse development areas in both Clark and San Bernardino counties. California has a system called CalFire to characterize the fire risks of areas. CalFire produces Fire Hazard Severity Zone maps that assign a hazard score based on the factors that influence fire likelihood and behavior. Many factors are considered such as fire history, existing and potential fuel (natural vegetation), flame length, blowing embers, terrain (steep terrain has a greater fire hazard severity), topography, and typical weather for the area. The 2008 Fire Hazard Severity Zone maps include areas where local governments have financial responsibility for wildland fire protection, known as local responsibility areas. Only lands zoned very high were identified within local responsibility areas. The portion of the project area along I-15 in San Bernardino County, California, is classified as a moderate fire zone according to the San Bernardino County fire hazards maps (San Bernardino County Fire Department 2010).

According to the Nevada Community Wildfire Risk/Hazard Assessment Project (RCI 2005), Primm is classified as a low hazard community with respect to fire. The vegetative fuel density in the Primm area is generally light, dominated by widely spaced creosote bush, Joshua trees, and yucca. Primm has a low wildfire ignition risk potential. There is no significant wildfire history in the area surrounding the community, and the recorded history of lightning strikes and other ignitions shows only one incident.

The applicant has developed a Fire Management Plan (APM HAZ-4) that addresses construction and operation activities for the proposed project by establishing standards and practices that would minimize the risk of fire danger, and, in the case of fire, provide for immediate suppression and notification. The Fire Management Plan addresses spark arrestors, smoking and fire rules, storage and parking areas, use of gasoline-powered tools, road closures, use of a fire guard, and fire suppression equipment and training requirements. In addition, all vehicle parking, storage areas, stationary engine sites, and welding areas would be cleared of all vegetation and flammable materials. All areas used for dispensing or storage of gasoline, diesel fuel, or other oil products would be cleared of vegetation and other flammable materials; these areas would be posted with a sign identifying them as "No Smoking" areas.

3.7.2 Applicable Laws, Regulations, and Standards

The following section provides a summary of the federal, state, and local regulatory framework and the laws, regulations, and standards that govern hazards, health, and safety in the project area.

3.7.2.1 Federal

U.S. Department of Transportation

The U.S. Department of Transportation has regulatory responsibility for the safe transportation of hazardous materials under the Hazardous Materials Transportation Act, as amended and codified in 49 U.S.C. 5101 et seq. Vehicles transporting hazardous materials must comply with strict containment, safety, labeling, and manifesting requirements.

Federal Toxic Substances Control Act and Resource Conservation and Recovery Act 42 U.S.C. §6901 et seq.

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act (RCRA) of 1976 established a program administered by the U.S. EPA for regulating the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA.

RCRA regulates hazardous waste from the time that waste is generated through to its management, storage, transport, and treatment, and final disposal. Hazardous waste is regulated under RCRA subtitle C. The U.S. EPA has authorized the DTSC in California and the Nevada Division of Environmental Protection to administer their respective RCRA programs. A RCRA hazardous waste is a waste that appears on one of the four hazardous wastes lists or exhibits at least one of four characteristics—ignitability, corrosivity, reactivity, or toxicity. To keep track of hazardous waste activities, treatment, storage, and disposal (TSD) facility owners and operators must keep certain records and submit reports to the U.S. EPA at regular intervals. All facilities that generate, transport, recycle, treat, store, or dispose of hazardous waste are required to notify the U.S. EPA (or its state agency) of their hazardous waste activities. A U.S. EPA Identification Number must be obtained unless the solid waste has been excluded from regulation or the hazardous waste has been exempted. National Biennial RCRA Hazardous Waste Reports – §3002 and 3004 of RCRA require that the U.S. EPA collect information pertaining to hazardous waste management from hazardous waste generators and hazardous waste TSD facilities on a two-year cycle.

Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) of 1980, 42 U.S.C. §9601 et seq.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides a federal Superfund to clean up uncontrolled or abandoned hazardous waste sites, as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. The U.S. EPA generally administers CERLCA. The U.S. EPA has the power to seek out those parties responsible for any release and require their cooperation in the cleanup. Congress enacted CERCLA, commonly known as Superfund, on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that could endanger public health or the environment. CERCLA established requirements for closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

The Superfund Amendments and Reauthorization Act of 1986, Title III 40 CFR § 68.110 et seq.

SARA amended CERCLA, establishing a nationwide emergency planning and response program and imposing reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. Administered by the U.S. EPA, the act requires states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. Additionally, SARA identifies requirements for planning, reporting, and notification concerning hazardous materials.

Clean Water Act, 33 U.S.C. Section 1251 et seq.

The Clean Water Act (CWA) is the principal federal statute protecting navigable waters and adjoining shorelines from pollution. The law was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. Since its enactment, the CWA has formed the foundation for regulations detailing specific requirements for pollution prevention and response measures. The U.S. EPA implements provisions of the CWA through a variety of regulations, including the NCP and the Oil Pollution and Prevention Regulations. Implementation of the CWA is the responsibility of each state. The CWA establishes basic structure for regulating discharges of pollutants into the waters of the United States, establishes pollution control programs such as setting wastewater standards for industry, and sets water quality standards for all contaminants in surface waters. Under CWA, it is unlawful for any person to discharge any pollutant from a point source into navigable waters without a permit.

Oil Pollution Prevention, 40 CFR Part 112

The goal of the oil pollution prevention regulation in 40 CFR Part 112 is to prevent oil discharges from reaching navigable waters of the United States or adjoining shorelines. The rule was also written to ensure effective responses to oil discharges. The rule further specifies that proactive measures be used to respond to oil discharges. The oil pollution regulation contains two major types of requirements: prevention requirements (Spill Prevention, Control, and Countermeasure [SPCC] rule), and Facility Response Plan (FRP) requirements.

Facilities that could reasonably be expected to discharge oil into navigable waters in quantities that may be harmful are required to develop and implement SPCC plans per the SPCC rule. U.S. EPA amended the SPCC Rule in 2006 to extend the SPCC compliance dates in §112.3(a), (b), and (c) for all facilities until October 31, 2007. SPCC plans must be prepared, certified (by a professional engineer), and implemented by facilities that store, process, transfer, distribute, use, drill, produce, or refine oil or oil production.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) administers Occupational Safety and Health Standards (29 CFR §§1910 and 1926). These standards (1) provide regulations for safety in the workplace, (2) regulate construction safety, and (3) require a Hazard Communication Plan. The Hazard Communication Plan must include identification and inventorying of all hazardous materials for which Material Safety Data Sheets would be maintained, and must provide for employee training in safe handling of said materials.

Title 29 CFR, Part 1910.302, Sub-part S: Design Safety Standards for Electrical Systems, and 1910.331, Electrical Safety-Related Work Practices Standard (1990), describes concepts and principles associated with electrical hazards and basic electrical safety for individuals. OSHA's electrical standards for construction recommend general industry electrical standards whenever possible for hazards that are not addressed by industry-specific standards. The standards address concerns that relate to electrical hazards and exposures to dangers such as electrical shock, electrocution, burns, fires, and explosions. OSHA's electrical standards help minimize these potential hazards by specifying safety aspects in the design and use of electrical equipment and systems.

Federal Aviation Administration Regulations

FAA regulations address potential aircraft obstruction for structures taller than 200 feet or within 20,000 feet of an airport. Specifically, Federal Regulation Title 14, Part 77, established standards and notification requirements for objects that have the potential to affect navigable airspace. In 1993, Part 77.13(a)(5)(ii) was revised to include only those airports under construction and excluded proposed airports (FAA 1993). Nonetheless, the Part 77 standards are intended to (1) evaluate the effect of the construction or alteration of structures on airport operating procedures; (2) determine if there is a potential hazard to air navigation; and (3) identify measures to enhance safety. Specifically, the FAA requires notification through the filing of FAA Form 7460, Notice of Proposed Construction or Alteration, if a structure is over 200 feet in height or closer than 20,000 feet to an existing airport or airport under construction (Title 14, Part 77.13).

3.7.2.2 State

Nevada

Nevada State Plan

The Nevada State Plan is administered by the Division of Industrial Relations, Department of Business and Industry. Enforcement of the plan is provided by the Nevada Occupational Safety and Health Administration, and consultation is provided by the Nevada Safety Consultation and Training Section. The State of Nevada, under an agreement with OSHA, operates an occupational safety and health program in accordance with Section 18 of the Occupational Safety and Health Act of 1970. Initial approval of the Nevada state plan was published on January 4, 1974, and final approval was published on April 18, 2000 (Nevada Occupational Safety and Health Administration 2000).

Nevada Revised Statute – Hazardous Materials, Chapters 459 and 477

The Nevada Revised Statutes (NRS) Chapter 459 regulates hazardous materials in Nevada, including radioactive materials, highly hazardous substances, and explosives. Section 459.400 et seq. also includes provisions, definitions and jurisdictional responsibilities for hazardous waste disposal. NRS 477.045 and NRS 477.047 establish provisions for training programs for response to spills, permits for the storage of hazardous materials, surcharges for permits, and a mobile training team for volunteer firefighters to respond to incidents involving hazardous materials. This regulation states that the Nevada State Fire Marshal must establish a statewide training program for response to spills of hazardous materials and related fires, and also requires persons who store hazardous materials to obtain a permit to do so. The revenue derived by the State Fire Marshal pursuant to this section is deposited to the Contingency Account for Hazardous Materials.

Nevada Revised Statute – Emergency Management, Chapter 414

General provisions of the Emergency Management Statute (NRS 414.200 et seq.) include the following:

- Eliminating or reducing the probability that an emergency would occur, or reducing the effects of unavoidable disasters;
- Testing periodically the plans for emergency operations to ensure that the activities of state and local government agencies, private organizations, and other persons are coordinated;
- Restoring the operation of vital community life-support systems and returning persons and property affected by an emergency or disaster to a condition that is comparable to, or better than, what existed before the emergency or disaster occurred.

Nevada Division of Environmental Protection, Department of Conservation and Natural Resources

Nevada Department of Environmental Protection is the state agency responsible for the response and remediation of hazardous materials incidents, as designated by the State Comprehensive Emergency Management Plan.

Nevada Division of Emergency Management, Nevada Department of Public Safety

The Nevada Division of Emergency Management operates under the authority of NRS 414. The Nevada Division of Emergency Management is responsible for staffing the State Emergency Operations Center when a disaster or emergency threatens, as well as prior to and during large-scale events. The Clark County and Las Vegas Fire Departments provide emergency response.

Nevada Task Force 1

Nevada Task Force 1 is one of 28 Federal Emergency Management Agency (FEMA) Urban Search and Rescue task forces that are prepared to respond to state or federal disasters throughout the United States. The task force can be deployed by FEMA to rescue victims of human-caused or natural disasters. Nevada Task Force 1 consists of members from the Clark County Fire Department, Las Vegas Fire and Rescue, and the Henderson and North Las Vegas fire departments, as well as civilians from several private companies.

California

California Environmental Protection Agency

The California Environmental Protection Agency (Cal/EPA) was created in 1991. Cal/EPA unified California's environmental authority under one agency, consolidating the California Air Resources Board, SWRCB, RWQCBs, the Integrated Waste Management Board, the DTSC, the Office of Environmental Health Hazard Assessment, and the Department of Pesticide Regulation. These agencies were placed under the Cal/EPA umbrella to create a cabinet-level voice to protect human health and the environment and to ensure the coordinated deployment of state resources. Cal/EPA's mission is to restore, protect, and enhance the environment, and to ensure public health, environmental quality, and economic vitality.

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

Department of Toxic Substance Control

DTSC is a department of Cal/EPA and is the primary agency in California that regulates hazardous waste, administers clean-ups of existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California Health and Safety Code. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. DTSC manages, maintains, and monitors the CORTESE list of hazardous waste sites.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 California Code of Regulations [CCR] Sections 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings. A Hazard Communication Plan would be required for the project, to include identification and inventorying of all hazardous materials with Material Safety Data Sheets, and outlining employee training in safe handling of those materials.

California Emergency Management Agency

The California Emergency Management Agency (Cal/EMA) was formed January 1, 2009, as the result of a merger between the Governor's Office of Emergency Services (OES) and the Office of Homeland Security. The Hazardous Materials Unit of the Cal/EMA is responsible for hazardous materials (HAZMAT) emergency planning and response, spill release and notification, and HAZMAT enforcement of the Unified Program. OES provides emergency response services in support of local jurisdictions.

California-Nevada Supplemental Interstate Compact for Emergency Mutual Assistance, July 2007

Under the Supplemental Interstate Compact, the states of California and Nevada agree to provide emergency mutual aid assistance, whether an emergency has or has not been a governor-declared state of emergency. This compact supplements the EMA Compact agreed to by both states, which specifically addresses state-declared emergencies.

3.7.2.3 Regional and Local

Clark County, Nevada, and San Bernardino County, California, are parties to a “civil defense mutual aid compact” that allows for both county agencies to provide emergency services, supply material and equipment, and allow for the exchange of information when a declared disaster exists within either jurisdiction.

Clark County

Clark County Fire Department

The Clark County Fire Department maintains first responder responsibility for incidents within unincorporated areas of Clark County. Specific responsibilities include Urban Fire Services; Rural Fire Services; Aircraft Rescue Fire Fighting; Emergency Medical Services including Basic, Intermediate and Advanced Life Support (Paramedic Program); Hazardous Materials Response Team; Fire Prevention; Fire Investigation; Disaster and Emergency Preparedness; Public Education; and Technical Rescue including:

- Urban Search and Rescue Team (FEMA National Response Team)
- Confined Space Rescue

- Heavy Rescue
- Swift Water Rescue

Clark County Office of Emergency Management (Code, Chapter 3.04)

The Clark County Office of Emergency Management created an integrated emergency management public safety division that facilitates coordination of multi-agency public safety projects, including emergency management planning, preparation activities such as training and exercises, and response support coordination during emergencies (Ord. 2762 (part), 2002; Ord. 1881 §1 (part), 1996). The agency provides coordination support for the mitigation, preparation, response, and recovery activities necessary for protection of lives and property within Clark County (Clark County 2005).

Clark County Multi-Jurisdictional Hazard Mitigation Plan

The Clark County Multi-Jurisdictional Hazard Mitigation Plan establishes a strategy to implement improvements and programs to reduce community and regional impacts in the event of a natural disaster. The plan covers the unincorporated area of Clark County and the cities of Boulder, Henderson, Las Vegas, North Las Vegas, and Mesquite. The Clark County Fire Department is the lead agency for hazardous events. The Clark County and Las Vegas fire departments are responsible for continued update of emergency evacuation plans for wildland fire incidents as an extension of the agency's responsibility for Hazard Mitigation Planning in Clark County (Clark County 2005).

San Bernardino County

San Bernardino County Fire Department

The San Bernardino County Fire Department (SBCFD) acts as the CUPA and is responsible for reviewing Hazardous Materials Business Plans. The SBCFD is responsible for protection of the health and safety of the public and the environment of the County of San Bernardino by assuring that hazardous materials are properly handled and stored. The Department accomplishes this through inspection, emergency response, site remediation, and hazardous waste management services (SB County 2009a). Specific responsibilities include:

- Inspecting hazardous material handlers and hazardous waste generators to ensure full compliance with laws and regulations. Implementing CUPA programs for the development of accident prevention and emergency plans, proper installation, monitoring, and closure of underground tanks, and the handling, storage, transportation, and disposal of hazardous wastes.
- Providing 24-hour response to emergency incidents involving hazardous materials or wastes to protect the public and the environment from accidental releases and illegal activities.
- Overseeing the investigation and remediation of environmental contamination due to releases from USTs, hazardous waste containers, chemical processes, or the transportation of hazardous materials.
- Conducting investigations and taking enforcement action as necessary against anyone who disposes of hazardous waste illegally or otherwise manages hazardous materials or wastes in violation of federal, state, or local laws and regulations.

3.7.3 Impact Analysis

This section defines the methodology used to evaluate impacts for hazards, health, and safety, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.7.4.

3.7.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects to hazards, health, and safety would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16). Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

Under NEPA, significant effects to health and safety would occur if the proposed project would:

- Use, store, or dispose of oil and/or hazardous materials in a manner that results in a release to the environment in an amount equal to or greater than the reportable quantity for that material or creates a substantial risk to human health;
- Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors;
- Cause contamination of soils or groundwater within the project area during operation of the project, resulting in exposure of workers and/or the public to contaminated or hazardous materials at levels in excess of those permitted by CAL/OSHA in CCR Title B and the federal OSHA in Title 29 CFR Part 1910;
- Threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment; or
- Present an obstruction or hazard to air navigation as determined by FAA under 14 CFR Part 77.

3.7.3.2 CEQA Impact Significance Criteria

Under CEQA, the proposed project would have a significant impact if it would:

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

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

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

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

e. Be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project vicinity;

f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or

g. Expose people or structures to a significant risk of loss, injury, or death involving wildfires.

3.7.3.3 Methodology

Baseline conditions for the impact analysis were established in Section 3.7.1, “Environmental Setting,” and Section 3.7.2, “Regulatory Setting.” The thresholds applicable to the analysis of potential impacts on hazards under CEQA or

NEPA include reportable quantities under CERCLA and quantitative exposure thresholds under OSHA/Cal/OSHA. The criteria were defined based on a review of EIR/EIS documents for similar projects in the vicinity of the proposed project (SCE 2008) and Appendix G of the CEQA Guidelines.

County maps were reviewed to determine the project's proximity to schools and airports. In addition, the potential risk of fire based on local hazard maps was considered, and local agencies' relevant emergency response plans and airport land use plans were reviewed. Emergency plans and hazard management plans and evacuation routes for Clark and San Bernardino counties were also reviewed.

To help evaluate impacts from project-related contamination, sites with known or potential contamination along or near the proposed transmission line route were researched by review of online environmental databases and identification of land uses associated with hazardous material use. The purpose of this review was to better define the areas where hazardous waste-contaminated sites could impact construction activities. The primary reason to define potentially hazardous sites is to protect worker health and safety and to minimize public exposure to hazardous materials during construction and waste handling. If encountered, contaminated soil may qualify as hazardous waste, thus requiring transport, handling, and disposal according to local, state, and federal regulations.

3.7.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measures (APMs) related to hazards, health, and safety:

APM HAZ-1: Phase I Environmental Site Assessment. A Phase I Environmental Site Assessment would be performed at each new or expanded substation location and along newly acquired transmission or subtransmission line ROWs. The Phase I Environmental Site Assessments would include an electronic records search of federal, state, and local databases. The electronic records search would be contracted to a company that specializes in this type of work and that would produce a comprehensive report for the new or expanded ROW. The comprehensive report is used to identify sites in federal, state, and local government agency databases that may have the potential to impact the proposed project; based on a review of the report, any potential areas of concern along the ROW would be identified for further assessment. In addition, a Phase I Environmental Site Assessment that is compliant with American Society for Testing Materials (ASTM) Standard 1927-05 would be performed on all property to be acquired. Based on the results of the Phase I Environmental Site Assessment, additional assessment, characterization, and remediation of potential or known subsurface impacts may be conducted prior to construction activities. Such remediation could include the relocation of transmission line structures as necessary to avoid impacted areas, or the removal and disposal of impacted soils and/or groundwater according to applicable regulations.

APM HAZ-2: Hazardous Materials and Waste Handling Management Plan. The applicant would develop programs and policies for management of hazardous materials including a Hazardous Materials and Hazardous Waste Handling Program, Construction Stormwater Pollution Prevention Plan, and procedures for Transport of Hazardous Materials, Fueling and Maintenance of Construction Equipment, Fueling and Maintenance of Helicopters, and Emergency Release Response. This plan would be valid during project construction and operation.

APM HAZ-3: Soil Management Plan. The applicant would develop a Soil Management Plan that would provide guidance for the proper handling, onsite management, and disposal of impacted soil that might be encountered during construction activities.

APM HAZ-4: Fire Management Plan. The applicant would implement a Fire Management Plan.

APM HAZ-5: SPCCP and Hazardous Materials Business Plan. The applicant would implement a Spill Prevention, Countermeasure, and Control Plan (SPCCP) for preventing, containing, and controlling potential releases; provisions for quick and safe cleanup and a Hazardous Materials Business Plan (HMBP) that would

include hazardous waste management procedures; and emergency response procedures including emergency spill cleanup supplies and equipment. This plan would be valid during project construction and operation.

APM LU-1: Aeronautical Considerations. The applicant would submit notice to FAA electronically in accordance with FAA procedures and as far in advance of construction as possible.

APM AES-8: Substation Lighting Control. The substation lighting would be designed to be manually operated so that it could be turned on only when required for non-routine nighttime work. The lighting would be directed downward and shielded to eliminate offsite light spill at times when the lighting might be in use.

APM PUSVC-1: Work around High-Pressure Pipelines. No mechanical equipment will be permitted to operate within 3 feet of the high-pressure pipelines, and work within 3 feet must be done by hand or as otherwise directed by the pipeline company.

APM PUSVC-2: Monitoring by Pipeline Companies. Representatives of applicable owners and operators of major pipeline companies must observe the excavation around or near their facilities to ensure protection and to record pertinent data necessary for operations.

APM TRA-1: Obtain Permits. If any work required modifications or activities within local roadway and railroad ROWs, appropriate permits would be obtained prior to the commencement of construction activities, including any necessary local permits and encroachment permits.

APM TRA-2: Traffic Management and Control Plans. Traffic control and other management plans would be prepared where necessary to minimize project impacts on local streets and railroad operations.

APM TRA-3: Minimize Street Use. Construction activities would be designed to minimize work on, or use of, local streets.

APM W-13: Identify Location of Underground Utilities Prior to Excavation. Prior to excavation, the applicant or its contractors would locate overhead and underground utility lines, such as natural gas, electricity, sewage, telephone, fuel, and water lines, or other underground structures that may reasonably be expected to be encountered during excavation work.

3.7.3.5 Proposed Project / Proposed Action

Construction and operation activities of the EITP would take place within the transmission line ROW within the BLM-designated utility corridor. Potential hazardous impacts include accidental spill or release of fuels or chemicals, mobilization of existing contamination, interference with emergency response and evacuation, and wildfires.

Accidental spill or release of fuels or chemicals

During construction and operation of the all of the EITP components (transmission lines, substations, telecommunication lines), there would be a potential for incidents involving release of gasoline, diesel fuel, oil, hydraulic fluid, and lubricants from improperly maintained vehicles or other equipment. In addition, spills or accidental release of paints, solvents, adhesives, or cleaning chemicals may occur.

The EITP would have six fenced temporary construction yards (one in San Bernardino County, California, and five within Clark County, Nevada) that would house employee vehicles, construction equipment and materials, and tanker trucks that would hold roughly 500 gallons of gas or diesel, and aviation (100LL) fuels for project vehicles and equipment. Routine maintenance of construction vehicles and equipment would be conducted within the construction yards. Hazardous materials that would be used, transported, and stored on the site are as follows:

- Transformer oil
- Dielectric fluids

- Fuels (diesel, gas)
- Lube oils and grease
- Used oil
- Solvents, coatings, and paints
- Compressed gas
- Propane
- Sulfur hexafluoride (SF_6) gas

Additional hazardous materials include joint compounds that are applied from 1-pound tubes to compression fittings to protect aluminum components from water-induced corrosion. Certain joint compounds, such as Alcoa's Electrical Joint Compound No. 2, may contain hydrogen fluoride, a component listed in California as a hazardous substance.

Upgrades to the existing Eldorado Substation would involve removal of the existing 220/115-kV transformer, which would be placed in emergency stock or salvaged for reuse. Transformer removal would involve a sequence of activities: (1) oil testing for polychlorinated biphenyl (PCB) identification, (2) oil removal and disposal/recycle by specialized contractors, (3) disconnection of all primary and secondary conductors, (4) installation of cap plates to cover bushings mount holes on transformers, (5) removal of all hazardous materials from control cabinets, (6) removal of welded end bed plates, and (7) transportation and shipping to emergency stock or salvage storage room. The new Ivanpah Substation would have associated land disturbances due to the establishment of new yards. The proposed telecommunication system would consist of an optical ground wire and combined microwave system, and approximately 5 miles of fiber optic cable would be placed in an underground duct.

The applicant's Hazardous Materials and Waste Handling Management Plan (APM HAZ–2) would provide project-specific training for workers to ensure that all hazardous materials and wastes were handled in a safe and environmentally sound manner including proper storage and handling of hazardous materials and written procedures for fueling and maintaining construction equipment to ensure that chemicals do not come into contact with the ground. Equipment would be inspected daily for potential leakage or failures, and fuel tanks would be surrounded by a secondary containment area or be placed in an area where the ground was covered with an impermeable liner. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet (APM HAZ-2). The applicant's SPCC Plan and Hazardous Materials Business Plan (APM HAZ-5) would guide quick and safe cleanup of accidental spills of hazardous materials. Additionally, MM HAZ-1 requires that the applicant conduct a worker safety and environmental training program, which would further reduce risks associated with hazardous materials and releases.

The SPCC Plan would be required by law at the Ivanpah Substation during construction and operation and maintenance, since the proposed 230/115-kV transformers would be in excess of 1,320 gallons of mineral oil (40 CFR 112). The applicant would implement temporary and permanent spill control measures prior to the delivery of transformers to the substation site. Substation personnel would be trained in the execution of the SPCC Plan during operations and maintenance.

Soil Contamination / Mobilization of Contamination/ Contaminated Sites

During construction and operation, contamination of soils and/or mobilization of contaminated soils could occur as a result of land disturbance such as installation of asphalt and concrete, inappropriate handling of transformer fluids, improper disposal of hazardous materials, and accidental spills or encounters of unknown contaminated sites during trenching and grading activities. However, release or mobilization of contamination and/or PCBs in soils or fuels is expected to be localized and minimal with the incorporation of APMs HAZ-2 and HAZ-3 during construction and APMs HAZ-3 and HAZ-5 during operations.

Within the project area, facilities handling hazardous materials or fuels are the Molycorp Rare Earth Mineral Facility (nine land disposal facilities), three USTs in Primm, and the Primm Valley Golf Course. There are also four USTs in Jean. The Molycorp Mine at Mountain Pass facility is an active mining facility that is undergoing remediation to reduce existing contamination. The Molycorp location is approximately 6.5 miles from the project at its closest point and would not be impacted by the project. The Primm Valley Golf Course, which is located on top of a former landfill, is more than 0.4 miles from the proposed project at its closest point and would not be impacted by the EITP. The UST locations within Primm are located at gas stations and therefore would not be impacted by the project.

It is unlikely that previously unknown contaminated sites would be discovered during grading and trenching for installation of project towers and underground cables. The applicant has committed to conducting a Phase I ESA (APM HAZ-1) to determine the presence or absence of recognized environmental conditions in areas of planned ground disturbance prior to initiation of construction. If it is determined that an existing environmental contamination site may be encountered along the proposed EITP project route, a minor re-route could occur within the ROW to avoid disturbance of a contaminated site or, if appropriate, the contaminated soil could be addressed so that the project would not have to be re-routed. To minimize, avoid, and/or clean up unforeseen spill of hazardous materials during construction and operation, for each EITP component, workers would follow the Soil Management Plan (APM HAZ-3) guidelines for identification and handling of contamination, as well as the plans and procedures named in APM HAZ–5.

Pipeline Crossings, Transmission Crossings and EMF

Portions of the EITP could be located close to underground pipelines and overhead powerlines. Prior to commencement of any grading activities in California or Nevada, the applicant would be required by law to contact the appropriate Underground Service Alert organization to identify the location of underground utilities and pipelines. In addition, the applicant would not use mechanical equipment within 3 feet of high-pressure pipelines (APM PUSVC-1), and a representative for the pipelines would be present to observe excavation activities around buried pipelines during construction (APM PUSVC-2). Overhead lines that would be near or immediately adjacent to the proposed transmission line would be identified by the applicant (APM W-13), and it is not anticipated that there would be a power outage associated with the crossings. Furthermore, in response to public concern, Section 3.7.1.6 presents an overview of the effects of exposure to EMFs for the consideration of both lawmakers and the public.

Hazardous Waste Disposal

Construction of the EITP transmission lines and telecommunication lines would involve removal of six wood poles and 23 H-frames that support the existing 115-kV transmission line. The wood poles are chemically treated (that is, they will be hazardous waste) and they would need to be disposed in a permitted Class I hazardous waste landfill, returned to the manufacturer, or recycled for an unrelated project(s). The wood poles would be replaced with lattice steel towers (LSTs) or tubular steel poles (TSPs). The new TSPs and LSTs that would be installed to support the new transmission and telecommunication towers would require multiple drilled, poured-in-place, concrete footings to form the structure foundation. The foundation process would start with drilling the boreholes for each footing.

Interference with Emergency Response and Evacuation Routes

During construction and operation, activities that could affect traffic and emergency routes include equipment delivery necessitating lane closures and stringing lines across major and local roadways. The proposed transmission line would cross I-15 near MP 29 at the California/Nevada border. The proposed project would be serviced by I-15, a major north–south divided freeway through San Bernardino County in California and Clark County in Nevada. This stretch of I-15 varies in width from four to six lanes. In Nevada, I-15 is the major transportation route between the California-Nevada border (MP 28) and the Las Vegas metropolitan area. If lane closures were necessary for construction or maintenance of the EITP, the applicant would have to obtain an encroachment permit from the appropriate authorities (California or Nevada Department of Transportions [CalTrans or NDOT]) for work that would be performed within roadways and railroad ROWs (APM TRA-1). A Traffic Management and Control Plan (APM TRA-2) would specify how the flow of traffic would be controlled and how emergency situations would be addressed.

The applicant would also implement best management practices (BMPs) such as use of flaggers, identification of detours, and appropriate communications with stakeholders. Traffic impacts are further discussed in Section 3.14, "Traffic and Transportation."

Safety Hazards within 2 Miles of a Public Airport or Public Use Airport

Jean Sport Aviation Center, the closest public or private airport to the EITP, is 5 miles from the EITP. Therefore, the proposed project would not increase safety hazards related to existing public or private airports within 2 miles of the project during construction.

An EIS for the SNSA, which would be within 0.5 miles of the EITP, is in progress and is expected to be completed by the fourth quarter of 2012. However, it is not possible to determine whether the EITP would impact the future SNSA until completion of the SNSA EIS and approval of that project. Regardless, the EITP applicant has included APM LU-1, which states that the applicant would notify the FAA as far in advance of construction as possible. As currently proposed, the SNSA boundary would be within 0.5 miles (2,640 feet) north of MP 26 of the EITP transmission line, and the LSTs that would support the transmission line would be 180 feet tall. Ordinarily, the FAA requires the filing of a Hazard/No Hazard Determination for structures closer than 20,000 feet to an airport boundary and for structures that are 200 feet tall. While the proposed SNSA would not complete construction until 2020 (after construction of the EITP), to reduce hazards associated with future flight path obstruction and electromagnetic interference, the applicant will implement MM HAZ-2. MM HAZ-2 requires that the applicant consult with the FAA on final project design and whether a Hazard/No Hazard Determination is required. For further discussion of the SNSA, see Section 3.9, "Land Use," and Chapter 5, "Cumulative Scenario and Impacts."

Fire Risk

The risk of fire danger from the proposed project would be related to the combustion of native materials due to smoking, refueling, and operating vehicles and other equipment off roadways. Welding during construction of towers or support structures could result in the combustion of native materials close to the welding site. Brushing activities for vegetation control and removal during construction could result in fire. Electrical arcing from power lines could create a fire hazard. Fire hazards from high voltage transmission lines are greatly reduced through the use of taller structures and wider ROWs.

The proposed project is located within low fire hazard areas, and the applicant would implement a Fire Management Plan (APM HAZ-4) to minimize impacts associated with wildfire hazards. APM HAZ-4 establishes standards and practices that would minimize the risk of fire danger and, in the case of fire, provide for immediate suppression and notification. The Fire Management Plan addresses spark arrestors, smoking and fire rules, storage and parking areas, use of gasoline powered tools, road closures, use of a fire guard, and fire suppression equipment and training requirements. In addition, all vehicle parking, storage areas, stationary engine sites, and welding areas would be cleared of all vegetation and flammable materials. All areas used for dispensing or storage of gasoline, diesel fuel, or other oil products would be cleared of vegetation and other flammable materials. These areas would be posted with a sign identifying them as "No Smoking" areas. Furthermore, the proposed project is not located in an area designated as a high fire risk area in either Clark County, Nevada, or San Bernardino County, California.

NEPA Summary

During construction and operation of the EITP (transmission lines, substations, telecommunication lines), hazards such as accidents or spills from improper use, storage, or disposal of oil and/or hazardous materials would be minor, short term, and localized. Impacts from reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would likely be minor, localized, and short term. During construction, the applicant would use their Hazardous Materials and Waste Handling Management Program (APM HAZ-2), which includes use, proper storage, and handling procedures as well as standards for hazardous waste transport. During operation and maintenance, the applicant would implement their SPCC Plan and Hazardous Materials Business Plan (APM HAZ-5)

to facilitate quick and safe cleanup of accidental spills of hazardous materials. Implementation of a Worker Health and Safety Plan (MM HAZ-1) would reduce the risk of exposure to workers and the public and minimize the potential for release of hazardous materials.

During construction and operation of the EITP, the potential to expose the public to previously unidentified contamination or to mobilize existing contaminants already existing in soils could result in only a minor, short-term, and localized impact because of the precautions that would be taken by the applicant and the unlikelihood of encountering contamination. The proposed project would not traverse any known contaminated sites, but it would cross or would be in close proximity to fuel pipelines. The applicant would conduct a Phase 1 ESA (APM HAZ-1) to identify recognized environmental conditions in the vicinity of the ROW prior to the start of construction. Before any grading activities would occur in California or Nevada, the applicant would be required to utilize the appropriate Underground Service Alert organization to identify the location of underground utilities and pipelines. In addition, the applicant would not use mechanical equipment within 3 feet of high-pressure pipelines (APM PUSVC-1), and a representative for the pipelines would be present to observe excavation activities around buried pipelines during construction (APM PUSVC-2). In addition, the applicant's Soil Management Plan (APM HAZ-3) provides guidance for the proper handling, onsite management, and disposal of impacted soil that might be encountered during construction activities. With respect to potential hazards to aviation, FAA has recommended distances between power lines and navigational equipment. The applicant would coordinate with FAA (MM HAZ-2) and notify the FAA in advance of construction (APM LU-1) to ensure that the EITP did not interfere with proposed navigational facilities and flight paths.

CEQA Significance Determinations

IMPACT HAZ-1: Create Hazards to the Public or the Environment through Routine Transport, Use, or Disposal of Hazardous Materials

Less than significant with mitigation

During construction of the EITP, hazards to the public or the environment might be caused by the transport, use, or disposal of hazardous materials including (but not limited to) gasoline, diesel fuel, oil, paints, chemicals, waste oils, and construction waste. The applicant's Hazardous Materials and Waste Handling Management plan (APM HAZ-2) would facilitate safe and environmentally sound handling of hazardous materials and wastes to prevent releases. Equipment would be inspected daily for potential leakage or failures, and fuel tanks would also be placed within a secondary containment area or an area where the ground was covered with an impermeable liner to ensure that any accidental spillage would not escape to the environment. APM HAZ-2 would also ensure that waste would be handled and disposed of in a landfill facility authorized to accept treated wood pole waste in accordance with California Health and Safety Code 25143.1.4(b).

During operation and maintenance of the EITP, hazards to the public or the environment also could be caused by the improper transport, storage, use or disposal of hazardous materials. The applicant's SPCC Plan and Hazardous Materials Business Plan (HAZ-5) would also help ensure that the applicant would minimize, avoid, and/or clean up spills of hazardous materials. Implementation of a Worker Health and Safety Plan (MM HAZ-1) would help protect the workforce during construction and operation of the EITP. Therefore, impacts would be less than significant with mitigation.

IMPACT HAZ-2: Create Hazards through Accidental Release of Hazardous Materials into the Environment

Less than significant with mitigation

The proposed project would not traverse any known contaminated sites, but would traverse and be in close proximity to fuel product pipelines where there could be soil contamination. During construction and operation of the EITP, contamination of soils and/or mobilization of contaminated soils could occur. Prior to commencement of any grading activities, the applicant would be required by law to use an Underground Service Alert organization to identify the

location of underground utilities and pipelines. In addition, the applicant would not use mechanical equipment within 3 feet of high-pressure pipelines (APM PUSVC-1), and a representative for the pipelines would be present to observe excavation activities around buried pipelines during construction (APM PUSVC-2). The applicant's Hazardous Materials and Waste Handling Management Program (APM HAZ-2) would include procedures for proper storage, handling, and disposal of hazardous wastes. In addition, the applicant's Soil Management Plan (APM HAZ-3) would provide guidance for the proper handling, onsite management, and disposal of impacted soil. Implementation of a Worker Health and Safety Plan (MM HAZ-1) would help protect the workforce during construction and operation of the EITP. Therefore, impacts would be less than significant with mitigation.

IMPACT HAZ-3: Expose the Public or Environment to Existing Contaminated Soil or Groundwater
Less than significant without mitigation

As discussed in Section 3.7.1.1, the proposed EITP components may encounter undocumented hazardous waste sites during construction. However, the applicant has committed to conducting a Phase 1 ESA (APM HAZ-1) to identify recognized environmental conditions in the vicinity of the ROW prior to the start of construction to ensure that contaminated areas would be avoided. Therefore, impacts would be less than significant without mitigation.

IMPACT HAZ-4: Increase Safety Hazards for People Residing or Working within 2 Miles of a Public Airport or Public Use Airport
Less than significant with mitigation

The only existing airport within the project area is the Jean Airport, 5 miles away; therefore, there would be no impact associated with existing airports within 2 miles of the proposed project. The proposed boundary for the SNSA would be within 0.5 miles (2,640 feet) north of MP 26 of the EITP transmission line; however, as discussed above, the EIS for the SNSA is currently in progress and is not expected to be completed until the fourth quarter of 2012. Therefore, it is not possible to state conclusively whether the EITP would impact the future SNSA. Regardless, the applicant has included APM LU-1, which states that they would notify the FAA as far in advance of construction as possible. To further reduce potential hazards associated with the future airport, the applicant will implement MM HAZ-2, which requires that the applicant consult with the FAA regarding final project design and whether a Hazard/No Hazard Determination is required. With implementation of MM HAZ-2, impacts from increased safety hazards for people residing or working within 2 miles of an airport would be reduced to less than significant. For further discussion of impacts associated with the SNSA, see Chapter 5, "Cumulative Scenario and Impacts."

IMPACT HAZ-5: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan
Less than significant without mitigation

During construction and operation, activities that could affect traffic and emergency routes include equipment delivery necessitating lane closures and stringing lines across major and local roadways. If lane closures were necessary for construction or maintenance of the EITP, the applicant would have to obtain an encroachment permit from the appropriate authorities (CalTrans or NDOT) for work that would be performed within roadways and railroad ROWs (APM TRA-1). A Traffic Management and Control Plan (APM TRA-2) would specify how the flow of traffic would be controlled and how emergency situations would be addressed. The applicant would also implement BMPs, such as use of flaggers, identification of detours, and appropriate communications with stakeholders. Therefore, impacts on emergency response plans and evacuation routes would be less than significant without mitigation.

IMPACT HAZ-6: Expose People or Structures to an Increased Risk of Wildland Fires
Less than significant without mitigation

During construction and operation of the EITP (all components), fires might be caused by combustion of native materials due to smoking, refueling, or operating vehicles and other equipment off roadways; welding; electrical

arcing; or a fallen conductor. The applicant's Fire Management Plan (APM HAZ-4) establishes standards and practices that would minimize the risk of fire and, in the event of fire, provide for immediate suppression and notification. Therefore, potential impacts from wildland fires would be less than significant without mitigation.

NO IMPACT: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. There are no schools within 0.25 miles of the EITP transmission lines, substations, or telecommunications improvements in California or Nevada. Therefore, no impacts on existing or proposed schools are anticipated from the construction, operations, or maintenance of the EITP.

3.7.3.6 No Project / No Action Alternative

The No Project Alternative assumes that existing transmission lines and power plants would continue to operate. Impacts currently caused by these facilities on the existing environment would not change, so no new hazards or health safety impacts would occur from continuing operation of the existing transmission lines and power plants. The No Project Alternative would have no impact on health and safety, schools, emergency response/evacuation routes, airports, or the risk of wildfires.

3.7.3.7 Transmission Alternative Route A

Transmission Alternative Route A would eliminate several transmission crossovers near the Eldorado Substation by using a new ROW adjacent to the LADWP AC transmission corridor near McCullough Pass. This route would be shorter than the segment of the proposed alignment it replaces and would require fewer transmission structures. In addition, this route would cross fewer intermittent streams.

Similar to the proposed project, impacts associated with the improper management or release of hazardous materials would be short term, minor, and localized, but would be incrementally less because this alternative is shorter than the proposed project and thereby construction time would be shorter. This incrementally decreases the risk of improper management of hazardous materials or of a spill. With the implementation of MM HAZ-1, impacts would be less than significant. The potential to encounter contaminated soil would also incrementally decrease and the impact, if contaminated soils were encountered, would remain short term, minor, and less than significant. As discussed above, there would be no impact on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.8 Transmission Alternative Route B

Transmission Alternative Route B would involve deviating from the proposed route near the Eldorado Substation. Several of these overhead utility lines might have to be modified or relocated to accommodate this alternative. Similar to the proposed project, impacts associated with the improper management or release of hazardous materials would be short term, minor, and localized, but would be incrementally greater because this route is longer than the proposed project. With the implementation of MM HAZ-1, impacts would be less than significant. The potential to encounter contaminated soil would incrementally increase and the impact, if contaminated soils were encountered, would be short term, minor, and less than significant. As discussed above, there would be no impacts on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.9 Transmission Alternative Route C

Transmission Alternative Route C would avoid crossing Ivanpah Dry Lake. Impact on intermittent streams would be reduced due to fewer crossings, and the likelihood of impacting water resources would be reduced. However, Alternative C would be closer to the proposed SNSA than would the proposed project, which could result in project

components being more likely to present obstruction and/or hazards to aviation than the proposed project; however, with the implementation of MM HAZ-2, this impact would likely be reduced to less than significant. This alternative could have a greater potential for ground-disturbing activities such as construction of access and spur roads and towers, additional pulling and tensioning sites, and construction within 5.2 miles of new ROWs.

Similar to the proposed project, impacts associated with the improper management or release of hazardous materials would be short term, minor, and localized, but would be incrementally greater because this route is longer than the proposed project. With the implementation of MM HAZ-1, impacts would be less than significant. The potential to encounter contaminated soil would incrementally increase and the impact, if contaminated soils were encountered, would be short term, minor, and less than significant. As discussed above, there would be no impact on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.10 Transmission Alternative Route D and Subalternative E

Transmission Alternative Route D and Subalternative E would follow to the extent feasible the existing LADWP Marketplace–Adelanto 500-kV transmission line ROW, thus reducing the overall transmission footprint across the Ivanpah Dry Lake. Alternative D and Subalternative E would also move the transmission line away from the Desert Oasis Apartment complex and be further away from the proposed SNSA than would the proposed project and Alternative C, which could result in project components being less likely to present obstructions and/or hazards to aviation than the proposed project or Alternative C. The length of the transmission line would be shorter than the proposed project; however, new access roads and new ROWs would be required.

Similar to the proposed project, impacts associated with the improper management or release of hazardous materials would be short term, minor, and localized, and would be equivalent to those of the proposed project. Because this alternative is shorter, it would incrementally decrease the risk of improper management of hazardous materials or of a spill, although impacts would be similar to the proposed project. With the implementation of MM HAZ-1, impacts would be less than significant. The potential to encounter contaminated soil would also incrementally decrease and the impact, if contaminated soils were encountered, would remain short term, minor, and less than significant. As discussed above, there would be no impacts on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.11 Telecommunication Alternative (Golf Course)

The Golf Course Telecommunication Alternative would include installation of overhead and underground telecommunications lines only; no microwave towers would be installed. This telecommunication line would be 20 miles longer than the telecommunication line of the proposed project, which would increase the risk of accidents associated with hazardous materials due to the increased length of the construction period. Removal of the treated wood poles, trenching and grading activities for access roads, and installation of additional LSTs or TSPs would cause greater ground disturbance than would the telecommunication line proposed for the project. With incorporation of APMs HAZ-1 through HAZ–5 and MM HAZ-1, there would be a less than significant impact.

The Golf Course Telecommunication Alternative might cross over a closed land disposal site (Biogen Plant) that is buried underneath the Primm Valley Golf Course near MP 6 of the telecommunication line, and might also cross over a possible underground storage tank at the southeast quadrant of the I-15/Yates Well Road interchange in Nipton, California, near MP 4 of the telecommunication line. This alternative could result in moderate, adverse direct impacts due to the potential of exposing potential contamination along this route.

As discussed above, there would be no impact on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.12 Telecommunication Alternative (Mountain Pass)

The Mountain Pass Telecommunication Alternative includes installation of overhead and underground telecommunications lines only; no microwave towers would be installed. The telecommunication line would be 20 miles longer than the line for the proposed project. The increased length of this alternative would increase the risk of accidents associated with the management of hazardous materials because the construction period would be longer. Removal of the treated wood poles, trenching and grading activities for access roads, and installation of additional LSTs or TSPs would cause greater ground disturbance than would the proposed telecommunication route for the project. APMs HAZ-1 through HAZ-5 would be incorporated to reduce impacts. With the implementation of MM HAZ-1, there would be a less than significant impact of potential risks associated with improper management of (or accidental release of) hazardous material, but there would be incrementally greater potential impacts than under the proposed project.

The Mountain Pass Telecommunication Alternative would cross through Molycorp Mine, which is listed as a hazardous site (DTSC 2009). Molycorp is a large active lanthanide mining and milling operation; however, this portion of the telecommunication line would be an overhead wire. Construction through this type of facility would increase the potential for exposing workers to hazardous materials or wastes. Project workers would have to comply with the health and safety requirements of the mining facility and those of the applicant's Health and Safety Plan (MM HAZ-1). Implementation of this mitigation measure would reduce the risks associated with this impact such that the impact would be minor, short term, and less than significant with mitigation, although incrementally greater than the proposed project.

As discussed above, there would be no impact on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.4 Mitigation Measures

MM HAZ-1: Worker Health and Safety and Environmental Training and Monitoring Program. Prior to construction, the applicant will conduct a worker safety and environmental training program. As part of the program, the applicant will develop and implement a Health and Safety Plan. The Health and Safety Plan should address all potential situations that workers could encounter during construction and maintenance, including safety issues that may be unique to any of the alternatives. The Health and Safety Plan, at minimum, must require that first aid kits be stored in each construction vehicle and that a worker trained in first aid be included in each work group. The purpose and goal of the worker safety and environmental training will be to communicate project-related environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and BMPs, to all field and construction personnel prior to the start of construction. SCE will also conduct health and safety training for Operation and Maintenance activities.

MM HAZ-2: Consultation with FAA Regarding Final Project Design and Possible Hazard/No Hazard Determination. Prior to final project design and as far in advance as possible, the applicant will initiate consultation with the FAA regarding potential requirements due to the proximity of the EITP to the proposed SNSA. Depending upon the FAA's recommendations, the applicant may be required to obtain a Hazard/No Hazard Determination. The FAA may also require lighting of EITP structures or make additional recommendations regarding safety. The applicant will submit documentation of this consultation to the CPUC and BLM.

3.7.5 Whole of the Action / Cumulative Action

Below is a brief summary of information related to hazards, health, and safety in the ISEGS Final Staff Assessment / Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM. This section focuses on differences in the ISEGS setting and methodology compared with the setting and

methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.

ISEGS project components and operational features that were evaluated for hazards and health and safety are:

- A power plant that requires process cooling water
- Stacks that would emit fumes
- Solar panels that would use natural gas for operation
- Power plants that would use natural gas for operation
- Safety measures that would use natural gas for operation
- Site security cameras
- Driver certifications for transport of hazardous materials and site access

3.7.5.1 Hazardous Materials Management

The Hazardous Materials Management Section of the ISEGS FSA/DEIS includes regulations related to worker and public protection from accidental releases of hazardous materials.

Setting

ISEGS evaluated several setting characteristics related to the ability of accidental release of hazardous materials to affect the public, including meteorological conditions, terrain, and location of population centers and sensitive receptors relative to the project.

Meteorological conditions including wind speed, wind direction, and air temperature affect both the extent to which accidentally released hazardous materials would be dispersed into the air and the direction in which they would be transported. The location of elevated terrain is often an important factor in assessing potential exposure. The topography of the ISEGS site is essentially flat but sloping from west to east. The stack height is not of concern for the project. No sensitive receptors are located within 6 miles of the ISEGS project vicinity, and the nearest residence is 5 miles from the ISEGS site.

Methodology

BLM and CEC staff (Staff) examined the plausible potential spills of hazardous materials that are to be used, handled, stored, or transported at the project site, and evaluated the potential impacts on public health from accidental releases/loss of containment incidents of these hazardous materials. The worst-case scenario was evaluated. Both engineering and administrative controls for hazardous material use were evaluated. Engineering controls are physical or mechanical systems such as storage tanks or automatic shut-off valves that can prevent a spill of hazardous material from occurring, or that can limit the spill to a small amount or confine it to a small area. Administrative controls are rules and procedures that workers must follow to help either prevent accidents or keep them small if they do occur. Both engineering and administrative controls can act as either methods of prevention or methods of response and minimization. In both cases, the goal is to prevent a spill from moving off site and harming the public. The list of the known hazardous materials that would be used for the ISEGS project was categorized into small quantity and large quantity hazardous materials. Staff considered two additional potential impacts: (1) nearby school operations and (2) transportation of hazardous materials. No schools are located within 30 miles of ISEGS site, so the FSA/DEIS did not analyze impacts to schools. However, the impacts of transporting hazardous materials were analyzed in the Operation Impacts and Mitigation section.

ISEGS provided maximum anticipated volumes of hazardous materials anticipated to be used on the project. EITP did not evaluate the worst-case scenario. The EITP does not discuss the maximum anticipated volumes and the type and location of storage of hazardous materials.

Construction Impacts

Hazardous materials would be transported, handled, used, and stored on the ISEGS site. Small quantity hazardous materials used during the construction phase of the project would include paint, cleaners, solvents, gasoline, diesel fuel, motor oil, welding gases, and lubricants. Potential impacts would include spills due to accidents, failure of hazardous containment tanks due to seismic activity, and site security issues (unauthorized access, vandalism, or domestic/foreign terrorist attacks). The potential for accidents resulting in the release of hazardous materials would be reduced by the implementation of a Safety Management Program, which would include both engineering and administrative controls. In addition, ISEGS would develop and implement a Worker Health and Safety Program; designate and provide a project Health and Safety Officer; prepare and implement an HMBP, which would incorporate state requirements for the handling of hazardous materials; prepare and implement an SPCC Plan; and implement site security measures such as perimeter fencing and breach detectors, alarms, and site access procedures for employees and vendors. The ISEGS FSA/DEIS concluded that there would be no significant impact from construction-generated hazardous materials with the use of BMPs and compliance with all laws, ordinances, regulations, and standards.

Operational Impacts

During operations, hazardous chemicals such as cleaning agents, lubrication oil, sulfuric acid, sodium hydroxide, ammonium hydroxide, diesel fuel, and other chemicals would be used and stored on site but would be a limited off-site hazard due to their small quantities, low volatility, and/or low toxicity. In addition, the ISEGS project would use natural gas to heat a partial load steam boiler when solar conditions were insufficient. The natural gas would be used in significant quantities and is considered a large quantity hazardous material as described under the above methodology section. The natural gas would not be stored on site, but would be delivered via an existing underground pipeline that runs within a half-mile of the northern perimeter of the ISEGS site.

Natural gas poses an explosion and fire risk because of its flammability. The risk of a fire and/or explosion on site would be reduced to insignificant levels through adherence to applicable codes including the use of double block and bleed valves for gas shut-off and automated combustion controls. In addition, the applicant's Safety Management Plan would reduce the potential for injuries and accidents related to the use of equipment and hazardous materials.

The EITP would have some fire risks associated with transmission lines, unmaintained vegetation clearances around structures, and use of fuel for the substation equipment. However, no natural gas from underground pipelines would be used for EITP construction and/or operation.

Decommissioning Impacts

The ISEGS project would be decommissioned at the end of its 50-year life by removing all facilities to 3 feet below grade, restoring original contours, and revegetating the site. The requirements for handling of hazardous materials remain in effect until such materials are removed from the site. If the site were to be abandoned, and if there were any unacceptable risk to the public, emergency action could be taken and it would be paid for by a performance bond required from the applicant (LAND-1).

The EITP discussion does not cover decommissioning and there is no requirement for a performance bond for decommissioning of the site.

ISEGS Mitigation Measures

Mitigation measures related to hazardous materials used for ISEGS are as follows:

HAZ-1 requires that the applicant use only hazardous materials listed in Hazardous Materials Appendix A, and not use hazardous materials in greater quantities than those associated with materials identified by chemical name in Hazardous Materials Appendix A, unless approved in advance by the BLM's Authorized Officer and Compliance Project Manager (CPM).

HAZ-2 requires the applicant to develop and implement an HMBP to notify local emergency response services of the amounts and locations of hazardous materials associated with the ISEGS project.

HAZ-3 requires the applicant to develop and implement a Safety Management Plan for the delivery of liquid hazardous materials.

HAZ-4 requires the applicant to develop and implement a site-specific Construction Site Security Plan applicable to all construction phases.

HAZ-5 requires that the applicant to develop and implement a site-specific Operation Security Plan addressing physical site security and hazardous materials storage.

HAZ-6 requires that the applicant comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) regarding any toxic substances that are used, generated, or stored on the ROW or on facilities authorized under this ROW grant.

3.7.5.2 Public Health and Safety

The Public Health and Safety Section of the ISEGS FSA/DEIS evaluated potential effects on the public from emissions of toxic air contaminants. The public health impacts related to emissions is further discussed in Section 3.3, "Air Quality," of this EITP EIR/EIS.

Setting

The natural gas pipeline proposed for construction for the ISEGS project would be approximately 5.3 miles long, running from the Kern River Gas Transmission Company pipeline through Ivanpah 3 and 2 and ending at Ivanpah 1. The nearest residence is approximately 5 miles from the site in the community of Primm, Nevada. According to the Application for Certification, there are no sensitive receptors within 6 miles of the ISEGS project site. There is a house trailer used as a residence near the southeast quadrant of the I-15/Yates Well Road interchange.

The ISEGS would have three exhaust stacks associated with the start-up boilers, one for each plant (Ivanpah 1, 2, and 3). The stack heights would be 130 feet (Table 5.1 D-2 in BSE 2007a). The location of elevated terrain (above the stack height) is important in assessing potential exposure, as an emission plume may impact high elevations before impacting lower elevations. The proposed site is within the jurisdiction of the Mojave Desert Air Quality Management District.

Additional setting characteristics that were evaluated included meteorology, terrain, and existing public health concerns. No existing health issues were reported within a 6-mile radius of the ISEGS project.

Methodology

The Public Health and Safety section of the ISEGS FSA/DEIS discusses toxic emissions to which the public could be exposed during project construction, routine operation, and closure/decommissioning. Potential emissions were identified and then quantified by conducting a "worst case" analysis to determine acute (short-term; e.g., 1-hour) exposure non-cancer health effects, chronic (long-term) non-cancer health effects, and cancer risk.

Construction of the three power plants of ISEGS is anticipated to take place over 48 months, with each phase taking about 24 months to complete and with 12 months of overlap between the construction of any of the two power plants at one time (Section 2.2.15 in BSE 2007a). As noted earlier, assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time, typically from eight to 70 years.

Construction Impacts

Risks to public health during construction of ISEGS would include potential exposure to toxic substances such as diesel fumes from gas-powered equipment and contact with contaminated water and/or soil from excavation, grading, and earth-moving activities. A Phase I ESA conducted for this site in 2007 identified no "Recognized Environmental Conditions" according to the ASTM definition, and the report concluded that the ISEGS project site has never been used for commercial or industrial activities (Appendix 5.14A in BSE 2007a). If unexpected contamination were to be discovered during ground-disturbing activities, proposed Waste Management Conditions of Certification (COCs) Waste-1 and Waste-2 mandate a professional geologist (PG) or professional engineer (PE) be available during excavation and grading to ensure proper handling and disposal of contaminated soil.

To minimize particulate matter in the air, which could be inhaled or ingested, ISEGS will implement extensive fugitive dust control measures in accordance with Air Quality COC AQ-SC-3 and AQ-SC-7. In accordance with AQ-SC-5 and in order to further mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, CEC staff recommends the use of ultra-low sulfur diesel fuel and Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines.

A Phase 1 ESA has not been conducted for the EITP; however, the applicant has proposed to conduct a Phase 1 prior to construction.

Operational Impacts

No short-or long-term adverse health effects are expected from emissions during the operation of the ISEGS project. Total worst-case individual cancer risk was calculated by the applicant to be 0.065 in 1 million at the location of maximum impact.

Decommissioning Impacts

Staff concluded that public-health–related impacts from closure and decommissioning of the ISEGS would be insignificant.

Mitigation Measures

No mitigation measures or conditions are proposed. Staff analyzed the potential public health risks of toxic emissions resulting from the ISEGS project and determined that there would be no significant health risks to any members of the public including sensitive receptors (for example, infants and the elderly).

3.7.5.3 Transmission Line Safety and Nuisance

Setting

The total area required for the three facilities (Ivanpah 1, 2, and 3) that would constitute the proposed ISEGS would be 4,073 acres of BLM land. Each of these facilities would consist of a solar field and related electric-power–generating equipment from which the generated power would be interconnected to SCE's power grid via a new 220/115- kV SCE substation (Ivanpah Substation) to be located between Ivanpah 1 and Ivanpah 2. The connection to the SCE grid would be through SCE's existing 115-kV line that would be upgraded to 230 kV for 36 miles between the new Ivanpah Substation and the existing Eldorado Substation in Nevada. This transmission line passes through the site on a northeast-southwest ROW. The site is in an uninhabited open space with transmission line corridors.

Methodology

The Transmission Line Safety and Nuisance Section of the ISEGS FSA/DEIS evaluated potential effects associated with proposed transmission lines including aviation safety, interference with radio-frequency communication, audible noise, fire hazards, hazardous shocks, nuisance shocks, and EMF exposure.

Construction Impacts

No aviation impacts are anticipated from the proposed ISEGS project because structures would not be located within the runway area, and transmission structures would be 85 in height; which is well below the 200-foot height limit that requires review by FAA. The FAA has determined that even the tallest structures of the proposed ISEGS, the 459-foot-high solar power towers, would not pose a hazard to aviation. However, this determination may be in conflict with the FAA requirement to review structures over 200 feet in height.

Transmission-line–related radio-frequency interference is an indirect effect of line operation and is produced by the physical interactions of line electric fields. The degree of radio-frequency communication interference is usually related to the magnitude of involved electric fields and the proximity of the line to inhabited areas. No radio-frequency interference is anticipated since the transmission lines associated with the ISEGS project would not be located near any inhabited areas.

Audible noise results from the action of the electric field at the surface of the line conductor and is usually perceived as a characteristic crackling, frying, humming, or hissing sound. Substantial audible noise is not expected from lines less than 345 kV, such as proposed for the ISEGS project.

Fire hazards could be caused by sparks from conductors of overhead lines or from direct contact with combustible objects. Fire risks would be minimized by adherence to clearance requirements of GO-95. In addition, Staff would require the ISEGS owner to keep the ROW free of combustible material (COC TLSN-3) and would require an independent inspection for the first five years of plant operation to verify compliance with this condition.

Hazardous shocks may occur from contact with high-voltage overhead or underground transmission lines. To minimize the risk of shocks, the project would adhere to the clearance requirements of GO-95 safety measures for energized lines to maintain clearance and a safe distance from the public. The Staff would also require ISEGS to comply with COC TLSN-1, which requires verification from a California-registered electrical engineer affirming that the lines would be constructed according to the requirements stated in the condition.

Nuisance shocks may also occur from human contact from the energized lines. Shocks may be minimized through standard industry grounding practices specified in the National Electrical Safety Code and joint guidelines of the American National Standards Institute and Institute of Electrical and Electronics Engineers. The Staff would require ISEGS compliance with COC TLSN-4 to ensure such grounding for ISEGS.

As described earlier, electric and magnetic fields occur together whenever electricity flows, and exposure to them together is generally referred to as “EMF exposure.” Human health impacts of EMF exposure from transmission have been neither established nor ruled out, and there are no health-based federal regulations or industry codes specifying environmental limits on the strengths of fields from power lines. COC TLSN-2 is intended to validate the ISEGS applicant’s assumed reduction efficiency.

The EITP does not address interference with radio-frequency communication, audible noise, or shocks within the hazards, health, and safety section.

Operational Impacts

No impacts were identified for operation of the transmission lines associated with the ISEGS project.

Decommissioning Impacts

Removal of the ISEGS transmission structures and tie-in lines would eliminate or reduce EMF exposure, aviation safety, and noise as well as reduce or eliminate the risk of electric shocks and fire hazards.

Mitigation Measures

TLSN-1 requires that the applicant construct the proposed transmission lines according to the requirements of CPUC's GO-95, GO-52, GO-131-D, Title 8, and Group 2 High Voltage Electrical Safety Orders Sections 2700 through 297 of the California Code of Regulations, and SCE's EMF-reduction guidelines.

TLSN-2 requires that the applicant use a qualified individual to measure the strengths of the electric and magnetic fields from the line at the points of maximum intensity before and after energizing according to the American National Institute Standards/Institute of Electrical and Electronics Engineers standard procedures. These measurements must be completed no later than 6 months after the start of operations.

TLSN-3 requires that the ROW of the proposed transmission line be kept free of combustible material as required under the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations.

TLSN-4 requires that all permanent metallic objects within the ROW of lines related to the ISEGS project be grounded according to industry standards regardless of ownership.

3.7.5.4 Waste Management

The Waste Management Section of the ISEGS FSA/DEIS evaluated issues associated with wastes generated from construction and operation of the project and included non-hazardous and hazardous waste, quantities, and waste management that would reduce health and safety risks for the public and environment from disposal of hazardous wastes.

The EITP Waste Management is discussed in Section 3.11, "Public Services and Utilities," of this EIR/EIS.

Setting

The ISEGS project would cause permanent disturbance of about 3,713 acres and temporary disturbance of 321 acres. Including the existing transmission line corridor of about 39 acres within the Construction Logistics Area, ISEGS would use about 4,073 acres (6.4 square miles) of federal land managed by BLM (CH2ML 2009f).

Raw water for the project would be supplied by two groundwater wells northwest of Ivanpah 1 and within the Construction Logistics Area. The water would be treated and used as boiler make-up water and to wash the heliostats.

A septic system for sanitary wastewater would be located at the administration building/operations and maintenance area.

Process wastewater from all equipment, including the boilers and water treatment equipment, would be recycled. If necessary, a small filter/purification system would be used to treat project groundwater and provide potable water at the administration building. Any reject streams from water treatment would be trucked off site for treatment or disposal at either a Class I or a Class II waste facility, as appropriate.

All non-hazardous wastes would be recycled to the extent possible and non-recyclable wastes would be collected by a licensed hauler and disposed in a Class III solid waste disposal facility. Hazardous wastes would be recycled to the extent possible and disposed in either a Class I or a Class II waste facility, as appropriate.

The EITP discusses disposal of waste and sewer services under the Public Services Section (3.11), and Water Quality is discussed in Section 3.8.

Methodology

The waste management analysis for ISEGS addressed: (1) existing project site conditions and the potential for contamination associated with prior activities on or near the project site and (2) the impacts from the generation and management of wastes during project construction and operation.

Construction Impacts

Non-hazardous and hazardous wastes in solid and liquid forms would be generated during construction of the ISEGS facilities. There would be approximately 280 tons of non–hazardous solid wastes (scrap wood, concrete, steel/metal, paper, glass, scrap metals, plastic waste, and liquid wastes such as sanitary wastes and wastewater). It is estimated that the 4 tons of hazardous waste from the ISEGS project requiring offsite disposal would occupy less than 10 cubic yards. Prior to construction, the project owner would be required to develop and implement a Construction Waste Management Plan and obtain a unique hazardous waste generator identification number for the site (WASTE-4). The CEC's CPM would also be notified if any enforcement action related to construction waste management were taken (WASTE-5). In addition, construction activities such as excavation, grading, or trenching might expose contaminated soils and safety precautions for handling; proper disposal would be required (WASTE 1 and WASTE 2).

The EITP discussion does not identify a specific list of hazardous materials, nor quantities of hazardous and non hazardous waste that would be accumulated during construction and operation and decommissioning of the project.

Operational Impacts

During operation, the ISEGS project would generate approximately 240 tons per year of non-hazardous solid wastes from equipment/supplies such as used air filters, resins, sand, and office wastes such as office paper, aluminum cans, plastic, and glass. All non-hazardous wastes would be recycled to the extent possible, and non-recyclable wastes would be regularly transported off site to a local solid waste disposal facility. Prior to operations, the project owner would be required to develop and implement an Operations Waste Management Plan (WASTE-6).

Hazardous wastes that might be accumulated during routine project operation are similar to construction wastes. In addition, accidental releases of hazardous materials might require corrective action. The CEC's CPM would also be notified if any enforcement actions related to waste management during operations were taken (WASTE-5). Spill control plans and prevention measures would reduce risks of contamination (WASTE-7).

Decommissioning Impacts

Decommissioning the ISEGS project would produce both hazardous and non-hazardous solid and liquid waste. The ISEGS facility closure plan would document nonhazardous and hazardous waste management practices including the inventorying, management, and disposal of hazardous materials and wastes and permanent disposal of permitted hazardous materials and waste storage units (Compliance-11, -12, and -13). The waste would also be prioritized as follows: (1) materials that reduce waste generation would be used, (2) waste would be reused or recycled, and (3) non-recyclable waste would be treated prior to storage or transport to a permitted disposal facility, and COCs WASTE-4 through WASTE-7 would be applied during decommissioning of the project.

ISEGS Mitigation Measures

WASTE-1 requires the applicant to provide authority to a PG or PE to oversee any earth-moving activities that have the potential to disturb contaminated soil and impact public health, safety, and the environment.

WASTE-2 requires the applicant to contact BLM's Authorized Officer and the CPM and representatives of the Department of Toxic Substances Control or the Regional Water Quality control Board for guidance and possible oversight of disturbance or encounter of contaminated soils.

WASTE-3 requires the applicant to develop and implement a Construction Waste Management Plan for all construction wastes including projections of frequency, amounts generated, hazard classifications, and management methods.

WASTE-4 requires the applicant to obtain a hazardous waste generator identification number from the U.S. EPA prior to generating any hazardous waste during project construction and operations.

WASTE-5 requires the applicant to notify BLM's Authorized Officer and the CPM for enforcement action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

WASTE-6 requires the applicant to develop and implement an Operations Waste Management Plan for all wastes generated during operation of the ISEGS project. The plan would include a detailed description of all operations and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications.

WASTE-7 requires that the applicant ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are reported, cleaned up, and remediated as necessary, in accordance with all applicable federal, state, and local requirements.

3.7.5.5 Worker Safety and Fire Protection

The purpose of the Worker Safety and Fire Protection section of the ISEGS FSA/DEIS is to assess the worker safety and fire protection measures proposed by the ISEGS applicant and determine whether the applicant has proposed adequate measures to (1) comply with applicable safety laws, ordinances, regulations, standards, and Laws, Ordinance, Regulations, and Standards (LORS); (2) protect workers during the construction and operation of the facility and protect against fire; and (3) provide adequate emergency response procedures.

Setting

ISEGS includes the construction of a hybrid, combined-cycle, natural-gas–fired power plant and solar thermal generating equipment. For the Power Block, workers would be exposed to hazards typical of construction and operation of a gas-fired simple-cycle facility, while the solar component would present similar construction risks and minimal operational risks to workers.

Fire support services to the site would be under the jurisdiction of the SBCFD. Station 53 is 40 miles from the project site, located at 65 Kingston Circle, Baker, California, and would be the first responder to ISEGS, with a response time of approximately 45 minutes. The response time to the project site with full resources capabilities including those needed for large-scale hazardous materials spills would be 3 to 4 hours. Hazardous materials service is provided out of the SBCFD station in the town of Fontana, Station #78.

The EITP is located in California and Nevada and there are emergency plans for Clark County and Nevada. The police and fire services for EITP are discussed in Section 3.11, "Public Services and Utilities."

Methodology

The Worker Safety and Fire Protection Section of the ISEGS FSA/DEIS assessed, for activities occurring during demolition, construction, operations, and closure and decommissioning, (1) the potential for impacts on the safety of workers and (2) fire prevention/protection, emergency medical response, and hazardous materials spill response.

Worker safety is essentially a LORS compliance matter. If all LORS are followed, workers will be adequately protected. Thus, the standard for Staff's review and determination of significant impacts on worker health is whether the applicant has demonstrated adequate knowledge of and commitment to implementation of all pertinent and relevant Cal/OSHA standards. Staff also reviewed and evaluated the onsite fire-fighting systems proposed by the applicant, as well as the time needed for offsite local fire departments to respond to a fire, medical, or hazardous material emergency at the ISEGS site, and determined that the presence of the power plant would cause a significant impact on a local fire department.

Construction Impacts

During construction of ISEGS there would be the potential for small fires, major structural fires, and wildfires. Fires and explosions of natural gas or other flammable gases or liquids are rare. Accidents, fires, and a worker death have occurred at CEC-certified power plants in the recent past because of the failure to recognize and control safety hazards. Fire protective measures that would help reduce the potential for harm to plant personnel and damage to facilities include removal of all vegetation in the vicinity of the solar power towers, cutting and maintaining vegetation, use of access roads as fire breaks, installation of portable fire extinguishers throughout the site, use of safety procedures, and training. The potential for both work-related and non-work-related heart attacks exists at power plants from work- and non-work-related causes.

The area under the solar arrays would need to be kept free from weeds, and herbicides would be used on a year-round basis. Workers might be exposed and herbicides could contaminate either surface water or groundwater. The ISEGS applicant has indicated that workers would be adequately trained and protected, but has not included precautions against exposure to herbicides.

Prior to construction and operation of ISEGS, all health and safety programs and plans and fire protection measures would be provided (WORKER SAFETY-1 and -2). The applicant/project owner would be required to designate and provide for a project site construction safety supervisor (WORKER SAFETY-3). Staff recommended an Automatic External Defibrillator (AED) be located on site and workers be trained in its use (WORKER SAFETY-5). Proper herbicide storage and application would mitigate potential risks to workers from exposure to herbicides (WORKER SAFETY-6 and BIO-13).

Operational Impacts

Operational impacts would be similar to construction impacts.

Decommissioning Impacts

Upon final facility closure, no workers would remain at the site, except for those necessary to maintain security over any remaining hazardous materials until they were removed from the site. During decommissioning, worker safety would be ensured by the same CAL/OSHA and other regulations requiring safety plans and training as were needed for construction and operations. Safety plans, training, and an Illness and Injury Prevention Plan would be included as part of the decommissioning plan. Facility fire protection systems would remain functional while hazardous materials remained on site.

ISEGS Mitigation Measures

WORKER SAFETY-1 requires the applicant to develop and implement a Project Construction Safety and Health Program.

WORKER SAFETY-2 requires the applicant to develop and implement a Project Operations and Maintenance Safety and Health Program.

WORKER SAFETY-3 requires the applicant to provide a site Construction Safety Supervisor.

WORKER SAFETY-5 requires the applicant to keep a portable AED on site during construction of the ISEGS project.

WORKER SAFETY-6 requires the applicant to prepare and implement BMPs for the storage and application of herbicides used to control weeds beneath and around the solar array.

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