4.11 Hazards and Hazardous Materials

This section describes the potential hazards (other than geologic hazards) associated with the proposed SWEP site, infrastructure, activities, and materials that could adversely affect human health and the environment. Potential hazards include effects on public health and safety that could result from implementation of the proposed SWEP, including the potential for safety impacts from the wind turbine generators (WTGs), electromagnetic fields (EMF) from the 115-kilovolt (kV) transmission line, worker safety, and the use of hazardous materials. The following discussion addresses existing laws and regulations related to hazardous materials, public health, and safety; existing environmental conditions in the area; potential direct, indirect, and cumulative environmental impacts associated with implementation of the proposed SWEP; and recommends measures to reduce or avoid significant adverse impacts anticipated from Project-related activities.

Effects from hazards and hazardous materials resulting from construction and operation of the Project were addressed in the LWEP EIR (Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*) and concluded that impacts would be either adverse but not significant or significant but capable of being reduced to a less-than-significant level.

4.11.1 Environmental Setting

4.11.1.1 Existing Conditions

As discussed in the LWEP EIR (Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*), the Project would be located primarily on rural, agricultural land. Vandenberg Air Force Base (VAFB) is located to the south and west, and private property is on the north and east of the Project site with private residences and structures located on non-Project properties.

The Project site is accessed via San Miguelito Road and encompasses 11 privately owned parcels covering approximately 2,971 acres. Single-family residences or mobile homes are located on seven of the 11 parcels. The closest residence to a WTG (WTG N-2) is approximately 940 feet (Figure 2-3, Project Site Plan). The nearest private residence outside of the Project area boundary is located approximately 2,097 feet from WTGs along the WTGs just below the north string. Within the Project boundary are two parcels (0.66 acre in total) that are owned by the federal government; no development or other Project activity would occur on or near these parcels. The Project would be located within the County's inland area, with the exception of the southern portion of the site that extends into the California coastal zone along portions of Station Road and the east string of WTGs. Approximately 6.5 acres of road grading and widening would occur within the coastal zone. The remaining Project components, including all WTGs and appurtenant structures, would be located within the inland area.

The Project's 115-kV transmission line would begin at the proposed substation shown in Figure 2-4 (Project Transmission Line Route) and would be constructed along an eastern and northern route until it terminates at the proposed switchyard location. The length of the transmission line would be approximately 7.3 miles. A switchyard would be located at the terminus of the Project's transmission line on the Imerys Minerals property and approximately 90 feet from a residential neighborhood.

Outside of the SWEP site boundary, the transmission line would traverse 10 parcels. The following sensitive receptors are located along the proposed transmission line route:

- **Residences.** Within the SWEP's northeastern site boundary, the transmission line would cross San Miguelito Road from south to north and would traverse two residential properties within 500 feet of one existing home. Further northeast, the transmission line would be constructed on the east side of San Miguelito Road, at a distance greater than 600 feet of approximately 20 residences. Residential development within the City of Lompoc would be approximately 85 feet from the switchyard site. Five residences within 200 feet are located to the north and northeast of the switchyard near the terminus of the transmission line.
- **Parks.** The transmission line would be constructed approximately 600 feet north of Miguelito Canyon Park. A discussion of available recreational resources at Miguelito Canyon Park and recreational activities within the surrounding area is included in Section 4.19, *Recreation*, of this SEIR.
- **Industrial.** The transmission line would be constructed along the western and northern boundaries of the Imerys Minerals Plant for approximately 3.5 miles.

4.11.1.2 Tower Integrity and Rotor Failure

As discussed in the LWEP EIR (Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*), public safety issues related to wind energy facilities are primarily associated with the potential for tower collapse or rotor failure (mechanism holding the blades and hub together fails to move) and blade throw (separation of the blade from the rotor). Excessive static stress, material fatigue, seismic activity, or ground settling can cause tower failure, collapse, or both. The likelihood of tower failure from excessive stress or material fatigue is very low, and tower collapse is uncommon.

No comprehensive database of reliable data exists indicating the number of occurrences of tower collapse or blade throw. This is most likely due to the fact that no single regulatory agency maintains sole responsibility for tracking this type of data.

Wind-turbine rotor blades failed at a rate of approximately 3,800 a year, 0.54 percent, of the 700,000 or so blades that were in operation worldwide at the time of a 2015 study by renewable-energy insurance underwriter GCube (ENR, 2017). Blade failure does not necessarily result in blade throw.

Although no freely available industry database has been located worldwide that gives the failure frequency for blade detachment or fragment generation, such data for subassembly failure is available through a European study. Wind turbines are classified into subassembly systems. In addition to the tower and support structure, the nacelle has a number of systems which, if they fail, may ultimately lead to blade throw. The blades, rotor hub, gearbox, and brake are part of the system that maintains the physical integrity of the WTG and controls the rotation speed of the system between safe operating parameters.

A study conducted by MMI Engineering Ltd. in 2013 includes a large body of subassembly reliability data that has been gathered over more than 10 years by the WindStats initiative. The data are predominantly for German and Danish wind turbines although data for other countries is also included. The data indicates that the subassembly failure frequencies are reducing with time, presumably due to improved design and manufacturing. From the WindStats data reported for three separate months in 1994, blade failure is between 3 and 10 percent of the subassembly failures for the Danish wind turbines. Note that only a proportion of those failures are linked to blade throw. In addition, whole turbine failure contributes a further 8 to 9 percent of the total. Other subassembly failures (e.g. hub, nacelle, airbrake) may also lead to blade throw. In total between 14 and 24 percent of subassembly failures have the potential to lead directly to blade throw. For comparison, over four consecutive quarters in 1996, the combined total of rotor, air brake, and mechanical brake failures for German

wind turbines make up between 18 and 22 percent of the total of subassembly failures. The statistical analysis of these data provides failure rate functions for the Danish and German wind turbine populations as a function of time. [1]

The wind turbine failure rate data and an estimation of the proportion of failures that could lead to blade throw could be used to provide a conservative upper bound to the failure rate leading to blade throw. However, without data supporting an event-tree type analysis, it is not possible to quantify what proportion of each subassembly failure class might lead to wind turbine throw. From the limited number of reported blade-throw incidents, it is clear that this proportion will be small (less than 0.1 percent). It should be borne in mind that the aim of the WindStats database is to provide information on the operation of wind turbines. In this context "failure" implies "failure to produce electrical energy to the grid". It does not imply that blades have become detached or fragments generated or other incidents which might pose harm to persons in the vicinity of the wind turbine. (MMI Engineering Ltd, 2013)

Geologic hazards are normally associated with issues such as seismicity (ground shaking), slope instability, subsidence, and expansive soils. Seismic hazards related to ground shaking include ground rupture, slope instability, liquefaction, seismic compaction, tsunamis, and seiches. A discussion of the environmental setting of the Project regarding tower collapse resulting from geologic hazards, including earthquakes and seismic activity is included in Section 4.9, *Geology and Soils*.

If a WTG experiences excess speed, material fatigue, excessive stresses, or vibration from seismic ground shaking, there is the potential for a rotor blade to crack or dislocate from the turbine tower. Blade failures may occur due to extremely high winds and excess rotor speed. Most commercial turbines are currently equipped with safety and engineering features to prevent excess rotor speed.

Under certain conditions, ice can form on wind turbine towers and rotor blades, and blade icing and ice throw are a risk at some locations. Moving rotor blades are subject to heavier buildups of ice than stationary structures through the mechanism of rime icing. Rime icing occurs when a subfreezing structure is exposed to moisture-laden air with significant velocity. If the ice then becomes detached while the blades are rotating, there is the possibility of "ice throw" over a considerable distance from the turbine. The Project area has a generally mild climate and extreme cold or freezing temperatures are rare.

4.11.1.3 Public Health

A discussion on corona effect, field effect, and electric and magnetic fields is included in the LWEP Final EIR (Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*).

Electromagnetic Fields

Existing power lines are present in the Project area along the residential area on San Miguelito Road just south of the City of Lompoc and along SR-1 just south of the City of Lompoc. As discussed in the LWEP Final EIR (Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*), an existing 115-kV

[1] For example, the failure rates at the end of the data reporting period for Danish wind turbines ranges between 6 x 10-5 /hr and 7 x 10-5 /hr. For German wind turbines, the failure rates range between 1.1 x 10-4 /hr and 1.4 x 10-4 /hr. (MMI Engineering Ltd, 2013)

power line servicing the Celite facility runs along State Route 1 (SR-1), east of existing residences. These power lines are in the vicinity of the Project transmission line.

Since 2001, further research concerning possible health effects associated with EMF has been consistent with earlier studies. For example, Feychting (2005) examined non-cancer effects—principally, adverse pregnancy outcomes—associated with EMF exposure and concluded that such studies have not indicated these effects. On January 15, 1991, the California Public Utilities Commission (CPUC) initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, called the California EMF Consensus Group, was created by the CPUC to advise it on this issue. The Consensus Group's fact-finding process was open to the public and its report incorporated concerns expressed by the public. Its recommendations were filed with the CPUC in March 1992. Based on the work of the Consensus Group, written testimony, and evidentiary hearings, the CPUC issued its decision (93-11-013) on November 2, 1993, to address public concern about possible EMF health effects from electric utility facilities. The conclusions and findings included the following:

> We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure. We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value.

This continues to be the stance of the CPUC with regard to establishing standards for EMF exposure. Currently, the State has not adopted any specific limits or regulation on EMF levels related to electric power facilities.

Radiofrequency Radiation (RFR)

As discussed in the County of Santa Barbara Environmental Thresholds and Guidelines Manual (County of Santa Barbara, 2018), standards have been established for effects resulting from thermal heating of body tissue. The most widely used conservative standards are the IEEE-ANSI C95.1-1992 Standards, which are based on power densities. Power density is the rate at which electromagnetic energy radiates through space in terms of watts per square meter (W/m2) or milliwatts (1/1,000th of a watt) per square centimeter (mW/cm2) and is customarily used in addition to the specification of the strengths of electric and magnetic fields by kV/m and mG when defining standards. Common sources of radio frequency emissions include the following: radio and television transmission facilities, microwave and cellular facilities, radios, televisions, computers, computer monitors, microwave ovens, and induction cook tops.

4.11.1.4 Utility/Turbine Interface and Worker Safety

As discussed in the LWEP EIR (Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*), utility and turbine workers operating on wind turbines or power lines are at risk of electrical shock from either of the systems. For a full discussion on this topic, please refer to Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety,* of the LWEP EIR.

4.11.1.5 Hazardous Materials

As discussed in the LWEP EIR (Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*), the principal uses of the Project area are cattle grazing and dry land farming and the activities associated with these uses that have the greatest potential for the release of hazardous wastes or materials into the

soil or groundwater. For a full discussion on this topic, please refer to Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety,* of the LWEP EIR.

The Project area is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (California Department of Toxic Substances Control, 2018). Additionally, the Phase 1 Environmental Site Assessment commissioned by the Applicant found no recognized environmental conditions (REC) with the Project site (Tetra Tech, 2016).

4.11.1.6 Aircraft Operations

The Project site is bounded by VAFB on the south and west sides. The site's southern boundary with VAFB follows the ridgeline for much of its length. Prevailing winds from the north/northwest regularly flow over the ridges. Some of the prime wind sites in the southern Project area are near the VAFB property line. The Applicant has executed an agreement with the Air Force that outlines the responsibilities of the Applicant for siting the Project in close proximity to VAFB property. Agreement No. USAF-AFSPC-XUMU-15-1-0142 (the "Agreement") establishes policies for evacuation and termination of transmissions of "Specified Turbine(s)" during launch or pre-launch activities upon notice to do so by the VAFB. At this time, no Specified Turbines have been identified.

Hazards to flight also include visual and electronic forms of interference with the safety of aircraft operations. Land use development that may cause an increase in the level of attraction to birds is also considered a hazard. Other potential hazards to aviation for wind energy projects located in sufficient proximity to airports include potential electromagnetic interference from the power plant and transmission lines.

The Project's WTGs would be required to comply with Federal Aviation Administration (FAA) Advisory Circular 70/7460-1, Obstruction Lighting/Marking, requirements and would require a Wind Turbine Generator Lighting Plan. The Applicant filed form 7460-1, Notification of Proposed Construction or Alteration, with the FAA for each WTG. The FAA issued a "Determination of No Hazard to Air Navigation" for the Project on November 14, 2018.

4.11.2 Regulatory Setting

Federal

The LWEP EIR identified one applicable Federal regulation: the National Electric Manufacturers Association (NEMA) and American National Standards Institute (ANSI) which sets safety standards for wind generation equipment. There have been no relevant changes to this regulation since 2008. Please refer to the LWEP Final EIR for a description of this regulation.

State

The LWEP EIR identified two State agencies with safety regulations applicable to the Project: the California Office of Safety and Health and Administration (Cal-OSHA), which sets standards for WTGs, and the California Public Utilities Commission (CPUC), which regulates electric transmission lines and mandates EMF reduction as a practicable design criterion for new and upgraded electrical facilities. There have been no relevant changes to these regulations since 2008. Please refer to the LWEP Final EIR for descriptions of these regulations.

Local

The LWEP EIR identified one applicable local regulation: a Hazardous Materials Business Plan, which would be required by the Santa Barbara County Fire Department (SBCFD). There have been no relevant changes to this regulation since 2008. Please refer to the LWEP EIR for a description of this regulation.

4.11.3 Significance Thresholds

No specific thresholds are identified for hazardous materials in the County's Environmental Thresholds and Guidelines Manual (2018). The thresholds below were applied in the LWEP EIR (Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*).

- Expose people or structures to a significant risk of loss, injury, or death by construction or operation of the Project.
- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions that may involve the release of hazardous materials into the environment.

Construction and operation risk analysis guidance with risk threshold spectrum diagrams are provided in County's Manual (pp. 125, 126). The risk spectrum diagrams show risk zones depicted in green, amber, and red. The diagrams provide a horizontal axis with a number of injuries or fatalities, and a vertical axis with the annual chance of risk of injury or fatality. Risks that are in the red or amber zones after application of all feasible mitigation measures are classified as unavoidable, significant impacts on public safety (Class I Impact). Unmitigated risks that are in the red or amber zones that can be mitigated sufficiently to lower the risk into the green zone are considered less-than-significant risk impacts after mitigation (Class II impact). Unmitigated risks that fall within the green zone are considered to have an insignificant impact on public safety (Class III Impact) and no mitigation (or additional mitigation) is required for purposes of compliance with CEQA.

These risk thresholds focus on involuntary public exposure to acute risks that stem from certain types of activities with significant quantities of hazardous materials. Such activities include installations or modifications of facilities that handle hazardous materials (hereinafter referred to as hazardous facilities), and the transportation of hazardous materials. However, the thresholds also assist in identifying potentially significant impacts to non-hazardous land uses proposed in proximity to existing hazardous facilities. This County's Guidance Manual lists a number of facility types that are subject to these risk analysis guidelines. Wind turbine construction and operation, specifically the physical risk to the public from tower collapse and blade throw events during operation, are not listed in the guidelines as requiring risk analysis; however, these County-approved public injury and fatality risk spectrums are considered appropriate for use as significance criteria in assessing the public risk impacts for the SWEP.

While some evidence indicates that there may be certain biological effects that may result from exposure to low frequency EMFs, there are no standards or guidelines to govern the public's involuntary exposure to extremely low frequency (ELFs) EMFs. At this time, given the current information regarding potential health impacts and the uncertainty surrounding impacts related to ELFs, the Board of Supervisors did not adopt a specific threshold for ELF exposure. Instead, the Board

of Supervisors directed staff to evaluate ELF exposure on a case-by-case basis, using the most current scientific data.

Below is a threshold from the County's Environmental Thresholds and Guidelines Manual related to radiofrequency radiation exposure.

- Expose people to radiofrequency radiation (RFR) in excess of the IEEE-ANSI C95.1-1992 standard.

4.11.4 Environmental Impacts and Mitigation Measures

Table 4.11-1 below lists the impacts and mitigation measures identified for hazards and hazardous materials in Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*, of the LWEP Final EIR. These same impacts are addressed in this section for the SWEP. The right-hand column of the table below indicates whether the LWEP impacts or mitigation measures have been modified for the SWEP.

Table 4.11-1. LWEP Impacts and Mitigation Measures – Hazards and Hazardous Materials

Impact No.	LWEP Impact Statements	LWEP Mitigation Measures	SWEP Changes
RISK-1	Tower Failure and Blade Throw. Risk to the public from WTG collapse would be limited, though several WTGs could be located close to lightly-traveled County roads. The Project is expected to present a low risk of blade throw; nonetheless, a risk exists.	RISK-5: Tower Failure and Blade Throw.	Revised impact statement. Updated impact discussion, analysis, and significance conclusions. Removed mitigation measure.
RISK-2	Blade Icing and Ice Throw. Blade icing and ice throw would not be expected to occur; additionally, there would be limited human activity in the Project area.	None	Revised impact statement.
RISK-3	Electromagnetic Field Effect. Electromagnetic fields are a possible issue when associated with the siting of high voltage overhead power lines or cables less than 200-feet from residences,	None	Revised impact statement. Updated impact discussion.
RISK-4	Utility/Turbine Interface and Worker Safety. Construction workers would be exposed to a number of risks, including electrical shock and falls. There is also risk to members of public who incidentally or intentionally enter the Project site.	None	Revised impact statement. Updated impact discussion.
RISK-5	Release of Hazardous Materials. Accidental spills or leakage of hazardous materials could occur, including fuels (gasoline and diesel), lubricants, motor oil, and paints.	RISK-1: The Applicant shall prepare a Hazardous Materials Management Plan that meets SBCFD requirements. RISK-2: Refueling vehicles shall have a sign listing pertinent contacts to notify in the event of a spill. RISK-3: All equipment shall be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage.	Revised impact statement.

Impact No.	LWEP Impact Statements	LWEP Mitigation Measures	SWEP Changes
		RISK-4: Construction fueling shall be designated such that sensitive areas are avoided.	
RISK-6	None	None	New impact statement. New impact discussion New significance conclusion.

The impacts of the proposed SWEP related to hazards and hazardous materials are discussed below.

RISK-1 **Tower Failure and Blade Throw.** There could be a risk to the public from possible WTG tower collapse or blade throw.

As discussed in Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*, of the LWEP EIR, the probability of structural failure of a WTG is very low. The LWEP EIR stated that failure of a WTG tower at its base, or of its anchorage to the foundation, would create a hemispherical hazard zone with a radius approximately equal to the LWEP's turbine tip height of 397 feet. A statistical risk analysis was not performed for the LWEP; however, the potential risk to the public was found to be very limited since all of the WTGs would be located on private property in a remote rural area with limited public access and usage. Also, most LWEP WTGs would be more than 500 feet away from publicly accessible San Miguelito Road and Sudden Road. Similarly, the LWEP EIR determined that the risk to the public from potential WTG blade throw would be very low. Although, the LWEP EIR found the risk of tower collapse or blade throw to be very low, it was determined to be a public risk.

Mitigation Measure (MM) RISK-5 (Tower Failure and Blade Throw) approved in the LWEP EIR requires a setback of WTGs from public roads equal to the total WTG height. It was determined that compliance with this measure would reduce potential impacts to public safety to a less-than-significant level (Class II).

For the SWEP, similar to the LWEP, all of the WTGs would be located on private property in a remote rural area with limited public access and usage. All but one of the 30 SWEP WTGs would be more than 500 feet away from publicly accessible San Miguelito Road and Sudden Road. The maximum SWEP WTG height would be 492 feet. One proposed WTG (N-1) would be located closer than 492 feet to a section of San Miguelito Road. This section of road starts approximately 250 feet west of the intersection of San Miguelito Road and Sudden Road and curves around WTG N-1 for a distance of about 1,650 feet. Therefore, 1,650 feet of San Miguelito Road is within WTG N-1's hazard zone for a thrown blade or collapsed tower. At the nearest point, the WTG would be approximately 300 feet from the road.

The proposed WTG site is on a hill and is approximately 50 feet in elevation above the road at this closest point to the road. The elevation of WTG N-1 above the road would increase the potential for a thrown blade or collapsed tower to fall on the roadway, as compared to a site on flat terrain.

The section of San Miguelito Road that is within WTG N-1's hazard zone is approximately 5.1 miles from the Lompoc city limit and, as stated in the LWEP EIR, is relatively remote. There is no through traffic, as the road dead-ends at VAFB property boundary to the west. However, recreational activities sometimes occur at and near the intersection of San Miguelito Road and Sudden Road, including cycling, hiking, sight-seeing, and bird watching. The intersection is currently identified as a "hotspot" birding location in the Audubon Society's "ebird" database.

The risk of public injury or fatality due to tower collapse or blade throw would be somewhat greater for SWEP than for LWEP. The main WTG safety concern in the LWEP EIR was a WTG location near SWEP's proposed site for WTG N-1. The WTG proposed for the SWEP is substantially larger than the LWEP one. (Overall WTG height is 492 feet for SWEP versus 397 feet for LWEP; blade length is 225 feet for SWEP versus 135 feet for LWEP.) Therefore, the public would be exposed to risk from possible WTG N-1 accidents along a larger section of San Miguelito Road.

Blade throw has a much higher public risk potential than tower collapse, so the public risk analysis for SWEP is focused on the risk from blade throw. The Applicant provided a third-party blade-throw public risk analysis for WTG N-1 (ArcVera 2019). This risk analysis was based on the determination of the following risk factors:

- Worst-case frequency determination for a blade throw (which includes any part of a blade that detaches from the WTG and impacts the ground) based on available industry and agency data on blade throws.
- Probability of the blade striking an area of public risk (i.e. San Miguelito Road) within the radius of the maximum tower height (492 feet) based the modeling of local wind data and blade throw geometric probabilities for the specific WTG type.
- Probability of the public being on the affected area of San Miguelito Road at the time of a blade throw, based on observed traffic data.

The ArcVera report, after combining the determined frequency and probabilities, identified a conservative annual public risk value from blade throw of 1.3×10^{-7}. This risk value is well within the green zones of the County-approved public injury and fatality risk spectrums.

The ArcVera blade-throw risk analysis was critically reviewed (Aspen 2019) with the following major findings:

- While some data and assumptions could be improved, the methodology used for the analysis is sound.
- Blade-throw risks are very low, although they are likely somewhat higher than concluded in the ArcVera analysis.
- The annual risk to the public from a potential WTG N-1 blade throw is within the Santa Barbara County Environmental Thresholds and Guidelines Manual risk spectrum green levels.

The frequency of and public risk from a tower collapse is much lower than that for a blade throw, so that additional public risk does not change the public safety risk determination for SWEP WTG operation.

Based on the above risk analysis, and risk analysis review, it has been determined that the annual risk to the public from blade throw and tower collapse is within the County-approved public injury and fatality risk spectrum green zones; therefore, the impact of SWEP operations to public safety has been determined not to be significant (Class III) and a WTG setback mitigation measure is not required.

RISK-2 Blade Icing and Ice Throw. Risk to the public could occur from blade icing and ice throw.

The LWEP EIR found that the LWEP would result in low risk because the WTGs would be (1) located on private property, (2) VAFB provides a buffer and public exclusion zone, and (3) the overall LWEP area is rural with limited human activity. Impacts from blade icing and ice throw were found to be adverse, but not significant. The LWEP Final EIR stated that the Project site is located in a region with a generally mild climate, and extreme cold or freezing temperatures are very rare, blade icing and ice throw would not be expected to occur.

No changes would occur with the SWEP as the climate conditions of the Project area remain the same. The SWEP is located in the same area as the LWEP. Impacts from blade icing and ice throw would remain adverse, but not significant (Class III).

RISK-3 Electromagnetic Field Effect. Electromagnetic fields could cause a possible hazard when associated with the siting of high-voltage overhead power lines or cables in proximity to residences.

The LWEP EIR concluded that EMF is not an issue of concern related to WTGs, which have a predominately underground low-voltage (34.5-kV) collection system. In addition, residences located in the vicinity of the proposed WTGs and associated collection system are well beyond any potential zone of effect. The LWEP EIR also discusses that exposure to electromagnetic fields is a possible issue when associated with the siting of high-voltage overhead power lines in close proximity to residences. The LWEP EIR concluded that EMF exposure to residents would be considered potentially adverse, but not significant (Class III).

The high-voltage transmission line associated with the SWEP would be sited within 200 feet of five residences located north and northeast of the proposed switchyard. The Applicant would be constructing the transmission line consistent with accepted industry standards, protective measures, and established industry guidelines. These include the recommended practices and procedures of the IEEE, standards for overhead line construction consistent with CPUC General Order 95 (GO95), avian protection measures consistent with the 2012 Avian Power Line Interaction Committee Guidelines, electric magnetic field design guidelines accepted for transmission design in California, and other applicable rules and standards. Also, as indicated in the County's Environmental Thresholds and Guidelines Manual, there is no scientific consensus that EMF exposure poses a health risk, which is why there are no standards or guidelines to govern the public's exposure to EMFs. EMF exposure to residents from the SWEP is not considered significant (Class III).

RISK-4 Utility/Turbine Interface and Worker Safety. Construction workers could be exposed to safety risks, including electrical shock and falls. Risk could occur to members of public who incidentally or intentionally enter the Project site.

As discussed in Section 3.13, *Risk of Accidents, Hazardous Materials, and Safety*, of the LWEP EIR, construction workers attending to WTGs or utility components of the LWEP could be exposed to a number of risks including electrical shock and falls. The LWEP EIR explained that contractors would ensure that all laws, ordinances, regulations, and standards concerning health and safety issues were complied with during

construction. During operations, onsite staff would not be present at the site 24 hours per day; however, operations would be continuously monitored through the Supervisory Control and Data Acquisition (SCADA) system from remote locations. Standard operating procedures and employee training relating to safety, potential emergency situations, and potential malfunctions would cover emergency evacuation, emergency response, safety, electrical equipment failures, fire prevention and control, mechanical malfunctions, notification procedures, maintenance activities and schedules. Overall, impacts to worker safety were considered to be adverse, but not significant (Class III).

The LWEP EIR also considered the potential for incidental or intentional entry into the LWEP site by members of the public and subsequent risk to human health. The potential for direct risks to the public resulting from contact with energized equipment or other accidents in the LWEP area was considered to be minimal because the public would have limited access to the Project areas. The proposed facilities are located on private property and safety signing would be posted around all WTGs, transformers, and other high-voltage facilities, and along roads, consistent with the safety program. Impacts were considered to be adverse, but not significant (Class III).

No changes would occur with the SWEP as safety procedure would be similar. Standard operating procedures and employee training relating to safety, potential emergency situations, and potential malfunctions would address emergency evacuation, emergency response, safety, electrical equipment failures, fire prevention and control, mechanical malfunctions, notification procedures, maintenance activities, and schedules. Physical security of the Project site would be provided by the installation of locked gates at the entrance to all access roads. In addition, all turbines would be locked as well, as would be the Project substation, switchyard and control house, which would be fenced by an 8-foot high barbed-wire reinforced fence. Electronic access to any SCADA access point is protected by at least two layers of security using high industry standard Virtual Private Network technology and secure passwords and 24/7 remote monitoring. Additionally, remote, around the clock monitoring and surveillance cameras would provide eyes on the wind facilities at all times and report any and all suspected intrusions. If an intrusion is suspected, security personnel would be deployed to the site.

Impact to worker safety and members of the public would remain adverse, but less than significant (Class III) with implementation of National Electric Safety Code (NESC) and California Office of Safety and Health and Administration (Cal-OSHA) requirements described above, which cover basic provisions for safeguarding persons from hazards arising from the installation, operation, or maintenance of electrical systems; and protect workers and the public from safety hazards according to its occupational health and safety laws.

RISK-5 Release of Hazardous Materials. Accidental spills or leakage of hazardous materials could occur, including fuels (gasoline and diesel), lubricants, motor oil, and paints.

The LWEP EIR stated that accidental spills or leakage could occur, but the Project would be required to comply with all regulatory requirements (National Electric Safety Code (NESC) and California Office of Safety and Health and Administration (Cal-OSHA)), including an approved Hazardous Materials Business Plan. Regulatory requirements include proper equipment maintenance, designated areas for fueling, and contacts to notify in the event of a spill. To minimize the potential for harmful effects to people or the environment, stored chemicals would be held in onsite tanks or drums equipped with secondary containment areas to prevent runoff. The LWEP EIR concluded that impacts from the

accidental release of hazardous materials associated with construction or operation of the LWEP would be adverse, but not significant (Class III), because all regulatory requirements would be met.

No changes would occur with the SWEP as the risk of accidental spills or leakage with hazardous materials would be similar. Impacts from the accidental release of hazardous materials associated with construction or operation of the Project would remain adverse, but not significant (Class III). The following mitigation measures (MMs) were included in the LWEP EIR as Applicant-proposed measures to ensure maximum feasible mitigation in accordance with Santa Barbara County policy.

Mitigation Measures

MM RISK-1 **Hazardous Materials Management Plan.** The Applicant shall prepare a Hazardous Materials Management Plan.

Plan Requirements. The plan shall meet SBCFD requirements.

Timing. The plan shall be provided to SBCFD prior to zoning clearance.

Monitoring. The County staff will verify the completion and approval of the plan prior to zoning clearance.

MM RISK-2 **Refueling Spill Notification.** Refueling vehicles shall have a sign listing pertinent contacts to notify in the event of a spill. A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Plan Requirements. A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Timing. The notification shall be provided prior to zoning clearance.

Monitoring. County staff will verify the notification prior to zoning clearance and confirm compliance during construction.

MM RISK-3 **Equipment Maintenance.** All equipment shall be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage. A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Plan Requirements. A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Timing. The notification shall be provided prior to zoning clearance.

Monitoring. The County staff will verify the notification prior to zoning clearance and compliance confirmed during construction.

MM RISK-4 **Avoidance of Sensitive Areas for Refueling.** Construction fueling shall be designated such that sensitive areas are avoided. A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Plan Requirements. A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Timing. The notification shall be provided prior to zoning clearance.

Monitoring. The County staff will verify the notification prior to zoning clearance and confirmed during construction.

RISK-6 Radiofrequency Radiation. The Project could expose people to radio-frequency radiation (RFR) in excess of the IEEE-ANSI C95.1-1992 standard.

This impact was not identified in the LWEP EIR. It is provided in the SWEP analysis because this threshold was added to the County of Santa Barbara Environmental Thresholds and Guidelines Manual since publication of the LWEP EIR. As discussed in the County of Santa Barbara Environmental Thresholds and Guidelines Manual (County of Santa Barbara, 2018), effects of RFR have been primarily linked to thermal responses as a result of exposure to RF sources of energy (e.g., transmitters, computers, television). In general, exposure of humans and animals have the potential to interact with body tissue such that water molecules become excited, causing friction and concomitant rises in body temperature, albeit slight in most instances. This effect is similar to that which is experienced within a microwave oven, where the water molecules within the food substance are excited to create heat, thus resulting in the warming of food. More research needs to be conducted to determine the effects of RF on humans. Due to the distance of the WTGs to sensitive receptors (over 900 feet), it is unlikely that any potential effects from RF would be greater than those experienced in our daily lives from cell phones, microwaves, and other electronic devices that are utilized by humans within a much closer distance. No impact is expected from the potential exposure of RF from WTGs.

4.11.5 Cumulative Effects

Geographic Extent/Context

The geographic extent for cumulative impacts from hazards and hazardous materials is the Lompoc Valley. This area includes hazardous materials spills or leaks, aviation hazards, and potential turbine failure which are typically highly localized. The Project area consists of primarily rural land within the ridges of the Santa Ynez Mountains, along San Miguelito Canyon, and the White Hills. None of the cumulative projects identified in Figure 3-1 (Nearby Cumulative Projects) are expected to combine with impacts of the Project due to distance (over 2 miles away) and the site-specific nature of potential hazards and hazardous materials impacts of the Project.

Cumulative Effects

Tower Failure. All of the turbine corridors would be more than 500 feet away from publicly accessible San Miguelito Road and Sudden Roads. However, one proposed WTG location (WTG N-1) would be located approximately 302 feet from San Miguelito Road. As discussed in Impact RISK-1, this impact is not considered significant. This impact would be site-specific and is not expected to combine with similar impacts of past, present, or reasonably foreseeable projects.

Blade Throw. A low risk of blade throw exists from the Project but is not considered significant (see Impact RISK-1). This impact would be site-specific and is not expected to combine with similar impacts of past, present, or reasonably foreseeable projects.

Electromagnetic Field Effect. The LWEP EIR concluded that the Project and other projects, including the River Terrace project would result impacts associated with electromagnetic field (EMF) exposure and

that the impacts would be cumulatively significant, but mitigable. No cumulative projects are currently located in the vicinity of the SWEP that would cause a potential cumulatively significant effect.

Release of Hazardous Materials. The use, storage, and disposal of hazardous materials during Project construction and operation could result in potential adverse health and environmental impacts if a hazardous material spill or leak were to occur. All hazardous materials would be handled and stored in compliance with the requirements set forth in the applicable codes and regulations. Implementation of MMs RISK-1 through RISK-4 (see Table 4.11.1) would ensure that potential impacts are reduced. This impact does not have the potential to combine with contamination from spills from other projects to result in a cumulative impact due to the site-specific nature of soil contamination and implementation of a hazardous materials management plan that would ensure proper cleanup and disposal of contaminated soil.

4.11.6 Residual Impacts

As summarized in Section 4.11.4, Impact RISK-6 would have no adverse effect, and Impacts RISK-1, RISK-2, RISK-3, RISK-4, and RISK-5 would be less than significant.

4.11.7 Impact and Mitigation Summary

Table 4.11-1 below provides a summary of the SWEP's impacts related to hazards and hazardous materials. The table also indicates the mitigation measures proposed to reduce each significant impact.

Table 4.11-1. SWEP Impact and Mitigation Summary – Hazards and Hazardous Materials

Impact No.	Impact Statement	Mitigation Measures	Significance Conclusion
RISK-1	Tower Failure and Blade Throw. There could be a risk to the public from possible WTG tower collapse or blade throw.	None required.	Class III
RISK-2	Blade Icing and Ice Throw. Risk to the public could occur from blade icing and ice throw.	None required.	Class III
RISK-3	Electromagnetic Field Effect. Electromagnetic fields could cause a possible hazard when associated with the siting of high-voltage overhead power lines or cables in proximity to residences.	None required.	Class III
RISK-4	Utility/Turbine Interface and Worker Safety. Construction workers could be exposed to safety risks, including electrical shock and falls. Risk could occur to members of public who incidentally or intentionally enter the Project site.	None required.	Class III
RISK-5	Release of Hazardous Materials. Accidental spills or leakage of hazardous materials could occur, including fuels (gasoline and diesel), lubricants, motor oil, and paints.	RISK-1: Hazardous Materials Management Plan (recommended). RISK-2: Refueling Spill Notification (recommended). RISK-3: Equipment Maintenance (recommended). RISK-4: Avoidance of Sensitive Areas for Refueling (recommended).	Class III
RISK-6	Radiofrequency Radiation. The Project could expose people to radiofrequency radiation (RFR) in excess of the IEEE-ANSI C95.1-1992 standard.	None required.	No Impact

Class I. Significant unavoidable adverse impact.
Class II. Significant environmental impacts that can be feasibly mitigated or avoided.
Class III. Adverse impacts found not to be significant.
Class IV. Impacts beneficial to the environment.

4.11.8 References

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