# 3.22 PUBLIC SAFETY

This section discusses the potential effects on public safety and inconveniences that are commonly associated with transmission lines.

## 3.22.1 Affected Environment

This section discusses those aspects of the environment that could be impacted by the Project. It starts with a discussion of the Analysis Area considered, identifies the issues that have driven the analysis, and characterizes the existing conditions across the Proposed Route in Wyoming, Idaho, and Nevada.

### 3.22.1.1 Analysis Area

The Analysis Area is 0.25 mile on either side of the centerline for the Proposed Route and Route Alternatives. This area was selected because it is where workers would operate, soil disturbance would occur, and public safety impacts from operation of the transmission line would occur.

### 3.22.1.2 Issues to be Analyzed

The following public safety issues were brought up by the public during public scoping (Tetra Tech 2009a), were raised by federal and state agencies during scoping and agency discussions, or are issues that must be considered as stipulated in law or regulation:

- Whether the Project would cause environmental contamination or expose workers or the public to contamination;
- What the effects of electric and magnetic fields would be;
- Whether the transmission line would withstand wind and ice storms;
- Whether the transmission line would cause fires or create a fire hazard;
- Whether workers or the public would be safe from electrocution;
- What the effects would be of the transmission line on human health;
- What the Proponents would do to prevent the dangers of downed lines and tower failure;
- How the Proponents would protect against potential vandalism or acts of terrorism to Project structures; and
- Whether electrical safety procedures would be followed.

Other issues related to public health and safety include health risks associated with EMF; powerline-induced voltages and currents on conductive objects, such as metal roofs or buildings, fences, and vehicles; and interference with radio/television signals, GPS equipment, and cardiac pacemakers. Impacts relating to EMF issues are discussed in detail in Section 3.21 – Electrical Environment.

### 3.22.1.3 Regulatory Framework

The subsequent section discusses the regulatory requirements associated with public safety issues that are applicable to the Project. A regulatory review was completed at the federal and state levels.

**Environmental Contamination**

Hazardous substances are defined as having specific chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous substances are defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101(14) as the following:

> *A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when properly treated, stored, transported or disposed of or otherwise managed.*

Remediation of hazardous wastes discovered at a site is required if the material is excavated. If soils or groundwater at a site found to be contaminated do not have the characteristics required to be defined as hazardous, remediation may still be required and such requirements are typically evaluated on a case-by-case basis by the presiding agency.

#### *Federal*

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the “cradle to grave” system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act. These techniques include land disposal of untreated hazardous waste unless migration of the hazardous constituents is not possible for as long as the waste remains hazardous or if the waste has been treated to meet USEPA levels or methods of treatment, which substantially diminish the toxicity of the waste or likelihood of migration of the hazardous constituents.

#### *State*

The WDEQ, Solid and Hazardous Waste Division, provides assistance on federal and state regulations and the proper management of the following waste types: hazardous waste, municipal solid waste, industrial waste, petroleum contaminated solids, asbestos, polychlorinated biphenyls, and others. The WDEQ has adopted regulations that parallel the federal hazardous waste regulations (Wyoming Hazardous Waste Rules and Regulations, WDEQ Chapter 1 *et seq.).* Releases of hazardous substances that enter the waters of the state or are determined to be a threat to waters of the state must be reported to WDEQ immediately (Wyoming Water Quality Rules and

Regulations, Chapter 4). As defined by WDEQ, a hazardous substance is any substance or waste that, after release, constitutes a threat to public health or welfare, or other aquatic life or wildlife, because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious, or radioactive characteristics.

The IDEQ has incorporated, by reference, the federal hazardous waste regulations (Idaho Rules of Practice and Procedures 58.01.05). Effective July 1, 1997, the name of the State Emergency Response Commission was changed to Idaho Bureau of Hazardous Materials. The Idaho Bureau of Hazardous Materials carries out the requirements of the USEPA Emergency Planning and Community Right-to-Know Act (EPCRA) and the Idaho Hazardous Substance Emergency Response Act (Idaho Code 39-7101 through 39-7115). It serves as an emergency response coordination and liaison organization for Idaho and works in cooperation with state and federal agencies to prepare for, respond to, and recover from hazardous materials incidents. The Idaho Bureau of Hazardous Materials keeps records concerning hazardous material storage, transport, and release within Idaho, including the toxics release inventory reports. Any person who has responsibility for reporting a release of CERCLA hazardous materials or EPCRA extremely hazardous substances must, as soon as practicable after gaining knowledge of the reportable release, notify the Idaho Bureau of Hazardous Materials (Idaho Code 38-7108).

The NDEP, Bureau of Waste Management (BWM) has adopted by reference the federal hazardous waste regulations, with certain modifications, for persons who generate, transport, treat, store, dispose, or otherwise manage hazardous waste or used oil, including 40 CFR Part 2, Subpart A; Part 124, Subparts A and B; Parts 260 to 270, inclusive; Part 273; and Part 279. Nevada's regulations for the storage and transportation of hazardous materials within the state are codified in NRS 459.400. The purpose of the hazardous waste program is "to protect human health, public safety and the environment from the effects of improper, inadequate or unsound management of hazardous waste; establish a program for regulation of the storage, generation, transportation, treatment and disposal of hazardous waste; and ensure safe and adequate management of hazardous waste." In addition to enforcing state and federal hazardous waste requirements, BWM is responsible for permitting and inspecting hazardous waste generators and disposal, transfer, storage, and recycling facilities. BWM also carries out the requirements of the USEPA EPCRA. This includes requiring owners and operators of facilities, which meet applicable thresholds, to report to the Toxic Chemical Release Inventory.

## Wind and Ice Storm

The IPUC Construction Standards (provided under Statute 61), the Wyoming PSC's Title 37 Public Utilities Statutes, the Public Utilities Commission of Nevada (provided under NRS Chapter 704), and the NESC include loading requirements related to wind conditions. NESC Rule 230B specifies ice and wind loading for clearance purposes according to the geographical region (or zone as termed in the Code) where the overhead lines are located. Sagging of overhead lines resulting from such conditions must be checked at identified temperatures according to zone. Maintenance of Clearance and Spacings (Rule 230I of the NESC) would require that conductors be

resagged if an excessive ice or wind storm stretches conductors to the point of a clearance violation (Marne 2007).

**Fire Hazards**

Design codes that prevent fire hazards are given in the IPUC Construction Standards (provided under Statute 61) and the Wyoming PSC's Title 37 Public Utilities Statutes, and the Public Utilities Commission of Nevada (provided under NRS Chapter 704). These design codes and the NESC include requirements pertaining to the prevention of fire hazards related to outdoor public utility installations. NESC Rule 152A requires that energized parts of power transformers be enclosed or physically isolated and that the enclosure of a substation transformer and regulator be effectively grounded. In addition, details are provided pertaining to minimizing fire hazards related to liquid-filled power transformers and regulators installed in outdoor substations such as using less flammable liquids, specifics on space separation, fire-resistant barriers, automatic extinguishing systems, absorption beds, and enclosures.

The National Fire Protection Association Uniform Fire Code Handbook also gives guidance related to the clearance of brush and vegetative growth in and around transmission lines. For instance, for line voltages of 230 kV and 500 kV, a minimal radial clearance between the conductor and vegetation at the time of clearing is listed as 10 feet and 15 feet, respectively. There are separate minimum clearance requirements that must be maintained between the placement of electrical lines. The National Fire Protection Association Code also directs the utility company to perform the required work to the extent necessary to clear the hazard in the event of an electrical power line emergency.

**Electrocution**

Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926 Subpart V specifically pertains to safe work practices related to power transmission and distribution. The regulation includes specific requirements including assessing existing conditions prior to starting work such as determining if lines are energized, condition of poles, and the locations of circuits and equipment. For the protection of all employees, all conductors and equipment are treated as energized until tested and otherwise determined to be de-energized or until grounded. Minimum working clearance distances are established corresponding to the voltage range of the transmission line. Appropriate personal protective equipment is detailed, including rubber insulating gear. Provisions are given for both overhead and underground power lines, and energized substations.

### 3.22.1.4 Methods

The public safety assessment is based on an evaluation of the following measures to be taken during design, pre-construction, construction, and operations phases of the Project.

- Are all aspects of the Project being designed in accordance with applicable federal, state, and industry codes to minimize the potential for wind, ice, or fire to affect public safety?

- Will an environmental database search be conducted covering the area where ground will be broken to identify sites with known environmental contamination; sites with underground storage tanks; or sites that store, use, and dispose of hazardous materials off site with reported incidents of spills or inadequacies during inspections or in hazardous material records prior to construction?
- Have the Proponents committed to preparation and implementation of spill prevention, control and containment, notification protocols, immediate spill response procedures, hazardous material handling, and fire management plans during construction?
- Are plans covering routine and emergency measures planned to govern operations and maintenance?

### 3.22.1.5 Existing Conditions

**Environmental Contamination**

The Project is located on public land, or private land in largely rural areas. These areas would generally contain a lower density of existing environmentally contaminated sites compared to areas of higher human occupancy and more commercial or industrial use. Rural facilities that sometimes contain contamination could include active or abandoned mining sites, municipal solid waste landfills, aerial crop dusting facilities, railroads, oil or gas well sites, and/or petroleum pipelines. The routes were sited to avoid these types of facilities where possible. None of the Proposed or Alternative Routes are located in areas known to contain environmental contamination and the risk of encountering existing environmental contamination would be low.

**Wind and Ice Storm**

***Wyoming***

Surface wind direction and precipitation in the Project Analysis Area vary significantly due to differences in geographical location and features. Annual average wind speeds within the Analysis Area range from 7.7 to 12.9 miles per hour. Annual average wind directions are predominately from the southwest, with fluctuations from the west and southeast. The highest annual average temperatures range from 50°F to 55°F and the lowest annual average temperatures range from 31°F to 34.3°F within the Analysis Area. The annual average precipitation amounts range from 12.7 to 19.0 inches per year within the Analysis Area. The climate of any area in Wyoming is largely determined by its latitude, altitude, and local topography. These factors influence weather system airflow patterns, temperature variations, precipitation, and humidity as they migrate eastward. During the winter there are frequent periods when the wind reaches 30 to 40 miles per hour with gusts to 50 or 60 miles per hour. Prevailing directions in the different localities vary from west-southwest through west to northwest.

Hailstorms are the most destructive type of local storm for this state. Tornadoes occur, but records show they are much less frequent and destructive than those that occur in the Midwest. The relatively small amount of destruction from tornadoes is partly due to the fact that most of Wyoming is open range country and sparsely populated. However, records show that tornadoes that occur in Wyoming are somewhat smaller and have a

shorter duration. Many of them touch the ground for only a few minutes before receding into the clouds. The season extends from April through September. June has the greatest number on the average with May next and most occur in the eastern part of the state (University of Wyoming 2009).

FEMA lists 20 declared disasters and emergencies in Wyoming from 1963 through 2006. These events included 2 winter storms, 2 tornadoes, one drought, 11 fires, and 4 weather-related phenomena (rain, hail, mudslides, and flooding) (FEMA 2009).

#### *Idaho*

The mean monthly temperatures for January range from approximately 18°F at Montpelier, near the Idaho-Wyoming border, to 27°F throughout south-central Idaho, and 29°F at Caldwell in southwestern Idaho near the western terminus of the Project. The average annual wind speed ranges from 12 to 16 miles per hour.

In Idaho there are 28 declared disasters and emergencies on record occurring between 1956 and 2007. These events included 16 rainfall/snowmelt/flooding-related events, 8 fires, one drought, one dam collapse, one earthquake, and one other (FEMA 2009). In addition, disasters or emergencies related to wind or ice storms are recorded in Idaho.

#### *Nevada*

Nevada consists of mostly desert and semiarid climate regions. Daytime summer temperatures sometimes may rise as high as 115 F and nighttime winter temperatures may reach as low as −10 F. The mean annual temperature in the northeastern section of Nevada, which falls within the Project Analysis Area, is in the mid-40s. The average monthly wind speed ranges from 7 miles per hour typically in December to 11 miles per hour in April and June. The prevailing wind direction is generally from the west.

Most parts of Nevada receive scarce precipitation during the year; however, the Project Analysis Area is wetter than most with an average annual number of days with precipitation of 0.01 inch or more. Snowfall is usually heavy in the mountains, particularly in the north. Twenty-four hour snowfall can amount to over 45 inches, while seasonal totals of over 300 inches have been recorded. The average annual number of thunderstorms in the Project Analysis Area is 33. Instances of tornadoes are rare but have occurred in the months from April to September.

According to FEMA, there were 50 declared disasters and emergencies in Nevada from 1954 to 2008. These events included 29 fire management assistance declarations, one earthquake, one wildland fire, one drought, 17 weather-related events (snow, flooding, severe storm, heavy rains), and the Hurricane Katrina evacuation.

### 3.22.2 Direct and Indirect Effects

This section is organized to present effects to public safety from construction, then operation, followed by decommissioning activities for the proposed Project. Route Alternatives are discussed in Section 3.22.2.3. There is a Design Variation involving use of two single-circuit structures proposed by the Proponents for Segments 2, 3, and 4 (see Section 2.2 for details), which is analyzed below in Section 3.22.2.4 and a Structure Variation that is analyzed in Section 3.22.2.5. The Proponents have also

proposed a Schedule Variation, analyzed in Section 3.22.2.6, in which one of the two single circuits to be constructed in Segments 2, 3, and 4 and a portion of Segment 1W would be built on an extended schedule with construction beginning approximately 2.5 years after completion of the initial construction.

Mitigation measures or EPMs are presented in detail within this section only if it is the first time they have been discussed in Chapter 3; all other measures are referenced or summarized. A comprehensive list of all Proponent-proposed EPMs and Agency-required mitigation measures can be found in Table 2.7-1 of Chapter 2.

**Plan Amendments**

Proposed amendments are summarized in Table 2.2-1 of Chapter 2 and detailed in Appendices F and G. Amendments are needed to permit the Project to cross various areas of BLM-managed and NFS lands. Effects described for areas requiring an amendment in order for the Project to be built would only occur if the amendment were approved. Amendments that alter land management designations could change future use of these areas. No amendments specific to public safety are proposed for the Project and no impacts to public safety resulting from approving the amendments beyond the impacts of the project are anticipated.

### 3.22.2.1 No Action Alternative

Under the No Action Alternative, the Project would not be constructed nor operated. No Project-related exposure to environmental contamination, risk from wind, ice, and fire hazard or potential electrocution would occur. Impacts would continue at the present level as a result of natural conditions and existing development in the Analysis Area.

### 3.22.2.2 Effects Common to All Action Alternatives

**Construction**

***Environmental Contamination***

Pre-existing environmental contamination is not expected, but isolated occurrences are possible along the transmission line route. The Agencies have identified the following mitigation measures in the event of discovery of environmental contamination:

ENV-1 After a route has been selected and before construction, the route would be reviewed for areas within 0.5 mile of petroleum or gas pipelines, oil or gas wells, municipal solid waste landfills, service stations, railroads, municipal landfills, caves, and active and abandoned mines. The locations intersected by the route and these facilities would be compared against state Department of Environmental Quality databases, which contain the locations of contaminated facilities and sites undergoing remediation. If contaminated sites are identified, further information would be obtained from Department of Environmental Quality personnel, and the authorized officer would be notified.

ENV-2 Construction crews would be trained to look for pre-existing environmental contamination. Indications of contamination could include mine waste rock stockpiles, drums or containers of unknown products, discolored soil,

or unusual soil odors. Should indications of contamination be encountered, all surface-disturbing activities in the vicinity of the contamination would cease. The location would be marked and project access restricted to eliminate the spread of contamination by construction equipment. The authorized officer would be notified, and the applicable Department of Environmental Quality personnel, and property owner or land management agency informed. To protect site workers and minimize environmental effects, no work would occur at this location until the environmental conditions have been resolved. The Proponents would not assume responsibility for discovery of pre-existing contamination.

During construction, hazardous materials such as vehicle fuels, oils, and other vehicle maintenance fluids would be used and stored in construction staging yards. All potentially hazardous materials stored in construction staging yards would be stored in accordance with OSHA and USEPA requirements. There is potential for incidents involving the release of gasoline, diesel fuel, oil, hydraulic fluid, and lubricants from vehicles or other equipment or the release of paints, solvents, adhesives, or cleaning chemicals from construction activities. Improperly maintained equipment could leak fluids. Spills and leaks of hazardous materials during construction could result in soil or groundwater contamination. This could result in exposure of the facility, maintenance workers, and the public to hazardous materials; and could result in contamination to soil and/or groundwater. However, development and implementation of the spill prevention plan would minimize exposures and the likelihood of groundwater contamination. Exposure to employees, contractors, and the public could also result from the use of required chemical substances like herbicides. Again, legal requirements to apply herbicides following label directions and the required used of licensed applicators minimize the risk that exposure would be a hazard to people or the environment.

Ground disturbance along the transmission line ROW consists primarily of excavation at and near transmission structures and grading of new access roads. No known environmentally contaminated sites have been identified along the transmission line segments; however, there remains the potential to encounter unknown contamination during construction. Unknown contamination may be present in developed areas near the ROW and in remote area roads due to illegal dumping. Uncovering contaminated sites could have adverse impacts on Project personnel and other individuals that may come into contact with the site. In addition, there is the potential presence of residual pesticide and herbicide contamination of the soil and/or groundwater in the agricultural areas along the alignment, which could pose potential health hazards to those who come into contact with the soil or groundwater.

The Proponents have committed to prepare an SPCC Plan for review and approval by the appropriate regulatory agencies. That plan will include site-specific implementation of cleanup procedures in the event of soil contamination from spills or leaks of fuels, lubricants, coolants, or solvents as outlined in Appendix C-1, Attachment C. Cleanup procedures will be conducted in accordance with the SPCC Plan by on-site contractors selected by the Proponents. The Proponents have also committed to prepare and implement procedures for refueling and equipment operation near waterbodies, procedures for emergency response and incident reporting, and training requirements.

Wind and Ice Storm

The occurrence of ice storm conditions during Project construction is not expected because construction is scheduled to take place during the spring, summer, and fall. Periods of elevated winds may cause delays in Project construction schedule due to worker safety concerns.

Fire Hazards

Construction of the new transmission line would take place during spring, summer, and fall. The construction season would be short, with the majority of activities occurring during summer when weather is hot and dry. The potential for fire is relatively high because of the vegetation in the vicinity of the ROW, and it increases with the use of vehicles, chainsaws, and other motorized equipment. In addition, fire hazards can be related to workers smoking, refueling, and operating vehicles and other equipment off roadways. Welding during construction of towers or support structures could also potentially result in the combustion of native materials near the welding site. To reduce the potential for construction-related fires, the has Agencies have identified measures to be taken by the Proponents and the contractors to ensure that fire prevention and suppression measures are carried out in accordance with federal, state, and local regulations. The plan shall address the specific requirements of applicable BLM and Forest Service handbooks and provide BMPs for fire management on privately owned lands. The final plan will incorporate input from the contractor to ensure coordination with local firefighters and emergency responders for effective emergency response. Measures shall include:

FIRE-1 Train all personnel about the measures to take in the event of a fire including fire dangers, locations of extinguishers and equipment, and individual responsibilities for fire prevention and suppression.

FIRE-2 Equip all construction equipment operating with internal combustion engines with spark arresters.

FIRE-3 Restrict motorized equipment, including worker transportation vehicles, to the designated and approved work limits.

FIRE-4 Clear equipment parking areas, the ROW, staging areas, and designated vehicle-parking areas of all flammable material.

FIRE-5 Require all motor vehicles and equipment to carry, and individuals using handheld power equipment to have, specified fire prevention equipment.

FIRE-6 Provide a list of equipment capable of being adapted to fighting fires to local fire protection agencies.

FIRE-7 Notify the appropriate fire suppression agencies of scheduled road closures.

FIRE-8 Prohibit burning of slash, brush, stumps, trash, explosives storage boxes, or other Project-generated debris unless authorized by the applicable land management agency.

FIRE-9 Designate a Fire Guard on each construction crew prior to the start of construction activities each day and providing a communications system for maintaining contact with fire control agencies.

FIRE-10 Restrict or cease operations on federal lands during periods of high fire danger at the direction of the responsible land-managing agency representative.

FIRE-11 Use direct control for emergency wildland fire control. When possible, where fire suppression is necessary, use techniques that minimize soil and vegetation disturbance.

Electrocution

Electrocution poses a potential hazard to those who come in close contact with overhead transmission lines during energization and commissioning, especially those doing construction using mobile equipment. It is recommended that mandatory worker safety training, as required by OSHA, be part of any contract between the Proponents and the contractors.

## Operations

### *Environmental Contamination*

Electrical equipment, such as transformers, reactors, and circuit breakers, is filled with an insulating mineral oil. The SPCC Plan would require containment structures to prevent oil from this equipment from getting into the groundwater or surface water bodies in the event of a rupture or leak. Installation of containment structures would minimize the potential for release of hazardous materials from operation of substations. Another source of environmental contamination during Project operations would result from accidental releases of gasoline, diesel fuel, oil, hydraulic fluid, and lubricants from vehicles or other equipment during regular Project maintenance activities. The amount of released material (should it occur) is expected to be minimal and would not pose a risk to human health or the environment.

Wind and Ice Storms

Transmission line structures used to support overhead transmission lines must meet the requirements of the IPUC Construction Standards, the Wyoming PSC Public Utilities Statutes, the Public Utilities Commission of Nevada, and the NESC.

These structures are typically constructed on steel lattice towers or tubular steel poles. Transmission support structures are designed to withstand different combinations of loading conditions, including extreme winds. These design requirements include the use of safety factors that consider the type of loading as well as the type of material used (e.g., steel or concrete). Failures of transmission line support structures are extremely rare and are typically the result of anomalous loading conditions such as ice storms or tornadoes. In addition to structure strength, overhead transmission lines consist of a system of support structures and interconnecting wire that is inherently flexible and is designed for dynamic loading under variable wind conditions that may exceed earthquake loads. The Project has been designed so that the public safety impact of wind and ice storm effects on transmission towers would be minimized.

The Proponents have developed a Plan for Operations, Maintenance, and Emergency Response Activities (Appendix C-4). This plan provides for routine air patrols from a helicopter to inspect for structural and conductor defects, conductor clearance problems, and hazardous trees.

Fire Hazards

Transmission line structures used to support overhead transmission lines must meet the requirements of the IPUC Construction Standards, the Wyoming PSC Public Utilities Statutes, the Public Utilities Commission of Nevada, and the NESC.

Fire hazards causing wildfire ignitions are more prevalent for distribution and lower-voltage transmission lines than for higher-voltage transmission lines, such as those being employed for the proposed Project. The preferred support structure types selected for the 500-kV segments are both single-circuit and double-circuit lattice steel type (delta configuration), whereas an H-frame steel structure was selected for the 230-kV segments. Steel towers do not burn easily and are designed to protect against lightning strikes. Under the Plan for Operations, Maintenance, and Emergency Response, the integrity of the grounding would be tested on a regular basis during scheduled maintenance visits made by a contractor, thereby minimizing fire ignitions.

The energized conductors on distribution and lower-voltage transmission lines are much closer together than those on higher-voltage transmission lines. Fallen or wind-blown tree limbs and debris can more easily come into contact with and bridge two distribution conductor phases, which can cause electrical arcs that can set fire to debris. Regulatory requirements for vegetation clearance in proximity to 230-kV and 500-kV lines minimize fire hazard risk related to tree limb debris, because tree clearance requirements are designed to create an adequate separation distance from conductors to prevent any contact or flashover. Other transmission line–related ignition sources may include airborne debris (e.g., kites) coming into contact with conductors or insulators, dust or dirt on insulators, and accidents related to weapons, airplanes, and helicopters coming into contact with conductors, poles, and towers. Transmission line protection and control systems are designed to detect faults (such as arcing from debris contacting the line) and rapidly shut off power flow in 1/60th to 3/60th of a second.

Birds perched on power poles or flying between poles can simultaneously contact two conductors, causing an electrical flashover. This electrocutes the bird and occasionally causes its feathers to catch fire. The bird may fall to the ground and ignite nearby vegetation. These types of flashovers are expected to be impossible for transmission lines of the proposed Project due to the large conductor separation distance of distribution lines to substations and regeneration stations. The primary ignition threats associated with higher-voltage transmission lines like those used in the proposed Project are indirect, consisting of human-caused accidents during construction and maintenance activities. Construction and maintenance activities that may ignite fires include blasting, the use of equipment such as chainsaws, and the presence of personnel who may inadvertently ignite fires while smoking. The Proponents have identified the following EPMs (see Appendix C-1, Attachment E) to ensure blasting is conducted safely:

BLA-1 The Blasting Plan will identify blasting procedures including safety, use, storage, and transportation of explosives that will be employed where blasting is needed, and will specify the locations of needed blasting.

BLA-2 All blasting will be performed by registered licensed blasters who will be required to secure all necessary permits and comply with regulatory requirements in connection with the transportation, storage, and use of explosives, and blast vibration limits for nearby structures, utilities, wildlife, and fish (where blasting is conducted in waterbodies).

BLA-3 Appropriate flags, barricades, and warning signals will be used to ensure safety during blasting operations. Blast mats will be used when needed to prevent damage and injury from fly rock.

BLA-4 Blasting in the vicinity of pipelines will be coordinated with the pipeline operator, and will follow operator-specific procedures, as necessary.

BLA-5 Damages that result from blasting will be repaired or the owner fairly compensated.

To reduce the potential for operations-related fires, the Proponents would liaison with the local fire, police, and public officials to define the resources and responsibilities of each emergency response organization and to coordinate mutual assistance in the event of a fire incident.

Electrocution

Similar to potential effects during Project construction, electrocution poses a potential hazard in the operations phase to those who come in close contact with overhead transmission lines. Such groups include Project workers during regular maintenance, but could also include other off-site trade contractors such as tree trimmers, roofers, siding and sheet metal workers, and utility/communication workers.

Intentional Destructive Acts

Transmission lines, substations, and associated facilities could be targets of intentional destructive acts, such as sabotage, terrorism, vandalism, and theft. Such acts include firing at insulators, powerlines, transmission towers, or substation equipment; vandalism; and theft of equipment, supplies, tools, or materials. Of these acts, vandalism and thefts are most common. Depending on the size, voltage, and configuration of the transmission line, destroying towers or other equipment could disrupt electrical service. The impacts of destroying towers could range from no noticeable effect on electrical service to large areas being without power for a period of time.

Transmission support structures would be constructed in such a way that displacement would be extremely difficult. Physical deterrents such as regular line inspections, fencing, cameras, and signs at substations would be employed to prevent theft, vandalism, and unauthorized access. In the event of intentional destructive acts being directed at the proposed Project, operational protocols would be implemented with detailed procedures in accordance with the Proponents' emergency response procedures (POD).

### *Decommissioning*

Potential impacts related to public health and safety are expected to be similar to those that could occur during the Project construction phase.

### 3.22.2.3 Proposed Route and Alternatives

For the Proposed Route or Route Alternatives, there is no strong geographical distinction driven by public safety. If the protective measures proposed by the Proponents and additional measures identified by BLM are incorporated into the Project design, construction, and operation, the expected public safety impacts would be low.

### 3.22.2.4 Design Variation

A Design Variation is being considered that would consist of constructing two single-circuit lines in Segments 2 through 4 instead of a single double-circuit line (which is the design assessed above). The disturbance footprint of the two single-circuit towers is greater than that of the double-circuit tower, in part because the requested ROW would be wider, but also because helicopter-assisted construction could be implemented in these areas due to the lighter weight of the towers, which would require additional fly yards. The additional ROW space and the fly yards would cause additional temporary disturbance during construction. Across Segments 2, 3, and 4, the additional disturbance of the single-circuit tower alternative ranges from 25 to 30 percent greater than the comparable portions of the double-circuit tower disturbance under the proposed design. The two single circuits require more ground disturbance, but would be designed and constructed to the same standards as the Proposed Action.

#### Construction

Potential effects related to public health and safety would be the same as those described in the Effects Common to All Action Alternatives section. The primary differences associated with a support structure configuration of two single-circuit lines is that a helicopter would be used for the construction of single circuits. Using a helicopter during the construction of the single-circuit line could increase the potential of a fire hazard if the helicopter were to crash.

#### Operation

Operational effects would be the same as those described for the double-circuit line above.

### 3.22.2.5 Structure Variation

The proposed guyed Structure Variation would add four guy wires about 140 feet long from a point about 100 feet up in each tower to four guy anchors spaced in a square around the tower (Appendix B, Figure B-6). This would not change the amount of disturbance during construction or operation appreciably. The guy wires might offer a small collision hazard for unobservant pedestrians or OHV users off-road. However, these structures would not be used adjacent to public roads or in rural development areas. Therefore, there is no appreciable difference in impact on public safety from the use of this Structure Variation when compared to the use of self-supporting lattice towers.

#### 3.22.2.6 Schedule Variation

The Schedule Variation uses the two single-circuit design variation described above but extends construction over a longer timeframe. Initially only one of the eventual two single-circuit lines would be constructed with the second to be constructed at a later date. The Schedule Variation proposes that the first single-circuit transmission line in Segments 2, 3, and 4 would be built as soon as a ROW grant is issued, but that the second line would not begin construction until late 2018. This would mean nearly 2 years between the end of construction for the first line and beginning of construction for the second line. Any staging areas and fly yards that had been used for the first stage would have been revegetated after construction was complete and would have to be cleared again. There would be two sets of construction disturbances adding movement, noise, and dust to the area of construction in two instances in any given area.

The Schedule Variation would therefore have essentially double the adverse impacts on public safety for construction as the simultaneous construction or double-circuit alternative, even though operational disturbance overall would not be any greater.

### 3.22.3 Mitigation Measures

To minimize or avoid impacts on public safety, the Proponents have committed to EPMs that would be implemented Project-wide as outlined in this section and in Appendix C.

The following mitigation measures identified by the Agencies are required on federally managed lands. The Agencies recommend that the Proponents incorporate the measures into their EPMs and apply them Project-wide.

FIRE-1 Train all personnel about the measures to take in the event of a fire including fire dangers, locations of extinguishers and equipment, and individual responsibilities for fire prevention and suppression.

FIRE-2 Equip all construction equipment operating with internal combustion engines with spark arresters.

FIRE-3 Restrict motorized equipment, including worker transportation vehicles, to the designated and approved work limits.

FIRE-4 Clear equipment parking areas, the ROW, staging areas, and designated vehicle-parking areas of all flammable material.

FIRE-5 Require all motor vehicles and equipment to carry, and individuals using handheld power equipment to have, specified fire prevention equipment.

FIRE-6 Provide a list of equipment capable of being adapted to fighting fires to local fire protection agencies.

FIRE-7 Notify the appropriate fire suppression agencies of scheduled road closures.

FIRE-8 Prohibit burning of slash, brush, stumps, trash, explosives storage boxes, or other Project-generated debris unless authorized by the applicable land management agency.

FIRE-9 Designate a Fire Guard on each construction crew prior to the start of construction activities each day and providing a communications system for maintaining contact with fire control agencies.

FIRE-10 Restrict or cease operations on federal lands during periods of high fire danger at the direction of the responsible land-managing agency representative.

FIRE-11 Use direct control for emergency wildland fire control. When possible, where fire suppression is necessary, use techniques that minimize soil and vegetation disturbance.

In consideration of pre-existing environmental contamination, the Agencies recommend that the Proponents incorporate the following measures into their EPMs and apply them Project-wide:

ENV-1 After a route has been selected and before construction, the route would be reviewed for areas within 0.5 mile of petroleum or gas pipelines, oil or gas wells, municipal solid waste landfills, service stations, railroads, municipal landfills, caves, and active and abandoned mines. The locations intersected by the route and these facilities would be compared against state Department of Environmental Quality databases, which contain the locations of contaminated facilities and sites undergoing remediation. If contaminated sites are identified, further information would be obtained from Department of Environmental Quality personnel, and the authorized officer would be notified.

ENV-2 Construction crews would be trained to look for pre-existing environmental contamination. Indications of contamination could include mine waste rock stockpiles, drums or containers of unknown products, discolored soil, or unusual soil odors. Should indications of contamination be encountered, all surface-disturbing activities in the vicinity of the contamination would cease. The location would be marked and project access restricted to eliminate the spread of contamination by construction equipment. The authorized officer would be notified, and the applicable Department of Environmental Quality personnel, and property owner or land management agency informed. To protect site workers and minimize environmental effects, no work would occur at this location until the environmental conditions have been resolved. The Proponents would not assume responsibility for discovery of pre-existing contamination.