3.7. HAZARDS and HAZARDOUS MATERIALS

3.7.1. ENVIRONMENTAL SETTING

Westlands Solar Park

The following discussion of environmental site conditions within the WSP plan area is partly based on the following sources:

1. *Phase I Environmental Site Assessment, Proposed Westside Solar Park, Assessor's Parcel Numbers (APNs) 026-300-032, 026-300-033, 026-300-038, 026-300-043, 026-320-002, 026-320-003, 026-320-017, and 026-320-020, Lemoore, California*, prepared by Moore Twining Associates, dated April 6, 2011. (This Phase 1 ESA covers the area designated as WSP Subarea 11 on Figure PD-3, which is located to the east and south of the off-site Shannon Ranch complex.)

2. *Environmental Assessment of Soils for Arsenic and Environmentally Persistent Pesticides (OCPs); Westside Solar Project – Northern 18 acres, Southeast Corner of Avenal Cutoff Road and 25th Avenue, Lemoore, California,* prepared by Moore Twining Associates, dated February 19, 2015. (This environmental assessment consisted of follow-up soil sampling and testing for the Westside Solar Project CUP referenced in item 1 above.)

3. *Phase I Environmental Records Review, Westlands Solar Park, Stratford, Kings County, California,* prepared by Moore Twining Associates, dated January 26, 2016. (This report consists of an environmental records review for the entire WSP plan area.)

The above-listed documents are incorporated into this EIR by reference, as provided under CEQA Guidelines Section 15150. The documents are available for review at the Westlands Water District headquarters in Fresno.

The Westlands Solar Park Master Plan provides the planning framework for the future development of 12 subareas or solar generating facilities to be constructed over about 12 years. Since agricultural activity will continue within the subareas until they are developed, it is premature to conduct Phase I Environmental Site Assessments for all 12 subareas at this time, since the findings of any such WSP-wide Phase I ESA would be obsolete by the time the SGFs are planned for construction. Instead, this programmatic analysis considers the findings of the previous environmental assessments conducted within portions of the WSP plan area in the evaluation of potential hazards and hazardous materials impacts for the overall WSP plan area. Site-specific Phase I ESAs will be required during subsequent environmental reviews in conjunction with CUPs for each WSP solar project. These site-specific ESAs will identify the need for any follow-up environmental assessments and site-specific mitigation measures, as appropriate, for each WSP solar project.

The previous Phase I Environmental Site Assessments (ESAs) conducted by Moore Twining Associates (MTA) on Subareas 1 and 11 consisted of the following: visual inspections of the site and surrounding

areas; reviews of historical aerial photographs, historical topographic maps, building permit records, and other property data sources; reviews of Kings County Division of Environmental Health Services (EHS) files; and interviews with persons with knowledge of present and past uses of the property. As part of the Phase I ESA, a government records report, prepared by Environmental Data Resources (EDR), was obtained. This report searches federal and state databases, including California Government Code 65962.5 list (Cortese List) and databases maintained by the Regional Water Quality Control Board, for potential sources of hazardous substances or petroleum that might affect the soil and/or groundwater quality of the project site and its vicinity.

Conditions within WSP Plan Area

The WSP plan area has been in agricultural cultivation since at least 1940. There are currently no buildings or structures within the plan area, and none are known to have existed on-site in the past. The environmental conditions associated with the WSP plan area are described below.

Conditions Related to Agricultural Operations

Above Ground Storage Tanks (ASTs)

There are numerous polyvinyl ASTs, varying in size, in several fertilizer mixing areas located throughout the plan area. These tanks are used to store fertilizer until it is mixed with water and pumped out to crops. There is no knowledge or record of any spills, leaks, incidents, or violations associated with these areas. MTA found no evidence of staining or leakage on or around any of the tanks in Subarea 11. It is expected that subsequent assessments elsewhere in the WSP plan area will also find no evidence of spills or leaks near ASTs, although this is subject to confirmation through future Phase 1 ESAs conducted at each SGF site.

Trailer Tanks

There are several trailer tanks (approximately 750-gallons in capacity) located throughout the plan area. These tanks are used to spray fertilizers and insecticides at the site. MTA found no evidence of staining, spills, or leakage associated with the trailer tanks in Subarea 1. It is expected that subsequent assessments elsewhere in the WSP plan area will also find no evidence of spills or leaks near trailer tanks, although this is subject to confirmation through future Phase 1 ESAs conducted at each SGF site.

55-Gallon Drums

Several 55-gallon drums containing motor oil were associated with the mixing areas and agricultural wells. This oil is used to lubricate bearings associated with the pump systems. Apart from some light staining on the surface of several of the drums, MTA found no evidence of staining, spills, or leakage associated with these drums in Subareas 1 or 11. It is expected that subsequent assessments elsewhere in the WSP plan area will also find no evidence of spills or leaks near oil drums, although this is subject to confirmation through future Phase 1 ESAs conducted at each SGF site.

Agricultural Wells and Pump Systems

Several agricultural wells and associated pump systems are located throughout the WSP plan area. MTA found no evidence of spills or leakage associated with wells in Subareas 1 or 11. It is expected that subsequent assessments elsewhere in the WSP plan area will also find no evidence of spills or leaks near

agricultural wells or pump systems, although this is subject to confirmation through future Phase 1 ESAs conducted at each SGF site.

Canals and Ponds

A number of canals, ditches, and small ponds are located throughout the WSP plan area. MTA observed no sheening, discolored water, or odors associated with the canals, ditches, and ponds in Subareas 1 and 11. It is expected that subsequent assessments elsewhere in the WSP plan area will also find no evidence of sheening, discolored water, or odors associated with canals, ditches, and ponds, although this is subject to confirmation through future Phase 1 ESAs conducted at each SGF site.

Agricultural Chemical Application

Past and current agricultural practices within the WSP plan area include the application of agricultural chemicals such as fertilizers, pesticides, and herbicides. MTA found no evidence of contamination such as staining or stressed vegetation within Subareas 1 or 11. However, due to the past and present use of the site for agricultural purposes, there is a potential that environmentally persistent pesticides may have been applied, and their residues may still be present in hazardous concentrations. (See Impact HAZ-3 below for detailed discussion.)

Pole-Mounted Electrical Transformers

Several pole-mounted transformers are present near production well sites in the WSP plan area. The transformers are owned and operated by PG&E. Within Subareas 1 and 11, MTA found the transformers to be in good working order, and were labeled "Non-PCB Containing." MTA found no evidence of staining, leakage, or stressed vegetation associated with the transformers.

PCBs (polychlorinated byphenyls) were historically used in dielectric (insulating) fluids in electrical transformers. Due to their high toxicity, the manufacture of PCBs was banned in 1979 and the frequency with which PCBs were found as a component of dielectric fluids decreased significantly over time. Consequently, transformers manufactured and installed before 1979 may well be classified as PCB transformers (defined as having a PCB content greater than 500 parts per million) or PCB-contaminated transformers (defined as having a PCB content of 50 to 499 parts per million). However, transformers manufactured and installed after 1979 are more likely to be non-PCB transformers (defined as having a PCB content less than 50 parts per million) or to contain no PCBs in the dielectric fluid. Given that pole-mounted transformers observed by MTA on the WSP plan area to date are labeled as non-PCB containing, it is expected that this will found to be the case with other pole-mounted transformers in the WSP plan area, such that the potential release of dielectric fluids is a low level environmental concern. The subsequent Phase I ESAs required for each WSP solar project would confirm the presence or absence of PCBs in pole-mounted transformers.

High Voltage Power Lines

There are several existing high-voltage transmission lines that traverse the WSP plan area. These include the PG&E 230-kV Henrietta-Gates transmission line that crosses the northwestern portion of the plan area, and a PG&E 70-kV transmission line that cuts across the extreme northwest corner of the plan area. In addition, the PG&E 70-kV Henrietta-Tulare Lake transmission line extends due south on the 25th Avenue alignment through the eastern portion of the plan area. The concern with high-voltage lines is

electrocution hazard during nearby construction, and potential exposure to electromagnetic fields (EMFs). These hazards are discussed in detail under Impacts HAZ-6 and HAZ-7, respectively.

Natural Gas Pipeline

There is an active natural gas transmission pipeline, owned and operated by Southern California Gas Company, which runs parallel to and southeast of Avenal Cutoff Road through the WSP plan area. A branch pipeline splits off of this main gas pipeline at Laurel Avenue and runs eastward along the south side of Laurel to the community of Stratford. The concern with high-pressure gas pipelines is the risk of explosion caused by inadvertent contact by excavating equipment. This potential hazard is discussed in detail in Impact HAZ-6.

Abandoned Oil Wells

According to information obtained from the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR), there are 9 reported oil wells located within the WSP plan area, all of which have been plugged and abandoned. MTA's Phase 1 ESA on Subarea 11 stated that there are no reported releases, spills, incidents, or violations associated with the wells within that subarea. It is expected that subsequent assessments elsewhere in the WSP plan area will also find that there are no reported releases, spills, incidents, or violations associated with other abandoned oil wells within the WSP plan area, although this is subject to confirmation through future Phase 1 ESAs to be conducted at each SGF site. This potential hazard is discussed in detail in Impact HAZ-5.

Structures, Septic Systems, Waste Disposal Sites

There is no evidence or records of any previous structures, septic systems, or waste disposal within the WSP plan area.

Off-Site Conditions

Based on a review of regulatory records and databases by MTA, there are no listed cases in the WSP vicinity. However, MTA noted the following sites in its Phase I ESA on Subarea 11:

Shamrock Farms Yard: Located just west of the WSP site at 28088 Avenal Cutoff Road, this fenced-in yard area includes numerous polyvinyl tanks with various storage capacities that are reportedly used for fertilizer storage. The records search indicated that there are 3 above-ground storage tanks (ASTs) and one underground storage tank (UST) associated with this yard. There are no reported spills, releases, incidents, or violations associated with this property.

Esajian Farming Company Airstrip: Located just west of the WSP site on the north side of Gale Avenue, west of Avenal Cutoff Road, this airstrip appears to have been in operation since at least the mid-1950s. Although it is likely that pesticides, fertilizers, and fuel have been associated with this airstrip, there are no reported releases, spills, or violations associated with this facility.

Former Military Airfield Site. According to information obtained from the Central Valley Regional Water Quality Control Board (CVRWQCB), the former "Lemoore Auxiliary Field #4" was located outside the WSP plan area on the north side of Nevada Avenue, within Section 32 (APN 026-320-020)(i.e., the section immediately south of the tailwater pond). The airfield is reported as an old "Formerly Used Defense"

(FUD) facility, but the RWQCB has no further information on it. This site has a very low priority rating from RWQCB, and a representative of the RWQCB believes that it is very unlikely that anything impacting the WSP plan area would have occurred here. While the State Water Resources Control Board (SWRCB) "GeoTracker" web page lists this incident as a leaking underground storage tank, a representative of the RWQCB stated that this designation is incorrect, and that RWQCB has no files for this incident. There are no surface indications or evidence of the former airfield within Section 32 or in adjacent sections. Therefore, this former airfield is not considered to pose a hazard to WSP solar development.

NAS Lemoore. The DTSC's EnviroStor website lists NAS Lemoore, located two miles north of the WSP plan area, as the location of multiple instances of soil and groundwater contamination associated with aircraft maintenance and fueling operations. The areas of contamination are in various stages of remediation and monitoring (DTSC 2017).

WSP Gen-Tie Corridors

Based on a review of regulatory records and databases, there are no listed regulatory cleanup or open investigation sites within or near the WSP Gen-Tie Corridors. A review of the DTSC's EnviroStor Database and SWRCB's GeoTracker database identified the following sites within one mile of the gen-tie corridors (DTSC 2016, SWRCB 2016).

Lemoore Auxiliary Field #4. This is the same former military facility listed above, and is located approximately 1,000 feet north of the WSP-South to Gates Gen-Tie corridor. Contrary to the above description, a recent search of GeoTracker (July 21, 2016) included no indication of a leaking underground storage tank. No potential contaminants or contaminant sources are identified. The lead agency (DTSC) indicates that this case has been closed as of 4/13/2011.

Indian Auxiliary Field #3. This former military facility is located south of Jayne Avenue approximately one mile south of the WSP-South to Gates Gen-Tie corridor. The EnviroStor entry indicates that the site was used as an auxiliary landing field by the Army Air Corps in connection with the Lemoore Basic Flying School during World War II. Improvements included hard surfaced runway and support buildings. The lead agency (DTSC) indicates that this site is inactive and needs evaluation. Thus far no hazards have been identified. The lead agency (DTSC) indicates that no further action is required on this site.

3.7.2. REGULATORY CONTEXT

Definition of Hazardous Materials

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

> *…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 improperly treated, stored, transported or disposed of or otherwise managed (California Code of Regulations, Title 22, Section 66260.10).

Chemical and physical properties cause a substance to be considered hazardous, including the properties of toxicity, ignitability, corrosivity, and reactivity. These terms are defined in the CCR, Title 22, and Sections 66261.20-66261.24. Factors that influence the health effects of exposure to hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway and individual susceptibility.

Federal

Comprehensive Environmental Response, Compensation and Liability Act

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress in 1980. This law created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances from inactive hazardous waste sites that may endanger public health or the environment. CERCLA established prohibitions and requirements concerning 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, and authorizes response actions. The U.S. Environmental Protection Agency (U.S. EPA) has principal authority for administration of CERCLA.

Resource Conservation and Recovery Act

Resource Conservation and Recovery Act (RCRA) provides the U.S. EPA with the authority to control hazardous waste, including the generation, transportation, treatment, storage and disposal of hazardous waste. It defines hazardous waste, provides for a "cradle-to-grave" tracking system and imposes stringent requirements on treatment, storage and disposal facilities. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. RCRA focuses only on active and future facilities and does not address abandoned or historical sites, which are covered under CERCLA.

In 1992, the primary responsibility for administration of RCRA in California was delegated to the California Department of Toxic Substance Control (DTSC). The federal EPA continues to regulate hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Occupational Safety and Health Administration Act

Enacted in 1970, this act established the Occupational Safety and Health Administration (OSHA), which is responsible for the preparation and enforcement of occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations cover activities ranging from confined space entry to workplace exposure to hazardous chemicals and activities. For workers who will be potentially exposed to hazardous substances, OSHA requires training under its Hazardous Waste Operations and Emergency Response Standard (HAZWOPER).

In California, the federal OSHA regulations are enforced by the California Occupational Health and Safety Administration (Cal/OSHA), discussed below.

Federal Toxic Substances Control Act

The federal Toxic Substances Control Act authorizes the U.S. EPA to secure information on all new and existing chemical substances and to control any of these substances determined to cause an unreasonable risk to public health or the environment. TSCA also includes requirements for the storage, use, and disposal of Polychlorinated Biphenyl (PCB)-containing materials.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

The primary purpose of FIFRA is to provide federal control of pesticide distribution, sale, and use. Under FIFRA, the U.S. EPA requires users (farmers, utility companies, and others) to register when purchasing pesticides. Users also must take exams for certification as applicators of pesticides. All pesticides used in the U.S. must be registered (licensed) by the EPA. Registration assures that pesticides will be properly labeled and, if applied in accordance with specifications, will not cause unreasonable harm to the environment.

Federal Hazardous Materials Transportation Act

The federal Hazardous Materials Transportation (HMT) Act regulates transportation of hazardous materials. The primary regulatory authorities are the U.S. Department of Transportation (DOT), the Federal Highway Administration (FHWA), and the Federal Railroad Administration. The HMT Act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. The Act requires that carriers report accidental releases of hazardous materials to the Department of Transportation at the earliest practical moment. The California Department of Transportation (Caltrans) implements the federal legislation at the State level, and the regulations are enforced by the California Highway Patrol.

State

The California Environmental Protection Agency (Cal-EPA), the State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Board (RWQCB) have primary responsibility for the use and management of hazardous waste. Within Cal-EPA, the California Department of Toxic Substances Control (DTSC) has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency for the management of hazardous materials and the generation, transport and disposal of hazardous waste. Depending on the nature of contamination, the lead agency responsible for the regulation of hazardous materials at a site can be the DTSC, RWQCB, or both. In general, contamination affecting soil and groundwater is handled by the RWQCB and the contamination of soils is handled by the DTSC. DTSC evaluates contaminated sites to ascertain risks to human health and the environment. DTSC also maintains a list of potentially contaminated sites in the state, known as the Cortese List, which is required under California Government Code Section 65962.5. The Cortese List includes: DTSC-listed hazardous waste facilities and sites; California Department of Public Health (CDPH) lists of contaminated drinking water wells; sites listed by the SWRCB as having underground storage tank leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater, and; lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

Hazardous Waste Control Law

The California Hazardous Waste Control Law (HWCL) is the State's equivalent to RCRA and closely parallels RCRA by regulating the generation, storage, transportation, treatment and disposal of hazardous waste in the state, and particularly those wastes and activities not covered by the federal program. The primary authority for enforcement of HWCL lies with the DTSC, which also administers the state's delegated responsibilities under RCRA.

Hazardous Substance Account Act

Known as HSAA or the California Superfund, the Act has three purposes: 1) to respond to releases of hazardous substances; 2) to compensate for damages caused by such releases; and 3) to pay the state's 10 percent share in CERCLA cleanups. Contaminated sites that do not qualify for cleanup under CERCLA may be placed on the California Superfund list of hazardous wastes requiring cleanup.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act grants the RWQCBs, through the SWRCB, authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Hazardous Material Release Response Plans and Inventory Act of 1985

This state law, also known as the "Hazardous Materials Release Response Plans Act" or the "Business Plan Act," requires local agencies to regulate the storage and handling of hazardous materials and requires development of a plan to mitigate the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit to permitting agency (typically the local fire department or health department), an inventory of the hazardous materials, an emergency response plan, and an employee training program. The business plans must provide a description of the types of hazardous materials/waste on-site and the location of these materials. A Business Plan is required to be prepared by any business that uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following: 500 pounds of a solid substance, 55 gallons of a liquid, 200 cubic feet of compressed gas, a hazardous compressed gas in any amount, hazardous waste in any quantity. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The "Unified Program" required the administrative consolidation of six hazardous materials and waste programs (Program Elements) under a single local agency, a Certified Unified Program Agency (CUPA). The Program Elements consolidated under the Unified Program are: Hazardous Waste Generator and On-Site Hazardous Waste Treatment Programs; Aboveground Petroleum Storage Tank Spill Prevention Control and Countermeasure Plan (SPCC); Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or "Community Right-to-Know"); California Accidental

Release Prevention Program (California ARP); Underground Storage Tank Program; and Uniform Fire Code Plans and Inventory Requirements. The Unified Program is implemented at the local level by CUPAs, which provide a single point of contact for issuance of permits. The CUPA for Kings County is the Department of Public Health, Division of Environmental Health Services (EHS). The CUPA for Fresno County is the Fresno County Department of Public Health, Division of Environmental Health.

Underground Storage of Hazardous Substances Act

This Act requires all steel underground fuel tanks to be fitted with secondary containment or both interior lining and cathodic protection, as well as other leak prevention features. The permitting of each underground storage tank is administered by each county's Certified Unified Program Agency (CUPA), under a Memorandum of Agreement with the State Regional Water Quality Control Boards.

Aboveground Petroleum Storage Act

This Act requires owners or operators of aboveground petroleum storage tanks to file a storage statement, take specific action to prevent spills, and in certain instances, implement a monitoring program. Owners and operators of aboveground petroleum storage tanks with a single tank capacity greater than 1,320 gallons, or with a cumulative storage capacity of greater than 1,320 gallons, are required to file a Storage Statement with the State Water Resources Control Board. Immediately upon discovery of any spill or release of one barrel (42 gallons) or more into any waters of the State, each owner or operator of a tank facility must notify the state, the county, and the city in which the tank facility is located.

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

Enacted in 1986, the purpose of Proposition 65 is to promote clean drinking water and keep toxic substances that cause cancer and birth defects out of consumer products. The Act is administered by Cal-EPA's Office of Environmental Health Hazard Assessment (OEHHA). The law requires that anyone at reasonable risk of exposure be informed when substances classified as toxins are present, and this notice takes the form of specific contents information on consumer product labels. Along with the label requirements, an official list of toxic substances, including their known or suspected risk factors, is maintained and made publicly available.

California Department of Pesticide Regulation

The Department of Pesticide Regulation regulates the use of pesticides and herbicides under the authority of the California Code of Regulations, Title 3, Division 6. The Department's Licensing and Certification Program is responsible for examining and licensing qualified pesticide and herbicide applicators and for certifying pesticide and herbicide applicators who use or supervise the use of restricted pesticides and herbicides.

California Office of Emergency Services (OES)

In order to protect the public health and safety and the environment, the California OES is responsible for establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to

be available to firefighters, public safety officers, and regulatory agencies and needs to be included in business plans in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment.

California Occupational Safety and Health Administration (Cal/OSHA)

Cal/OSHA is responsible for adoption and administration of standards for safe workplaces, including standards related to hazardous materials handling. Cal/OSHA standards are generally more stringent than federal regulations. Cal/OSHA regulations concerning the use of hazardous materials in the workplace include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, preparation of health and safety plans to protect workers at hazardous waste sites, and emergency action and fire prevention plan preparation.

California Highway Patrol (CHP)

A valid Hazardous Materials Transportation License, issued by the CHP, is required by California Vehicle Code Section 3200.5 for transportation of either: hazardous materials shipments for which the display of placards is required by State regulations; or hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner. Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the California Vehicle Code.

CPUC General Order No. 95

The CPUC General Order 95, "Rules for Overhead Electric Line Construction," sets forth uniform requirements for overhead electrical line design, construction and maintenance, the application of which will insure adequate service and secure safety to persons engaged in the construction, maintenance, operation or use of overhead electrical lines and to the public in general. General Order 95 sets forth standards for minimum distances for conductor spacing and ground clearance, maximum conductor sag, vegetation clearance requirements, and maintenance and inspection rules, among other standards and requirements.

Regional and Local

Kings County

Kings County Division of Environmental Health Services (EHS)

The Kings County Department of Public Health Services, Division of Environmental Health Services (DEHS) has primary authority for administration and enforcement of hazardous materials regulations in Kings County. In accordance with state law requirements, in 1996 the County created the Certified Unified Program Agency (CUPA) to consolidate all County hazardous materials programs under one agency. The DEHS is the designated the lead agency for hazardous materials programs and acts as the single point of contact for issuance of permits. Site inspections of all hazardous materials programs (e.g., aboveground tanks and underground tanks, hazardous waste treatment, hazardous waste generators, hazardous materials management plans, etc.) are consolidated and accomplished by a single inspection. All businesses that handle or store hazardous materials above 55 gallons for liquids, 400

pounds for solids; and 200 cubic feet for compressed gases are required to complete forms and file a Chemical Inventory with the DEHS. Lower thresholds are typically mandated for "Acutely Hazardous Substances." A site map and emergency plan are also required to be submitted by all businesses that submit a Hazardous Materials Business Plan and Chemical Inventory. The program provides emergency response to chemical events to furnish substance identification; health and environment risk assessment; air, soil, water and waste sample collection; incident mitigation and cleanup feasibility options and on-scene coordination for state superfund incidents. The program also provides for the oversight, investigation and remediation of unauthorized releases from underground tanks.

Kings County Fire Department

The Kings County Fire Department has responsibility for managing responses to the release or potential release of hazardous materials, as part of its role as the Office of Emergency Management (OEM) for Kings County.

Kings County General Plan

The Health and Safety Element of the 2035 Kings County General Plan contains the following goal, objective and policy related to hazardous materials that are relevant to the Westlands Solar Park:

B. Community Health

HS GOAL B1 Promote the health and wellbeing of County residents, and support healthy living environments, physical activity opportunities, medical services, and readily available nutritious food sources.

HS OBJECTIVE B1.5 Ensure adequate protection of County residents from new generations of toxic or hazardous waste substances.

RC Policy B1.5.1: Evaluate development applications to determine the potential for hazardous waste generation and be required to provide sufficient financial assurance that is available to the County to cover waste cleanup and/or site restoration in instances where the site has been abandoned or the business operator is unable to remove hazardous materials from the site.

Kings County Code of Ordinances

Regulation of Flammable Liquid Storage

Section 10-23 of the County Code provides that above-ground storage and handling of flammable liquids in quantities greater than 52 gallons at distances of less than 50 feet from a building or property line shall require a permit from the County Fire Chief.

Fresno County

Division of Environmental Health

The Fresno County Department of Public Health, Division of Environmental Health serves as the CUPA for Fresno County. As required under the State's Unified Hazardous Waste and Hazardous Materials Management Regulatory Program described above, the Fresno County CUPA's authority and responsibilities are the same as those described for the Kings County CUPA above.

Fresno County General Plan

The Health and Safety Element of the Fresno County General Plan contains several goals and policies that address hazardous materials, including the following:

F. Hazardous Materials

GOAL HS-F: To minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.

Policy HS-F.1: The County shall require that facilities that handle hazardous materials or hazardous wastes be designed, constructed, and operated in accordance with applicable hazardous materials and waste management laws and regulations.

Policy HS-F.3: The County, through its Hazardous Materials Incident Response Plan, shall coordinate and cooperate with emergency response agencies to ensure adequate Countywide response to hazardous materials incidents.

3.7.3. ENVIRONMENTAL IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

Based on the State CEQA Guidelines, Appendix G, the project would be considered to have a potentially significant hazardous materials impact if it would:

a. Create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials. (Impacts HAZ-1 and HAZ-2)

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. (Impacts HAZ-3, HAZ-4, HAZ-5, HAZ-6, and HAZ-7)

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (HAZ-8)

d. Be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment. (Impact HAZ-9)

e. For a project located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? (Impact HAZ-10)

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? (Impact HAZ-10)

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Impact HAZ-11)

h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. (Impact HAZ-12)

IMPACTS AND MITIGATION

Impact HAZ-1. Potential Hazard from Routine Transport, Use, or Disposal of Hazardous Materials

Westlands Solar Park. **There is a potential for release of hazardous materials during construction, operation, and decommissioning of WSP solar facilities. (*Less-than-Significant Impact with Mitigation*)**

WSP Gen-Tie Corridors. **There is a potential for release of hazardous materials during construction and operation of the WSP gen-tie lines. (*Less-than-Significant Impact with Mitigation*)**

This impact analysis addresses significance criterion 'a' above.

Westlands Solar Park

The WSP solar projects would involve the use of hazardous materials during project construction, facility operation, and decommissioning, as discussed below.

Project Construction

The hazardous materials used during construction of the WSP solar projects would include gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, welding and soldering supplies, pressurized gases, etc. Hazardous wastes that may be generated include waste motor oils and hydraulic fluids, and waste solvents and adhesives.

During construction, substantial quantities of gasoline, diesel fuel, and transformer insulating oil (mineral oil) would be transported to the SGF sites. A spill of these hazardous liquids en route to the project site could result in significant impacts to soil, surface water, groundwater, or the public. However, such materials are routinely and safely transported on public roadways. The transport of large quantities of hazardous materials is strictly regulated by the California Highway Patrol (CHP). Large quantities of hazardous materials used during project construction would be transported along regulated routes by a licensed transporter, and would not pose a significant hazard to the public or the environment.

During construction and decommissioning, minor spills or discharges of hazardous materials could occur, such as minor spills and leaks from vehicles or equipment, or due to improper handling, storage, and/or disposal. The potential for impacts to the public and the environment from routine transport, use, and disposal of hazardous materials during construction of the WSP gen-tie projects represents a *potentially significant impact*. With the implementation of Mitigation Measure HAZ-1 below, and MM HYD-1 (in Section *3.8. Hydrology and Water Quality*), the impact would be reduced to *less than significant*.

Project Operation

Operation and maintenance of the WSP solar facilities would involve the transport, use, and disposal of minor amounts of hazardous materials, including motor vehicle fuel, lubricants, antifreeze, used coolant, janitorial supplies, paint, degreasers, pesticides, herbicides, and fire suppressant. During operation of the solar facilities, minor spills or discharges of hazardous materials could occur due to improper handling, storage, and/or disposal.

The transformers within the solar facilities would contain mineral oil, which ordinarily does not require replacement. The transformers would be provided with secondary containment to minimize hazard from any leaks or spills.

Herbicides would be used at the WSP solar facilities to control noxious weeds and invasive species. The herbicides would be applied by licensed herbicide applicators, in compliance with the regulations of the U.S. EPA, and the California Department of Pesticide Regulation (DPR). As discussed under Impact HAZ-3 below, modern herbicides and pesticides degrade rapidly and therefore are not considered to pose a contamination hazard according to the California Department of Toxic Substances Control (DTSC 2008). As also discussed in Impact HAZ-3, past agricultural practices within the WSP plan area involved the use of environmentally persistent pesticides, although recent soil testing at a site within the plan area indicated that residual concentrations of these “legacy” pesticides in soils are well below hazardous levels (MTA 2015).

It is possible that WSP solar projects may include power storage systems in order to provide for more effective integration of solar power into the electrical grid. Typical systems would consist of battery, fuel cell, and/or compressed air systems in enclosures measuring approximately 40 feet by 10 feet by 9 feet high placed on concrete foundations. To date, no specific storage systems have been proposed or planned for SGFs within the WSP plan area. Some battery systems, such as the lithium ion battery, can result in fire and/or explosion if improperly handled. If lithium ion battery systems are selected for individual SGFs, it is expected that the proper procedures for storage, handling and emergency response would be implemented in accordance with National Fire Prevention Association (NFPA) and OSHA safety standards, which would minimize the health and safety risks associated with battery storage.

It is possible that the WSP solar facilities could employ thin-film modules containing Cadmium-Telluride (CdTe) which is classified as a hazardous material. In any solar facility, it is expected that some modules will occasionally need replacement during the life of the facility. The potential hazards associated with CdTe PV modules are addressed in "Decommissioning" below.

In summary, the operation of the WSP solar facilities has the potential to result in hazards to the public and the environment from routine transport, use, and disposal of hazardous materials during operation of WSP solar facilities. This represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-1 below, and MM HYD-1 (in Section *3.8. Hydrology and Water Quality*), the impact would be reduced to *less than significant*.

Decommissioning

As described in Chapter *2. Project Description*, when the WSP solar facilities reach the end of their productive lives, the solar arrays and supporting infrastructure would be disassembled and removed, with all materials recycled, reused, or disposed of as appropriate in accordance with the Soil Reclamation Plans to be prepared for each SGF as prescribed in Mitigation Measure AG-2. The materials to be removed would include solar arrays, inverters, transformers, cabling and wiring, and perimeter fencing, among other things. During decommissioning of the solar facilities, minor spills or discharges of hazardous materials could occur due to improper handling, storage, and/or disposal. The potential for impacts to the public and the environment from routine transport, use, and disposal of hazardous materials during decommissioning of the WSP gen-tie projects represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-1 below, and MM HYD-1 (in Section *3.8. Hydrology and Water Quality*), the impact would be reduced to *less than significant*.

Hazards Associated with Cadmium Telluride PV Technology

The solar installations within WSP may include the use of thin-film PV panels which use cadmium telluride (CdTe) as a semi-conducting material to absorb and convert sunlight into electricity. Cadmium is highly toxic and is classified by U.S. EPA as a probable carcinogen. When combined with tellurium, however, cadmium forms a crystalline lattice that is highly stable (high boiling point, low solubility). During the PV panel manufacturing process, the CdTe is bound between two glass sheets which encapsulate the CdTe layer. CdTe contained within PV modules is highly stable and, even if the modules become broken or damaged, would not mobilize from the glass and into the environment except under extreme conditions, which would not occur under foreseeable operational conditions. During standard operation of CdTe PV systems, there are no cadmium emissions to the environment. Solar panels are in a solid and non-leachable state; broken PV panels would not be a source of pollution to stormwater. In the exceptional case of accidental fires or broken panels, scientific studies show that cadmium emissions remain negligible. The environmental safety of CdTe under normal and extraordinary conditions has been affirmed in studies peer reviewed by the European Commission (Jager-Waldau 2007). In addition, the primary manufacturer and operator of solar facilities with CdTe PV modules, First Solar, operates a recycling program for its solar modules. Through the recycling program, up to 90 percent of the semi-conductor material can be reused in new modules (First Solar 2016). The California Department of Toxic Substances Control (DTSC) has classified all solar modules as universal waste to be recycled (other examples include batteries, electronics, cell phones, etc.)(DTSC 2012). In summary, the normal use of CdTe PV modules for WSP solar facilities would not result in a significant risk of a release of hazardous materials that would be harmful to human health or the environment. It is expected that disposal of solar modules would occur through proper recycling as universal waste, or through the manufacturers

recycling program. Therefore, the potential for health hazard due to CdTe PV panels would represent a *less-than-significant impact*.

In conclusion, the handling, use, storage, transport, and disposal of hazardous materials during the construction, operation, and decommissioning of the WSP solar facilities could potentially result in hazards to the public and the environment. This represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-1 below, and MM HYD-1 (in Section *3.8. Hydrology and Water Quality*), the impact would be reduced to *less than significant*.

WSP Gen-Tie Corridors

The construction and maintenance of the gen-tie lines would involve the handling and use of hazardous materials such as fuels, lubricants, solvents, welding supplies and other materials. There is a potential for accidental spills or discharges of these materials to occur during construction or operation of the gen-tie lines. The potential for impacts to the public and the environment from routine transport, use, and disposal of hazardous materials during construction and operation of the WSP gen-tie projects represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-1 below, and MM HYD-1 (in Section *3.8. Hydrology and Water Quality*), the impact would be reduced to *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. Implement MM HAZ-1 (below), and MM HYD-1 (in Section *3.8. Hydrology and Water Quality*).**

***WSP Gen-Tie Corridors*. Implement MM HAZ-1 (below), and MM HYD-1 (in Section *3.8. Hydrology and Water Quality*).**

MM HAZ-1. Protection from Hazardous Materials

In order to protect the public from potential release of hazardous materials, the project applicant shall prepare and implement a Hazardous Materials Business Plan (HMBP) in accordance with the requirements of the Kings County Public Health Department Environmental Services Division and the Hazardous Materials Release Response Plan and Inventory Act of 1985. Under this state law, the applicant is required to prepare an HMBP to be submitted to the Kings County Public Health Department, Environmental Health Services Division, which is the Certified Unified Program Agency (CUPA) for Kings County. The HMBP shall include a hazardous material inventory, emergency response procedures, training program information, and basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of at the proposed project site, and procedures for handling and disposing of unanticipated hazardous materials encountered during construction. The HMBP shall include an inventory of the hazardous waste generated on site, and shall specify procedures for proper disposal. As required, hazardous waste would be transported by a licensed hauler and disposed of at a licensed facility. According to the HMBP reporting requirements, workers must be trained to respond to releases of hazardous materials in accordance with State and federal laws and

regulations governing hazardous materials and hazardous waste (e.g., HAZWOPER training required by OSHA). Any accidental release of small quantities of hazardous materials shall be promptly contained and abated in accordance with applicable regulatory requirements and reported to the Environmental Health Services Division. As the CUPA for Kings County, the Environmental Health Services Division of the County Public Health Department is responsible for implementation and enforcement of HMBPs. Implementation of the HMBPs for WSP solar projects would ensure that minor spills or releases of hazardous materials would not pose a significant risk to the public or the environment.

Under MM HYD-1 (in Section *3.8. Hydrology and Water Quality*), the applicant for each SGF and gen-tie project will be required to prepare, or to have prepared, and to implement a Storm Water Pollution Prevention Plan (SWPPP) for each phase of the solar project, as required by the State Water Resources Control Board (SWRCB). The SWPPPs will specify best management practices for control, containment of hazardous materials during construction, including housekeeping measures for control of contaminants such as petroleum products, paints and solvents, detergents, fertilizers, and pesticides, as well as vehicle and equipment fueling and maintenance practices, and waste management and disposal control practices, among other things. The implementation and enforcement of SWPPPs at each SGF and gen-tie site is the responsibility of the Central Valley Regional Water Quality Control Board, whose responsibilities include conducting inspections of the project construction sites to ensure effective implementation of Best Management Practices (BMPs) specified in the SWPPPs prepared for each project phase.

In summary, the implementation of HMBPs and SWPPPs in conjunction with the construction, operation, and decommissioning of each WSP solar project and gen-tie project, with oversight by the responsible agencies, would ensure that hazardous materials used in conjunction with the WSP solar projects are properly handled, stored, and disposed.

Impact HAZ-2. Hazards Related to Past and Recent Agricultural Operations

***Westlands Solar Park*. The ground disturbing activities associated with installation of WSP solar facilities could pose environmental health hazards by: 1) mobilizing petroleum products and agricultural chemicals that may be present in the soil near sites of agricultural chemical mixing and storage of lubricants; and 2) mobilizing environmentally persistent "legacy" pesticides that may still be present in hazardous concentrations. (*Less-than-Significant Impact with Mitigation*)**

***WSP Gen-Tie Corridors*. The ground disturbing activities associated with gen-tie construction could pose an environmental health hazard by mobilizing pesticides that may be present in hazardous**

concentrations in the soil due to past agricultural operations. (*Less-than-Significant Impact with Mitigation*)

This impact analysis addresses significance criterion 'b' above.

Westlands Solar Park

Above Ground Storage Tanks (ASTs) and 55-Gallon Drums

There are numerous polyvinyl ASTs, varying in size, in several fertilizer mixing areas located throughout the WSP plan area. These tanks are used to store fertilizer until it is mixed with water and pumped out to crops. In addition, several 55-gallon drums containing motor oil are associated with mixing areas and agricultural production wells. There is no record of any spills, leaks, incidents, or violations associated with these areas. However, these tanks and drums are not stored within secondary containment, and it is possible that materials within these tanks and drums may have spilled onto the nearby soils. If so, any spilled chemicals that may remain in the soil in hazardous concentrations may be mobilized by ground disturbing activities, and this would present a health hazard to construction workers during installation of the solar facilities. This would represent a *potentially significant impact*. With implementation of Mitigation Measure HAZ-2a below, the impact would be reduced to *less than significant*.

Residual Agricultural Pesticides

Past and current agricultural practices in the WSP plan area include the application of agricultural pesticides and herbicides. The potential for agricultural chemicals to be present in hazardous concentrations due agricultural activities is discussed below for past and current agricultural practices, respectively.

Organochlorine Pesticides from Past Agricultural Practices

In the past, agricultural practices commonly included the application of environmentally persistent pesticides such as DDT, Aldrin, dieldrin, and mirex. Collectively known as organochlorine pesticides (OCPs), these compounds were found to be toxic and bioaccumulative, and were banned from use, beginning in 1974 for DDT, and quickly thereafter for other OCPs in California. Due to the environmental persistence of these compounds, residual concentrations may still be present in the soils where they were applied. For example, the half-life of DDT in soil is 2-15 years depending on local climate conditions, while most other OCPs (and POPs – Persistent Organic Pesticides, like Toxaphene) have half-lives of up to 12 years. Thus, a compound with a 15-year half-life would be 50 percent degraded after 15 years, and 75 percent degraded after 30 years and so on. Assuming DDT was applied on a given site, and that the last application was in 1974, and also assuming the high end of the range for its half-life (i.e., 15 years), the concentration of DDT would have degraded to less than 20 percent of its original strength by 2016.

While there is some potential for these "legacy pesticides" to be present on agricultural lands in hazardous concentrations, it is considered more likely that high concentrations would be found in areas where the chemicals were loaded, stored, or mixed. Incidences of such contamination are associated with the "hot spots" resulting from occasional spillage at chemical storage sites and have not been found to be associated with areas where the chemicals were merely broadcast over the crops. Thus,

unless chemical mixing has occurred, there is typically a low potential for environmentally persistent pesticides/herbicides related to crop cultivation to exist in the near-surface soils at concentrations which would require regulatory action, there is a low potential for environmentally persistent pesticides to exist in the near-surface soils at concentrations which would require regulatory action.

It is unknown whether OCPs or POPs were applied at the site before they were banned in the 1970s. If they were applied, there is a low likelihood that the soils within the WSP plan area are contaminated, except possibly at former chemical mixing sites, if they existed within the WSP plan area. In 2015, Moore Twining Associates (MTA) performed a program of soil sampling and testing in order to determine if the soil in the northeast corner contained any significant concentrations of environmentally persistent agricultural chemicals. The analytical results indicated that the soils are well below regulatory screening levels for organochlorine pesticides, as well as Toxaphene and the metal Arsenic. However, it was determined that no chemical mixing had taken place within the area tested, so the results are inconclusive with respect to contaminant levels at former chemical mixing sites. Thus, while the residual concentrations of environmentally persistent legacy pesticides such as DDT are unlikely to be present in hazardous concentrations throughout most of the WSP plan area, there is a possibility that hazardous levels of these chemicals may be present at the locations of previous chemical mixing sites. The potential for environmentally persistent pesticides to be present within the WSP plan area represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-2a below, the impact would be reduced to *less than significant*.

Recent Use of Agricultural Chemicals

All of the pesticides applied to the site currently and in the recent past consist of non-persistent compounds that degrade rapidly (within a few days or weeks) after application. The longest-lived pesticides applied at the within the WSP plan area include paraquat and glyphosphate (Roundup), which have half-lives of approximately 1,000 days and 100 days, respectively (UCD 2014). As such, the pesticide concentrations would degrade to low levels within one year for all pesticides except paraquat. The Department of Toxic Substances Control (DTSC) does not recommend sampling for currently permitted pesticides since they have relatively short half-lives. While paraquat does have a longer half-life in soil, it has not been detected or detected rarely at trace levels at sites which DTSC has had oversight; therefore, routine analysis for paraquat is not required for field areas. Analysis for paraquat may be required in storage and mixing/loading areas (DTSC 2008). Therefore, recently applied pesticides are not an environmental concern except at chemical mixing sites that involved the handling of paraquat. The potential for non-persistent compounds such as paraquat to be present in hazardous concentrations at current and recent chemical mixing sites represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-2a below, the impact would be reduced to *less than significant*.

It is noted that the routine application of registered pesticides is not a Recognized Environmental Condition (REC) by the American Society for Testing and Materials (ASTM) if applied according to the labeling instructions (Lavey 2014).

In summary, there is a potential that pesticide residues may be present within the WSP plan area in hazardous concentrations. If so, these pesticide residues may be mobilized by ground disturbing activities and present a health hazard to construction workers during installation of the solar facilities. This would

represent a *potentially significant impact*. With implementation of Mitigation Measure HAZ-2a below, the impact would be reduced to *less than significant*.

In conclusion, unless appropriate measures are implemented, the potential disturbance of existing contaminant sources on the WSP plan area could pose an environmental health hazard to workers on the site and the public. This potential hazard represents a *potentially significant impact*. With the implementation of Mitigation Measure HAZ-2a below, the impact would be reduced to *less than significant*.

WSP Gen-Tie Corridors

The construction of the WSP gen-tie projects would involve ground disturbance associated with site clearance, grading, and excavation for transmission towers, access driveways, pulling sites, and construction staging areas. As shown in Table PD-8 in Section *2. Project Description*, it is estimated that the total area of temporary ground disturbance for the gen-tie projects would be approximately 149 acres, almost all of which would consist of farmland. As discussed above for Westlands Solar Park, there is a potential that due to past application of pesticides to the affected farmland, environmentally persistent pesticides may still be present in the soils in hazardous concentrations. If so, these pesticide residues may be mobilized by ground disturbing activities and present a health hazard to construction workers during construction of the WSP gen-tie projects. This would represent a *potentially significant impact*. With implementation of Mitigation Measure HAZ-2b below, the impact would be reduced to *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. Implement MM HAZ-2a.**

***WSP Gen-Tie Corridors*. Implement MM HAZ-2b.**

MM HAZ-2a. Conduct Soil Sampling and Remediation as Applicable

Prior to initiation of ground disturbing activities at each SGF site, soil samples shall be taken from areas of potential contamination and tested for hazard levels of constituents of concern, in accordance with work plans prepared by qualified professionals. Any soils that exceed regulatory limits for hazardous materials shall be removed or otherwise remediated prior to any ground disturbing activity, to the satisfaction of the responsible regulatory agencies in accordance with applicable laws and regulations. The specific areas within the WSP plan area that are to be sampled and tested for contamination shall include soils beneath and surrounding the following locations:

- **Current and known former locations of fertilizer storage tanks and mixing areas.**
- **Locations of 55-gallon oil drums at fertilizer storage/mixing sites and agricultural production wells.**
- **Random locations within fields subject to potential past application of environmentally persistent pesticides.**

MM HAZ-2b. **Conduct Soil Sampling and Remediation as Applicable**

Prior to initiation of ground disturbing activities for each WSP gen-tie project, soil samples shall be taken from areas of potential contamination and tested for hazard levels of constituents of concern, in accordance with work plans prepared by qualified professionals. Any soils that exceed regulatory limits for hazardous materials shall be removed or otherwise remediated prior to any ground disturbing activity, to the satisfaction of the responsible regulatory agencies in accordance with applicable laws and regulations.

Impact HAZ-3. Worker Exposure to Valley Fever Fungal Spores

***Westlands Solar Park*. The soils of the WSP plan area may contain Valley Fever fungal spores, which can be released to the atmosphere during soil disturbing activity and expose construction workers to risk of Valley Fever. (*Less-than-Significant Impact with Mitigation*)**

***WSP Gen-Tie Corridors*. The soils within the gen-tie corridors may contain Valley Fever fungal spores, which can be released to the atmosphere during soil disturbing activity and expose construction workers to risk of Valley Fever. (*Less-than-Significant Impact with Mitigation*)**

This impact analysis addresses significance criterion 'b' above.

Westlands Solar Park

The WSP plan area is located in an area that may harbor the fungus that causes Valley Fever (or coccidioidomycosis), a lung disease common in the southwestern United States. Valley Fever is caused by the fungus *Coccidioides immitis*, which grows in soils in areas of low rainfall, high summer temperatures, and moderate winter temperatures. The fungus is prevalent in the soils of the San Joaquin Valley, where the highest number of cases of Valley Fever infection are in Fresno, Kings, and Kern County, each of which had more than 75 cases per 100,000 population in 2011 (CDPH 2013). The fungal spores become airborne when the soil is disturbed by winds, construction, farming, or other activities. Most people who inhale the spores do not get sick, and those who have been infected will acquire immunity from future infection. Usually, susceptible individuals experience flu-like symptoms and will feel better on their own within weeks, although some people require antifungal medication (CDC 2014). In a small percentage of cases, symptoms can become severe resulting in pneumonia and meningitis, and in rare cases death. There is an increased risk of exposure to people working in construction and agriculture due to their proximity to potential release of airborne spores (CDPH 2013).

The fungal spores that cause Valley Fever are most prevalent in undisturbed soils. Since the land in Kings County consists predominantly of disturbed agricultural land, the risk of infection due to developments on agricultural land is considered low (Kings County 2009a). However, the fungal spores are too small to be seen and it is unknown if the soils of the WSP plan area contain Valley Fever spores. As such, there is a potential for on-site workers to become infected. The potential for airborne release

of Valley Fever spores would be greatest during construction and decommissioning when soils are temporarily exposed and disturbed by grading and excavation activity.

Cal/OSHA administers state and federal laws that require employers to provide occupational health and safety for workers, including protection from unsafe or unhealthy conditions. Under California Code of Regulations, Title 8, Section 5144, employers are required to evaluate respiratory hazards in the workplace, and if present, to develop and implement a respiratory protection program. In 2013, Cal/OSHA issued citations to contractors at two large solar projects in central California after workers became infected with Valley Fever. The citations were issued following inspections and included the following violations: failure to implement the dust control measures of the employer's Dust Management Plan; failure to stop work under high wind conditions as required under the Dust Management Plan; and failure to prepare and implement a respiratory protection plan, as required by law, including the use of approved respirators (CDIR 2016).

In summary, the health risk to WSP construction workers from potential exposure to Valley Fever represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-3 below, the impact would be reduced to *less than significant*.

WSP Gen-Tie Corridors

The major portion of the Westlands Transmission Corridors are located in Fresno and Kings counties, which have among the highest incidence rates of Valley Fever in California. The Westlands transmission projects would result in the temporary disturbance of approximately 149 acres, with the potential for release of Valley Fever fungal spores that may be present in the soils. Construction workers who have not developed immunity to Valley Fever through previous exposure would be at risk of infection and serious illness. The health risk to transmission construction workers from potential exposure to Valley Fever represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-3 below, the impact would be reduced to *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. Implement MM HAZ-3.**

***WSP Gen-Tie Corridors*. Implement MM HAZ-3.**

MM HAZ-3. Protection of Construction Workers from Valley Fever

In order to protect construction workers from Valley Fever, the following measures shall be implemented prior to and during ground disturbing activity:

- **Implement the Dust Control Plan to be approved for each project by the San Joaquin Valley Air Pollution District under District Rule 8021 prior to ground disturbing activity.**

- **Prepare and implement a respiratory protection program for construction workers, as required under California Code of Regulations, Title 8, Section 5144.**

Impact HAZ-4. Hazards from Abandoned Oil and Gas Wells

***Westlands Solar Park*. The abandoned oil and gas wells within the WSP plan area may release gases that pose a potential health and safety hazard to workers and the public. (*Less-than-Significant Impact with Mitigation*)**

***WSP Gen-Tie Corridors*. The abandoned oil and gas wells in the vicinity of the gen-tie corridors may release gases that pose a potential health and safety hazard to workers and the public. (*Less-than-Significant Impact with Mitigation*)**

This impact analysis addresses significance criterion 'b' above.

Westlands Solar Park

As discussed in Section *3.7.1. Environmental Setting*, there are 9 reported oil and gas wells located within the WSP plan area, all of which have been plugged and abandoned. Due to the less stringent regulations pertaining to drilling activities in the past, it is possible that the abandoned oil wells may not have been abandoned in accordance with current safety standards. The possibility exists for oil, methane, or toxic gases (aromatic hydrocarbons or hydrogen sulfide) to migrate up through these wells and to release to the environment. Release of methane gas has the potential to result in fire or explosion. Exposure to toxic gases could pose a health hazard to the public and/or on-site workers during SGF construction or operations.

It is also possible, but unlikely, that abandoned oil and gas wells could be present with the WSP site that are not known or recorded. If so, there is a potential that any such wells could be damaged during construction and result in a release of hazardous substances.

The potential safety and public health hazards associated with abandoned oil and gas wells within the WSP site represent a *potentially significant impact*. With implementation of Mitigation Measure HAZ-4a below, the impact would be reduced to *less than significant*.

WSP Gen-Tie Corridors

As discussed in Section *3.7.1. Environmental Setting*, there are a number of abandoned and plugged oil and gas wells in proximity to the Westlands Transmission Corridors. There is also one inactive oil and gas well that is mapped as "idle" by DOGGR. This well ("Mary Bellochi #1") is located on the north side of Nevada Avenue (just outside the WSP plan area) and north of the WSP-South to Gates Gen-Tie corridor. As discussed above for the Westlands Solar Park, the possibility exists for oil, methane, or toxic

gases (aromatic hydrocarbons or hydrogen sulfide) to migrate up through these wells and to release to the environment, posing a potential fire or explosion hazard, and health hazard to the public and workers. The potential safety and public health hazards associated with abandoned oil and gas wells in the vicinity of the Westlands Transmission Corridors represent a *potentially significant impact*. With implementation of Mitigation Measure HAZ-4b below, the impact would be reduced to *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. Implement MM HAZ-4a.**

***WSP Gen-Tie Corridors*. Implement MM 4b.**

MM HAZ-4a. Safety and Remedial Measures for Abandoned Oil Wells within WSP

Prior to initiation of ground disturbing activities for each WSP solar project, the following measures shall be implemented to minimize potential hazards associated with abandoned oil wells:

- **The site planning for each WSP solar project shall include mapping of all known oil wells on the plans.**
- **The site plans shall show a minimum setback of 25 feet from all oil wells. The site plans shall show these setback zones to be free of all structural, mechanical, and electrical elements. Solar facilities may be planned within the 25-foot setback zone only upon the written authorization of the Division of Oil, Gas, and Geothermal Resources (DOGGR), and subject to the conditions and requirements of DOGGR for such encroachments.**
- **Prior to the issuance of the building permit for each solar project, all known oil wells within the solar project site shall be relocated in the field. The plugged/abandoned wells shall be inspected and tested for leakage prior to construction activities. Any required remedial operations shall be carried out in accordance with the requirements of DOGGR. If the well was not abandoned or abandoned properly, as determined by DOGGR, the well shall be abandoned or re-abandoned to the satisfaction of DOGGR.**
- **In the event that an abandoned or unrecorded oil well is damaged or uncovered during construction activities, the contractor shall contact DOGGR to obtain information on the required remedial operations, and shall obtain prior written approval from DOGGR to perform the remedial operations.**
- **Copies of all correspondence to and from DOGGR concerning oil wells within the WSP plan area shall be submitted to the Kings County Community Development Agency.**

MM HAZ-4b. Safety and Remedial Measures for Abandoned Oil Wells near WSP Gen-Tie Corridors. Prior to initiation of ground disturbing activities for each Westlands transmission project, the following measures shall be implemented to minimize potential hazards associated with abandoned oil wells:

- **The detailed route planning for transmission line alignment shall include mapping of all known oil wells on the plans.**
- **The transmission project plans shall show a minimum setback of 25 feet from all oil wells. The site plans shall show these setback zones to be free of all structural, mechanical, and electrical elements. Transmission lines may be planned within the 25-foot setback zone only upon the written authorization of the Division of Oil, Gas, and Geothermal Resources (DOGGR), and subject to the conditions and requirements of DOGGR for such encroachments.**
- **Prior to the initiation of ground disturbing activities, all known oil wells in the immediate vicinity of the transmission project alignment shall be relocated in the field. The plugged/abandoned wells shall be inspected and tested for leakage prior to construction activities. Any required remedial operations shall be carried out in accordance with the requirements of DOGGR. If the well was not abandoned or abandoned properly, as determined by DOGGR, the well shall be abandoned or re-abandoned to the satisfaction of DOGGR.**
- **In the event that an abandoned or unrecorded oil well is damaged or uncovered during construction activities, the contractor shall contact DOGGR to obtain information on the required remedial operations, and shall obtain prior written approval from DOGGR to perform the remedial operations.**
- **Copies of all correspondence to and from DOGGR concerning oil wells within the WSP plan area shall be submitted to the Community Development Agency/Department of the affected county.**

Impact HAZ-5. Safety Hazards Associated with Existing Natural Gas Pipelines and Power Transmission Lines

***Westlands Solar Park*. Construction activity in the vicinity of the existing natural gas pipelines and electrical transmission lines crossing the WSP plan area are subject to safety hazards associated with those facilities. (*Less-than-Significant Impact with Mitigation*)**

***WSP Gen-Tie Corridors*. Construction activity in the vicinity of the existing natural gas pipelines and electrical transmission lines crossing the WSP gen-tie corridors are subject to safety hazards associated with those facilities. (*Less-than- Significant Impact with Mitigation*)**

This impact analysis addresses significance criterion 'b' above.

Westlands Solar Park

Existing Natural Gas Pipelines

There is an active natural gas transmission pipeline, owned and operated by Southern California Gas Company, which runs parallel and southeast of Avenal Cutoff Road through the WSP plan area. A branch

pipeline splits off just south of Laurel Avenue and runs eastward and roughly parallel to Laurel toward the community of Stratford. The buried gas pipelines run within a 30-foot gas line easement.

Prior to the development of each WSP solar facility affected by the gas pipelines, the precise location of this gas line easements will be mapped on project plans which will show no solar development or supporting facilities within the gas line easements. There are instances where the gas line easements would need to be crossed by permanent access driveways and overhead power collection and transmission lines. The potential hazards associated with the pipeline represent a *potentially significant impact*. With implementation of Mitigation Measure HAZ-5 below, the impact would be reduced to *less than significant*.

Existing High Voltage Power Transmission Lines

As described in Section *3.7.1. Environmental Setting*, the WSP plan area is crossed by three high-voltage power lines, including existing PG&E 230-kV and 70-kV transmission lines that traverse the northwest corner of the WSP plan area, and a PG&E 70-kV transmission line that runs in a north-south direction along the 25th Avenue alignment in the eastern portion of the plan area.

Prior to the development of each WSP solar facility affected by the existing high-voltage power lines, the precise location of the transmission easements will be mapped on engineering plans which will specify avoidance of the transmission easement by non-essential structures. There may be instances where one or more of the transmission easements would need to be crossed or entered by permanent access driveways, and power collection lines. The potential hazards associated with the existing power transmission lines represent a *potentially significant impact*. With implementation of Mitigation Measure HAZ-5 below, the impact would be reduced to *less than significant*.

In summary, the existing natural gas pipelines and power transmission lines crossing the WSP plan area would pose a potential safety impact related to work in the vicinity of these facilities. This would represent a *potentially significant impact***.** With implementation of Mitigation Measure HAZ-5 below, the impact would be reduced to *less than significant*.

WSP Gen-Tie Corridors

Existing Natural Gas and Petroleum Pipelines

The WSP-South to Gates Gen-Tie corridor, described above, would cross the Southern California Gas Company pipeline just east of Avenal Cutoff Road. There is also a major PG&E natural gas pipeline that runs generally parallel to I-5 through the region. This gas pipeline runs alongside the existing 230-kV electrical transmission line from the Gates Substation north to the Dos Amigos Pumping Plant. There are also pipelines carrying oil and petroleum products along the west side of the San Joaquin Valley. Prior to setting the final alignment of the WSP gen-tie lines, the pipeline easements would be mapped on project plans which would specify avoidance of the pipelines by the gen-tie easements. There may be instances where these pipeline easements would need to be crossed by the gen-ties lines. The potential hazards associated with the pipelines represent a *potentially significant impact*. With implementation of Mitigation Measure HAZ-5 below, the impact would be reduced to *less than significant*.

Existing High Voltage Power Transmission Lines

There are several existing high voltage transmission lines in the vicinity of the WSP gen-tie corridors. These are shown in Figure PD-10 in Chapter *2. Project Description*. Several transmission lines converge at the Gates Substation, and the WSP gen-tie lines will cross over one or more of these existing transmission easements and lines. The potential hazards associated with the existing power transmission lines represent a *potentially significant impact.* With implementation of Mitigation Measure HAZ-5 below, the impact would be reduced to *less than significant*.

In summary, the potential safety hazards posed by the WSP gen-tie lines passing over or near existing pipelines and power transmission lines would pose a potential safety impact related to work in the vicinity of these facilities. This would represent a *potentially significant impact.* With implementation of Mitigation Measure HAZ-5 below, the impact would be reduced to *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. Implement MM HAZ-5.**

***WSP Gen-Tie Corridors*. Implement MM HAZ-5.**

MM HAZ-5. Safety and Remedial Measures for Existing Natural Gas Pipelines and Power Transmission Lines

Prior to any construction-related activity planned to occur within the existing easements for gas pipelines or power transmission lines, the project proponent or contractor shall coordinate with the easement holder to obtain authorization for such activity by the easement holder, and shall follow all applicable safety procedures and protocols required by the easement holder for such activity. The construction contract specifications for the WSP solar projects and gen-tie projects shall include the specified safety protocols to ensure safety of workers and integrity of the pipelines and transmission lines during work within the easements.

Impact HAZ-6. Electromagnetic Fields (EMFs) from Electrical Facilities

***Westlands Solar Park*. There is a potential that workers in the vicinity of the existing PG&E transmission lines and the planned internal gen-tie lines and substations within the WSP plan area would be exposed to Electromagnetic Fields (EMFs) emitted by those facilities. However, the work in the vicinity of the existing transmission lines would be relatively short in duration, and the planned WSP gen-tie and substation facilities are planned to be routed and located where the nearest residents and workers would be exposed to long-term EMF levels that are at or near ambient or background levels. (*Less-than-Significant Impact*)**

***WSP Gen-Tie Corridors*. There is a potential that residents and workers in the vicinity of WSP gen-tie lines would be exposed to EMFs emitted by those facilities. However, the gen-tie lines are planned to be routed where the nearest residents would be exposed to long-term EMF levels that are equivalent to or less than ambient or background levels. Worker exposure would be relatively short in duration and would be reduced by implementation of CPUC requirements for EMF reduction on transmission lines. (*Less-than-Significant Impact*)**

This impact analysis addresses significance criterion 'b' above.

Westlands Solar Park

Introduction

All electrical devices and conductors emit low frequency electromagnetic fields or EMFs. The WSP plan area is crossed by three existing high voltage transmission lines, and the Westlands Solar Park will include high-voltage gen-tie lines (34.5 kV and 230 kV), along with several 230-kV substations. There is a long-standing concern with the health effects of long-term exposure to EMFs, although scientific studies have not provided sufficient evidence of an association between EMF exposure from electric utility lines and adverse health effects in humans. It is the position of the California Public Utilities Commission (CPUC) that it is not appropriate to adopt any specific numerical standard in association with EMF until there is a firm scientific basis for adopting a particular value. In the absence of conclusive evidence regarding health effects, no maximum acceptable levels of EMFs have been established in California. The CPUC's policy is to avoid unnecessary exposure to EMFs if such avoidance can be achieved at a cost which is reasonable in light of the risk identified (CPUC 2012).

After concluding an investigation into the health effects of EMF in 1993, the CPUC issued Decision No. 93-11-013, which requires that "utilities shall implement low-cost EMF mitigation measures in new and upgraded projects" (CPUC 1993). CPUC General Order No. 131-D requires proponents of new transmission projects to include measures to reduce potential exposure to magnetic fields (CPUC 1994). Examples of EMF reduction measures include: increasing tower height by 10 feet where existing dwellings are located directly adjacent to transmission rights-of-way; alternative tower designs and phasing arrangements that reduce overall EMF emissions. Potential EMF levels from power lines and substations would also be limited by power line clearance requirements and standards as set forth in CPUC General Order No. 95 and other orders governing the design and construction of such facilities. Currently, there are no federal or state exposure limits or significance thresholds that have been established for human exposure to EMFs. However, there is general agreement that the prudent approach is to avoid exposure to high levels of EMF. Since there are no accepted quantitative significance thresholds for EMFs that can be applied under CEQA, this EIR provides a qualitative evaluation of EMF emissions.

The unit of measurement of magnetic fields is milligauss (mG). The strength of the magnetic field depends on the strength of the electrical current (amperage). The strength of a magnetic field diminishes rapidly with distance from the source of the EMF. For example, the EMF emitted by a desktop light at a distance of one foot is about 33 mG, which drops to about 1.2 mG at a distance of 3 feet. Measurements of household EMF taken during a sample survey of over 700 dwellings by the California Department of Health Services (DHS) found that the average EMF level was 0.71 mG, and 90 percent of homes had levels below

1.58 mG. Individual exposures can vary depending on proximity to appliances and equipment, and on whether a high-current source is nearby (DHS 1999).

Several organizations have issued recommendations for permissible levels of EMF exposure from powerlines. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) recommends a permissible continuous exposure level of 2,000 mG for the general public, and the Institute of Electrical and Electronics Engineers (IEEE) recommends a permissible continuous exposure level of 9,040 mG for the general public (Hannigan 2016).

For power transmission lines, typical EMF levels at given distances vary according to the voltage of the line. For example, for 230-kV lines, typical EMF levels drop off to 1.8 mG at 200 feet from the transmission centerline, or 150 feet from the edge of the right-of-way (for a 100-foot right-of-way). EMF levels of 1.8 mG are within the 0.5 – 4.0 mG range of a typical home environment (NEIHS 2002).

The California Department of Education (CDE) has enacted regulations that require minimum distances between a new school and power transmission lines. The distances vary depending on the voltage of the transmission line and are based on fact that the strength of electric fields from power lines diminishes to near background or common ambient levels (2 mG) at known distances. The required minimum distances for schools from the edge of transmission rights-of-way are as follows: 100 feet for 50-133 kV lines; 150 feet for 220-230 kV lines; and 350 feet for 500-550 kV lines (CDE 2012). It is noted again that these distances are intended to provide general indications of EMF levels, since actual levels fluctuate depending on amperage of the individual transmission lines and other variables. Therefore, these distances are not to be construed as significance thresholds for purposes of evaluating hazard levels at sensitive receptor locations under CEQA, but as a general reference guide for ambient EMF levels.

Construction workers at the WSP solar projects and the WSP gen-tie projects would work in close proximity to high-voltage transmission lines. EMF levels beneath transmission lines vary according to electrical load at any given time. Average EMF emission levels for 230-kV and 500-kV transmission lines, as measured directly beneath the power lines, have been measured at 57.5 mG and 86.7 mG, respectively, by the Bonneville Power Administration. During periods of peak load (about 1 percent of the time), EMF emission levels are approximately double average levels (NEIHS 2002). The American Council of Governmental Industrial Hygienists (ACGIH) has published a Threshold Limit Value (TLV) of 10,000 mG for occupational exposures to EMFs for transmission lines and distribution lines that operate at a frequency of 60 Hz (i.e., the standard frequency of electrical lines, wiring, equipment, and appliances in the United States). The Nonionizing Radiation Committee of the American Industrial Hygiene Association (NIR AIHA) recommends a permissible occupational exposure level of 4,170 mG (Hannigan 2016).

Discussion of EMF Exposure Associated with WSP Solar Facilities

The existing 70-kV and 230-kV transmission lines within the WSP plan area have rights of way of 60 feet and 75 feet wide, respectively. The internal WSP 230-kV gen-tie lines would have rights-of-way of 75- to 100-feet wide. Based on the setback distances established by the California Department of Education, it is expected that EMF levels from the 70-kV lines and 230-kV lines would fall back to approximate background levels at distances of 100 feet and 150 feet, respectively, from the outside edge of the transmission rights-of-way. EMF levels would also drop to approximate background levels within 150 feet of the internal WSP 230-kV substations.

It is anticipated that the main internal WSP 230-kV gen-tie line will follow the 25th Avenue alignment through the WSP plan area in a north-south direction, and that the internal 230-kV substations will be located along that gen-tie corridor. As shown in Figure PD-2, there are no existing residences within several miles of the internal gen-tie route and substation locations. The nearest residential clusters at Westlake Farms complex are 1.4 miles from the internal gen-tie route, and the residences at Shannon Ranch and Stone Land Company Ranch are located more than 3 miles from the internal gen-tie route. Therefore, the EMF levels emitted by the WSP internal gen-ties and substations would drop off to background levels well before reaching these nearest dwellings.

There is also a potential that workers at the WSP site could be exposed to higher than ambient EMF emissions when they are working within 150 feet of a 230-kV gen-tie corridor or substation. During the construction phase, some solar modules would be installed within these distances, and workers would be exposed to greater than background EMF levels for short periods, assuming the nearest gen-ties and/or substations would be operational at the time. Maximum exposure levels would be about 115 mG, and the average exposure level would be 57.5 mG, both of which would be very low compared to recommended permissible occupational exposure levels of 4,000 to 10,000 mG, as discussed above. Additionally, most solar arrays in the WSP plan area would be located farther than 150 feet from these EMF sources, so the overall amount of time construction workers would be exposed to EMF above background levels would be small. No permanent employees would be stationed within WSP solar facilities, and workers who would periodically be on-site for maintenance or panel-washing duties would also spend short periods of time exposed to above-ambient EMF levels. During the majority of their work time operational workers would be subject to EMF at background levels.

In summary, none of the existing residences in the vicinity of the WSP plan area would be subject to higher than approximately ambient EMF levels from WSP internal gen-ties or substations. In addition, construction and operational workers would occasionally be subject to EMFs at higher than background levels, but the exposure levels would be far below recommended occupational exposure levels, and these periods would be relatively short in duration. Therefore, it is concluded that potential EMF levels associated with the construction and operation of WSP solar facilities and internal gen-ties and substations would be *less than significant*.

WSP Gen-Tie Corridors

Introduction

As discussed above for the Westlands Solar Park, this qualitative analysis of EMF emissions is focused on the potential for prolonged exposure to EMFs to occur above ambient or background levels. Since no maximum exposure levels or significance thresholds for EMFs have been established, this discussion is limited to a qualitative assessment of EMF emissions.

As discussed above, EMF levels typically diminish to approximate background levels at a distance of 150 feet from the edge of right-of-way of a 230-kV transmission line. Since only 230-kV transmission lines are planned for the gen-tie lines, the 150-foot distance is applied as guidance in determining whether sensitive receptors in the vicinity of the gen-tie corridors may be subject to substantially greater than ambient EMF levels.

Discussion of EMF Exposure Levels Associated with WSP Gen-Tie Corridors

As shown in Figure PD-7 and Table PD-7 in Chapter 2, there are two groups of residences that are located between 125 feet and 180 feet from the outer boundary of the WSP gen-tie corridors. Both dwelling groups are located along the south side of Nevada/Jane Avenues, with the WSP-South to Gates Gen-Tie line planned to run along the north side of Nevada/Jayne Avenues.

The first potentially affected dwelling ground consists of 2 residences at the Stone Land Company Ranch complex located on the south side of Nevada Avenue in Kings County, approximately 1.5 miles east of Avenal Cutoff Road (this dwelling group identified as #2 in Table PD-7 and Figures PD-2 and PD-7). These dwellings are located 180 feet from the southern boundary of the WSP-South to Gates Gen-Tie corridor. At this distance, EMF levels would generally fall back to levels of 2 mG or less, which would reflect ambient levels.

The second group consists of a series of 8 ranch dwellings located on the south side of Jayne Avenue in Fresno County, approximately 1.3 miles east of SR-269/Lassen Avenue. Identified as dwelling group #10 in Figure PD-7 and Table PD-7, the front facade of the nearest residence is located approximately 125 feet from the southern boundary of WSP-South to Gates Gen-Tie corridor, while the other residences in this group are setback 130 feet from the corridor boundary. At these distances, EMF levels would generally fall back to levels of about 2 – 3 mG, which is within the ambient household range of 0.5 – 4 mG (NEIHS 2002). There are no other dwellings that are within 1,000 feet of the planned WSP gen-tie corridors.

Construction workers on the transmission projects would be exposed to EMFs from the existing 230-kV transmission lines which would run parallel and adjacent to the WSP-North to Gates Gen-Tie Corridor for most of its length. The right-of-way width for the existing 230-kV transmission line is 75 feet. It is anticipated that the planned gen-tie right-of-way would be aligned adjacent to the existing right-of-way. Thus construction of the new towers would likely occur within 150 feet of the existing transmission rights-of-way, thus generally exposing workers to greater than ambient levels of EMFs for intermittent periods during the anticipated 1-year construction period. As discussed above for the Westlands Solar Park, construction workers could be exposed to maximum EMFs of less than 115 mG, and average EMF levels of less than 57.5 mG in proximity to existing 230-kV transmission lines. These emission levels would occur directly beneath the existing transmission lines and would diminish rapidly with distance. These EMF levels would be very low compared to recommended permissible occupational exposure levels of 4,000 to 10,000 mG, as discussed above. Operations staff performing inspections and maintenance on the gen-tie lines would also be exposed to higher than ambient EMF levels for brief periods. Worker exposure levels would generally be reduced through implementation of the CPUC requirements that transmission proponents incorporate EMF reduction measures into transmission projects.

In summary, none of the existing residences in the vicinity of the WSP gen-tie corridors would be subject to higher than approximately ambient or typical household EMF levels from the planned gen-tie lines. Construction and operational workers would be subject to higher than background EMF levels, but these exposure periods would be relatively short in duration, and the maximum and average exposure levels would be far below recommended permissible occupational exposure levels. Therefore, it is concluded that potential EMF exposure levels associated with the construction and operation of the WSP gen-tie projects would be *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. No mitigation is required.**

***WSP Gen-Tie Corridors*. No mitigation is required.**

Impact HAZ-7. Hazards or Hazardous Materials within ¼ Mile of Schools

***Westlands Solar Park*. There are no existing or proposed schools within ¼ mile of the WSP plan area. Therefore, WSP solar development would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (*Less-than-Significant Impact*)**

***WSP Gen-Tie Corridors*. There are no existing schools within ¼ mile of the WSP gen-tie corridors. Therefore, the gen-tie lines would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (*Less-than-Significant Impact*)**

This impact analysis addresses significance criterion 'c' above.

Westlands Solar Park

There are no existing or proposed schools within one-quarter mile of the WSP plan area. The nearest schools are located in: Stratford, 2.5 miles east; NAS Lemoore, 2.8 miles northeast; Huron, 8 miles west; and Kettleman City, 2 miles south. During construction, hazardous materials such as gasoline, diesel fuel, and transformer insulating oil (mineral oil) would be transported to the SGF sites. If trucks carrying hazardous materials travel to the WSP plan area via SR-41 from the south, it is likely they would pass within ¼ mile of the Kettleman City Elementary School. However, hazardous materials are routinely and safely transported on public roadways. The transport of large quantities of hazardous materials is strictly regulated by the California Highway Patrol (CHP). Large quantities of hazardous materials used during SGF construction would be transported along regulated routes by a licensed transporter, and would not pose a significant hazard to the public or the environment. Therefore, the potential hazards and hazardous materials impacts of WSP solar development upon schools would be *less than significant*.

WSP Gen-Tie Corridors

There are no existing schools within one-quarter mile of the WSP gen-tie corridors. The nearest existing schools are located in Stratford, NAS Lemoore, Huron, and Kettleman City. These schools are located between 3 and 9 miles from the nearest planned gen-tie segment. As discussed above for the WSP plan area, it is possible that trucks carrying hazardous materials to a gen-tie project site or staging area would pass within ¼ mile of a school site. However, hazardous materials are routinely and safely transported on public roadways. The transport of large quantities of hazardous materials is strictly regulated by the California Highway Patrol (CHP). Large quantities of hazardous materials used during gen-tie

construction would be transported along regulated routes by a licensed transporter, and would not pose a significant hazard to the public or the environment. Therefore, the potential hazards and hazardous materials impacts of the WSP gen-tie projects upon schools would be *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. No mitigation is required.**

***WSP Gen-Tie Corridors*. No mitigation is required.**

Impact HAZ-8. Any Listed Hazardous Materials Sites on or Near Project Site

***Westlands Solar Park*. There are no hazardous materials sites within the WSP plan area or adjacent properties listed on the Department of Toxic Substances Control's (DTSC's) Hazardous Waste and Substances Site List (Cortese List) compiled pursuant to Government Code Section 65962.5. (*Less-than-Significant Impact*)**

***WSP Gen-Tie Corridors*. There are no hazardous materials sites within the WSP gen-tie corridors or adjacent properties listed on the Department of Toxic Substances Control's (DTSC's) Hazardous Waste and Substances Site List (Cortese List) compiled pursuant to Government Code Section 65962.5. (*Less-than-Significant Impact*)**

This impact analysis addresses significance criterion 'd' above.

Westlands Solar Park

As discussed in Section *3.7.1. Environmental Setting*, there are no hazardous materials sites within the WSP plan area or adjacent properties listed on the Department of Toxic Substances Control's (DTSC's) Hazardous Waste and Substances Site List (Cortese List) compiled pursuant to Government Code Section 65962.5. The nearest listed contamination site is NAS Lemoore, located two miles north of the WSP plan area, where there are multiple instances of soil and groundwater contamination associated with aircraft maintenance and fueling operations. The areas of contamination are in various stages of remediation and monitoring (DTSC 2017). A comprehensive search of all federal, state, and local database information systems likewise indicated no listed hazardous materials sites within or adjacent to the WSP plan area. A review of files for the site and adjacent properties at the Kings County Environmental Health Department (KCEHD), and State Water Resources Control Board (SWRCB) likewise identified no documentation for the plan area or adjacent properties (MTA 2014). As such, the potential impact from listed hazardous waste sites relative to the WSP plan area is *less than significant*.

WSP Gen-Tie Corridors

As discussed in Section *3.7.1. Environmental Setting*, there are no hazardous materials sites within the WSP gen-tie corridors or adjacent properties listed on the Department of Toxic Substances Control's (DTSC's) Hazardous Waste and Substances Site List (Cortese List) compiled pursuant to Government Code Section 65962.5 (DTSC 2016). Review of DTSC's EnviroStor database and the SWRCB's GeoTracker database indicated that there are no open hazardous contamination cases within the gen-tie corridors or nearby areas, apart from those noted above at NAS Lemoore. As such, the potential impact from listed hazardous waste sites relative to the WSP gen-tie corridors is *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. No mitigation is required.**

***WSP Gen-Tie Corridors*. No mitigation is required.**

Impact HAZ-9. Hazards to Aviation due to Physical Features and Reflective Surfaces

***Westlands Solar Park*. There is a potential for tall physical features to pose a hazard to aircraft operation due to physical obstruction; however, no structures within the WSP solar projects would be high enough to present a physical obstruction to aviation. The glare from reflective surfaces can be a hazard to aviation; however, the solar PV modules are dark in color and have low reflectivity. (*Less-than-Significant Impact*)**

***WSP Gen-Tie Corridors*. There is a potential for tall physical features to pose a hazard to aircraft operation due to physical obstruction; however, no gen-tie structures would be high enough to present a physical obstruction to aviation. Hazards to crop dusters would be minimized by routing gen-tie lines adjacent to existing transmission lines and County roads. (*Less-than-Significant Impact*)**

This impact analysis addresses significance criteria 'e' and 'f' above.

Westlands Solar Park

The nearest public or public use airports to the WSP plan area include the Hanford and Coalinga municipal airports, and the Harris Ranch airport. All of these airports are located 15 miles or more from the WSP plan area, and no portion of the airport land use plans for these airports includes any part of the WSP plan area. There are no private airstrips within the WSP site, and there are 5 private airstrips within 5 miles of the outside boundaries of the WSP site (see Figure PD-2 in Chapter 2 for locations of nearby airstrips). Four of these airstrips are for personal or corporate use of ranch owners, and one of these airstrips is operated by a crop dusting company (JLUSPC 2011, p. 2-18).

Physical Obstructions

Under Title 14 of the Code of Federal Regulations, a structure would need to be 200 feet or more in height to be considered a potential collision hazard (CFR, Title 14, Aeronautics and Space, §77.17 Obstruction Hazards). The tallest facilities associated with the solar facilities would be as follows: internal WSP gen-tie transmission towers, which may be as high as 175 feet; power collection poles, which may be as high as 70 feet; substation elements, which may reach a height of 125 feet; the O&M buildings, which may be as high as 20 feet; the anemometers, which could be as high as 30 feet; the inverters, which may be as high as 12 feet; and the solar arrays, which may reach as high as 12 feet at their maximum inclination. Thus all WSP structures would be lower than the 200 feet height considered the minimum collision hazard under CFR Title 14.

The WSP solar facilities would not include vertical obstructions that would pose a hazard to aircraft using nearby airstrips. The aircraft operations at the private airstrips would be relatively infrequent, and although crop dusting flights would occasionally traverse the WSP site en route to their destinations, the WSP solar facilities would not include structural elements of sufficient height to be considered a collision hazard. Therefore, the WSP solar facilities would not present a hazard to public or general aviation.

The military airfield at Naval Air Station Lemoore (NASL) is located 5 miles north of the WSP plan area. In 2011, a Joint Land Use Study was completed for NASL, the major purpose of which was to discourage incompatible development in accident potential zones. The JLUS mapping indicates that the southern end of the NAS Lemoore runway is 2.5 miles north of SR-198, and no designated clear zones or accident potential zones extend south of SR-198. The JLUS also designates height restriction zones around the airfield. The north portion of the WSP plan area lies within an NASL designated flight corridor and is subject to Height Restriction Zones "D" and "G" which both have height limits for ground structures of 500 feet above the ground surface (JLUS 2011, p. 2-24). As discussed above, the tallest structural elements within the WSP plan area would be transmission towers for internal gen-ties which could be as high as 175 feet. Thus all structures associated with WSP solar facilities would be well below the NAS Lemoore 500-foot limit for this area and would not create obstructions to flight operations at the military base. Therefore, the potential hazard to aviation posed by physical elements of the WSP solar facilities would be *less than significant*.

Glare from Reflective Surfaces

Glare is an intense light effect resulting primarily from the reflection of sunlight off reflective surfaces when the angle of the sun to the surface is such that sunlight is reflected toward the receiver, causing potential discomfort or distraction of the receiver, or potential impairment of vision under extreme conditions. The main source of potential glare at the project is solar panels, but other sources can include vehicle windshields and reflective building materials, as well as direct illumination.

All of the solar panels planned for the project will be composed of photovoltaic cells. Solar PV employs glass panels that are designed to maximize absorption and minimize reflection to increase electricity production efficiency. Untreated silicon reflects about one-third of incoming sunlight. To limit reflection, solar PV panels are constructed of dark, light-absorbing materials, and are given an anti-reflective coating or textured surface. Depending on incident angle of sunlight, reflectivity of solar modules ranges from about 3 to 10 percent with untreated glass surfaces, which can be reduced to about 2.5 to 7 percent with

the addition of the anti-reflective coating or treatment. In comparison, the reflectivity of standard glass ranges from about 8.5 to 21 percent, or about double that of uncoated solar panels (Sunpower 2010). By contrast, concentrated solar systems, which employ arrays of highly polished mirrors to refocus the radiation on a receiver tube or tower, reflect about 90 percent of the incoming sunlight (FAA 2010).

Further, PV solar systems are designed to maximize absorption of sunlight by keeping the panel surfaces oriented directly to the sun as much as possible. At this direct perpendicular orientation, sunlight light is reflected skyward. However, when the sun is low in the sky (i.e., at dawn or dusk), the angle of reflectance increases, thereby increasing the potential for reflection at or near ground level.

Potential Glare Effects on Aviation

Since solar panels reflect sunlight skyward, there is a potential for the glare from reflected sunlight to affect low flying aircraft passing over or near the WSP plan area. Any glare effect would occur only as long as the angle between the sun, the aircraft, and solar array is constant. Since aircraft would be traveling at high speeds and the angle between the sun, the aircraft, and the solar arrays would be constantly changing, any glare effect would be temporary. Also, since the solar panels would have low reflective intensity and would be covered with anti-reflective coating, any resulting glare effects would not be so bright as to disrupt aircraft operations in the area.

A number of commercial airports have had photovoltaic solar arrays installed on rooftops or in otherwise unusable open areas on or near the facilities. Examples of airports where photovoltaic solar panels have been installed with FAA approval include San Francisco, Oakland, Fresno-Yosemite, Long Beach, and Denver, among others. To date, there no complaints from pilots or air traffic controllers due to glare impacts from existing airport solar PV installations (FAA 2010, p. 41).

Given the proximity of NAS Lemoore to the project site, there is a potential concern with the effect of glare on flight operations at the base. The NAS Lemoore Joint Land Use Study (JLUS) addresses concerns with aviation hazards from reflection and glare. Solar facilities are mentioned specifically for their potential to produce reflective surfaces, but the JLUS acknowledged that the main concern was with highly reflective mirrors used in concentrated solar facilities. The JLUS acknowledges that "if there is no central collection tower, the new solar panels can be made non-reflective and arrays could be installed to not cause any height or reflective issues" (JLUS 2011, p. 2-12). PV solar facilities have been installed at Nellis AFB, and Los Angeles AFB, and are planned for other air bases including NAS Lemoore (S2S 2016).

In summary, that the potential hazard to aviation posed by glare from WSP solar facilities would be *less than significant*.

Safety Hazard to People Working or Residing in the Area

The employment density at the WSP solar facilities would be very low, i.e., a maximum of approximately 50 staff would be at a typical 250 MW SGF at any given time for facility operations, maintenance, and security, or about 12.5 employees per square mile. (Average on-site staff levels would be about 10 staff at a 250-MW facility, or 2.5 employees per square mile.) The existing residential population in the WSP vicinity is also very low, with a total of 32 dwellings located within 1 mile of the WSP boundaries.

As discussed above, the WSP solar facilities would not result in a significant safety hazard to aviation by creating physical obstructions or excessive reflective glare. Therefore, the potential aviation-related safety hazard posed by WSP solar development to people working or residing in the area would be *less than significant.*

WSP Gen-Tie Corridors

The nearest municipal airports to the WSP gen-tie corridors include the Hanford and Coalinga airports, all of which are located between 6 and 20 miles from the gen-tie corridors at their nearest points.

There are a total of 5 private airstrips within 6 miles of the gen-tie corridors. The nearest airstrips are at Stone Land Company Ranch on Nevada Avenue and at Shannon Ranch at Avenal Cutoff Road and Gale Avenue. The WSP-South to Gates gen-tie would be at least 1,500 feet from the end of the runway at Stone Land Company Ranch, and the WSP-North to Gates gen-tie would be at least one mile from the end of the runway at the Shannon Ranch airstrip. The remaining 3 airstrips are located from 3.3 to 5.5 miles from the gen-tie corridors. The gen-tie projects could include towers as high as 175 feet, but most would be lower. These towers would not present vertical obstructions that would pose a hazard to aircraft using nearby airstrips. The aircraft operations at the private airstrips would be relatively infrequent, and local pilots would be well aware of the new transmission towers and lines. Crop dusting operations would need to take the new gen-tie lines into account, but the WSP-North to Gates Gen-Tie would run parallel and adjacent to existing transmission lines that the crop dusters would already be aware of, and the WSP-South to Gates Gen-Tie would follow the Nevada/Jayne Avenue county road corridor. Additionally, the gen-tie lines would not include structural elements of greater than 200 feet and thus would not be considered a collision hazard under Title 14 of the Code of Federal Regulations. Therefore, the WSP gen-tie projects would not present a hazard to public or general aviation.

The WSP gen-tie projects would not include reflective surfaces that could produce glare and pose a safety hazard to aviation.

As discussed above, the WSP gen-tie projects would not result in a significant safety hazard to aviation by creating physical obstructions or excessive reflective glare. Therefore, the potential aviation-related safety hazard posed by the WSP gen-tie projects to people working or residing in the area would be *less than significant.*

Mitigation Measures:

***Westlands Solar Park*. No mitigation is required.**

***WSP Gen-Tie Corridors*. No mitigation is required.**

Impact HAZ-10. Impair or Interfere with Emergency Response or Evacuation Plan

***Westlands Solar Park*. The WSP solar development would not alter the local roadway network or generate substantial traffic; therefore, the WSP solar development would not impair or interfere with an emergency response plan or an evacuation plan. (*Less-than-Significant Impact*)**

***WSP Gen-Tie Corridors*. The gen-tie projects would not alter the local roadway network or generate substantial traffic; therefore, the gen-tie projects would not impair or interfere with an emergency response plan or an evacuation plan. (*Less-than-Significant Impact*)**

This impact analysis addresses significance criterion 'g' above.

Westlands Solar Park

In times of emergency or disaster response, the State highways would serve as primary routes, and designated County arterial roadways in the area would serve as secondary routes. In the vicinity of the WSP plan area, the primary routes would include SR-198, SR-41, SR-269, and I-5, and the secondary routes would consist of Avenal Cutoff Road and Laurel Avenue (Kings County 2010). These nearby highways and County roads provide several escape routes with relatively low ambient traffic volumes. The WSP solar development would not result in changes to the adjacent roadway network and the small operational workforce would not create or increase traffic congestion during times of emergency or disaster. During the construction phases, slow moving vehicles or delivery of large pieces of equipment or components could result in temporary traffic slowdowns, although such conditions would be infrequent and would be managed pursuant to traffic controls specified in Mitigation Measure TR-1 (see section *3.13 Transportation/Traffic*). The WSP solar development would not impair implementation of, or physically interfere with, an adopted emergency response plan or an emergency evacuation plan, and therefore the potential impact in this regard would be *less than significant*.

WSP Gen-Tie Corridors

As is the case with the Westlands Solar Park, the State highways in the region would serve as primary routes, and designated County arterial roadways in the area would serve as secondary routes for emergency response and evacuations. In the vicinity of the WSP Gen-Tie Corridors, the primary routes would include I-5, SR-198, SR-41, and SR-269, and the secondary routes would consist of the principal county roads in western Kings and Fresno counties. These nearby highways and county roads provide several escape routes with relatively low ambient traffic volumes. The gen-tie projects would not result in changes to the adjacent roadway network and the very small operational workforce would have a negligible effect on traffic congestion during times of emergency or disaster. During the construction phases, slow moving vehicles or delivery of large pieces of equipment or components could result in temporary traffic slowdowns, although such conditions would be infrequent and would be managed pursuant to traffic controls specified in Mitigation Measure TR-1 (see section *3.13 Transportation/Traffic*). The WSP gen-tie projects would not impair implementation of, or physically interfere with, an adopted emergency response plan or an emergency evacuation plan, and therefore the potential impact in this regard would be *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. No mitigation is required.**

***WSP Gen-Tie Corridors*. No mitigation is required.**

Impact HAZ-11. Wildfire Risk

***Westlands Solar Park*. The WSP plan area is not located within or near a wildland fire hazard area. Therefore, WSP solar facilities would not be subject to risk from wildland fires. (*Less-than-Significant Impact*)**

***WSP Gen-Tie Corridors*. The northern WSP gen-tie project would be subject to moderate wildland fire in small area where it crosses the California Aqueduct. *Less-than-Significant Impact with Mitigation*)**

This impact analysis addresses significance criterion 'h' above.

Westlands Solar Park

The WSP plan area is not located within or near a wildland fire hazard area**.** The Fire Hazard Severity Zone (FHSZ) map for Kings County prepared by the California Department of Forestry and Fire Protection (CalFIRE) shows the WSP plan area as "unzoned" for fire hazard. The nearest areas zoned on the FHSZ map are located in the foothills to the west of I-5, which are zoned "Moderate Severity Fire Hazard" (CalFire 2007b). The Health and Safety Element of the Kings County General Plan includes a map of Potential Fire Hazards, which shows most of the WSP plan area as being subject to "little or no threat," while areas within 2400 meters of structures are shown as being subject to "moderate threat" (Kings County 2010, Figure HS-9). Therefore, the potential risk of loss, injury or death within WSP solar projects with respect to wildland fires is *less than significant*.

[Note: For a discussion of potential impacts to fire protection services, see Section *3.12. Public Services*.]

WSP Gen-Tie Corridors

The Fire Hazard Severity Zone (FHSZ) maps for Kings and Fresno counties prepared by the California Department of Forestry and Fire Protection (CALFIRE) show that the gen-tie segments are "unzoned" for fire hazard for most of their lengths. However, the northern gen-tie corridor passes through a narrow section of land designated "LRA (Local Responsibility Area) Moderate" (fire hazard) located alongside the California Aqueduct (CalFire 2007a). Therefore, the potential risk of wildland fires with respect to the gen-tie lines represents a *potentially significant impact*. With implementation of Mitigation Measure HAZ-6 below, the impact would be reduced to *less than significant*.

Mitigation Measures:

***Westlands Solar Park*. No mitigation is required.**

***WSP Gen-Tie Corridors*. Implement MM HAZ-6.**

MM HAZ-6. Fire Protection and Safety Plan

The gen-tie project proponent shall prepare a fire protection and safety plan to be implemented during all construction activities associated with the north gen-tie project. The plan shall be prepared in coordination with CalFire and the affected county(s), as applicable.

The provisions included in the Fire Protection and Safety Plan would include requirements such as the following: contractors shall have water tanks or water trucks available in proximity to work areas; construction equipment and vehicles shall be equipped with specified fire suppression equipment; construction personnel shall be required to park vehicles away from dry vegetation; construction workers shall be trained in fire prevention and suppression; and all work shall cease during Red Flag Warnings issued by the National Weather Service.

Cumulative Impacts

Impact HAZ-12. Cumulative Hazards and Hazardous Materials Impacts

***Westlands Solar Park*. The potential hazards and hazardous materials impacts associated with WSP solar development would be avoided or mitigated, or would be less than significant without mitigation, depending on the specific hazard. It is expected that any potential hazards and hazardous materials associated with other cumulative project sites would be similarly avoided or mitigated, or would be less than significant without mitigation. (*Less-than-Significant Cumulative Impact with Mitigation*)**

***WSP Gen-Tie Corridors*. The potential hazards and hazardous materials impacts associated with the WSP gen-tie projects would be avoided or mitigated, or would be less than significant without mitigation, depending on the specific hazard. It is expected that any potential hazards and hazardous materials associated with other cumulative project sites would be similarly avoided or mitigated, or would be less than significant without mitigation. (*Less-than-Significant Cumulative Impact with Mitigation*)**

Geographic Scope of Cumulative Impact Analysis

As discussed in the preceding impact discussions, the potential hazards and hazardous materials impacts associated with WSP solar development would be less-than-significant or would be reduced to less-than-significant levels through mitigation measures to be implemented in conjunction with the individual solar developments. In addition, most of the potential hazards and impacts would be confined to the individual solar project sites. There is a low risk that certain hazards, such as wildfire and release of hazardous materials, could extend beyond the WSP boundaries or the WSP gen-tie corridors and combine with simultaneous or concurrent events on neighboring lands to result in a combined cumulative effect. However, most potential hazards and impacts would be highly localized and would not be given to accumulation with similar effects from other projects. Therefore, for purposes of this cumulative analysis, only the potential hazards and hazardous materials impacts associated with approved and pending projects adjacent to or near the WSP site are included within the geographic scope of analysis. Thus the study area for the analysis of cumulative hazards and hazardous materials impacts is conservatively assumed to extend ¼ mile beyond the boundaries of the WSP plan area and the WSP gen-tie corridors.

Westlands Solar Park

Near Term

Under near-term conditions, there are four pending, approved, and completed projects (or groups of projects) within a ¼ mile radius of the WSP's outside boundaries. All four of these projects comprise solar PV developments. (Note: The Westside Solar project and Westlands Aquamarine solar project are located within the WSP plan area; since the impacts associated with these projects are covered in the WSP impact analysis, they are not included again in the list of cumulative projects below.) These solar projects are listed below and described in Section *2.5. Completed, Approved and Pending Projects/ Introduction to Cumulative Impact Analysis*. Their locations are shown in Figure PD-9.

- Mustang/Orion/Kent South
- American Kings
- Mustang 2
- Kettleman

The combined hazards and hazardous materials impacts of these cumulative projects, together with the potential impacts associated with the full development of the WSP plan area, are addressed below.

Project-Related Contaminant Sources

As discussed under Impact HAZ-1 above, the construction of the WSP solar projects would involve the use of various hazardous materials such as fuels, lubricants, solvents, and welding supplies, among other things. As required under MM HAZ-1, the transport, use, and disposal of these materials would take place in accordance with Hazardous Materials Business Plans and Storm Water Pollution Prevention Plans that would prescribe safe handling and disposal protocols and set forth emergency procedures to be followed in case of spills or accidental discharges. The implementation of this mitigation measure would ensure that impacts associated with the use of hazardous materials would be less than significant for WSP solar

development. These same requirements would be applicable to the other nearby cumulative projects such that the potential impacts would be less than significant at the project level. The residual hazardous materials impacts from each project would not combine to produce a cumulatively significant effect. Therefore, the cumulative impact due to handling and disposal of hazardous materials would be *less than significant with mitigation.*

Existing Sources of Potential Hazards and Contamination

There are several existing conditions within the WSP plan area that may pose a safety or contamination hazard during construction of the WSP solar projects. These potentially include high concentrations of agricultural pesticides in the soils, the presence of Valley Fever fungal spores in the soils, abandoned oil and gas wells, existing natural gas pipelines and electrical transmission lines. These potential hazards would be mitigated within the WSP plan area through implementation of MM HAZ-2 through MM-HAZ-5. It is expected that any near-term cumulative projects planned in the WSP vicinity would be required to implement similar mitigation measures, as applicable to their sites and projects, such that all potential hazardous materials impacts would be reduced to less-than-significant levels at each project site. The residual health and safety impacts at each project would not combine to produce a cumulatively significant effect. Therefore, the cumulative impact due to existing sources of potential hazards and contamination would be *less than significant with mitigation*.

Hazards to Aviation

As discussed under Impact HAZ-9, the WSP solar development would not include structures tall enough to pose physical obstructions to flight operations at NAS Lemoore or to general aviation in the area. Similarly, the low-reflectivity solar modules and other facilities installed at the WSP site would not result in glare impacts that would disrupt flight operations. Therefore, the safety hazard posed by WSP solar development to aviation would be less than significant. The four other cumulative projects all consist of solar PV generating facilities with very similar physical characteristics to WSP solar development. None of the cumulative projects would include structures tall enough to pose physical obstructions to flight operations, and all of the cumulative project would include low-reflectivity solar modules and thus would not produce glare. Thus the hazards to aviation at each cumulative site, including the WSP plan area, would be less than significant. There is virtually no potential that the less-than-significant hazards to aviation at each cumulative project could combined to produce a cumulatively significant hazard to aviation. Therefore, the cumulative impact in terms of hazard to aviation would be *less than significant*.

Electromagnetic Fields

As discussed under Impact HAZ-6, EMF levels from existing 230-kV transmission facilities passing through the WSP plan area drop of rapidly to background or ambient levels within about 150 feet of the transmission rights-of-way. Although some solar modules and supporting electrical components would be installed within this distance, the overall duration of worker exposure would be brief, and would be well within recommended occupational exposure levels. The other cumulative project sites also have high voltage transmission lines passing through or along their sites. However, these transmission lines are separated by distances of well over 200 feet, such that their EMF emissions would not combine to result in greater worker exposure. Therefore, cumulative impacts associated with EMF emissions would be *less than significant*.

Wildfire Risk

As discussed under Impact HAZ-11, the WSP plan area is not located within or near an area subject to wildland fire risk, as mapped by CalFIRE. a.

The nearby cumulative projects similarly are not located within or near an area subject to wildland fire risk. Therefore, the near-term cumulative wildfire risk would be *less than significant*.

In summary, the near-term cumulative hazards and hazardous materials impacts associated with WSP solar development would be *less than significant with mitigation*.

Far Term

For far-term conditions, the cumulative analysis of hazards and hazardous materials considers the full buildout of land uses within ¼ mile of the WSP site, as shown on the 2035 Kings County General Plan. The 'Kings County Land Use Map' of the Land Use Element shows that all lands within ¼ mile of the outside WSP boundaries are designated as either 'General Agriculture 20 ac.' or 'Exclusive Agriculture 40 ac.' These lands are located well outside existing and planned urbanized areas that include cities (and their spheres of influence), unincorporated communities (including their planning areas), special districts, rancherias, and military bases. Thus it is reasonable to assume that agriculture production will remain the dominant land use in the adjacent and surrounding lands for the life of the General Plan.

It is important to note that, as with the lands of the WSP plan area, the agricultural designations of the 2035 Kings County General Plan allow the installation of utility-scale PV solar generating facilities (KC 2010). Thus it is possible that additional solar development projects could be proposed in the WSP vicinity within the 25 year planning horizon of the General Plan. Since the adjacent lands to the west of the WSP plan area are located within Fresno County, the corresponding General Plan designations for Fresno County lands would guide permitted uses on adjacent lands to the west. Again, all lands within a ¼ radius of the WSP site to the west are designated 'Agriculture' under the Fresno County General Plan (Fresno County 2010). While the Fresno County General Plan does not specifically allow PV solar development on agriculturally-designated lands, the County has initiated a process for considering solar PV development on agriculturally-designated lands, and has approved several solar PV projects under this process (Fresno County 2013). Therefore, it is reasonable to assume that Fresno County would consider proposals for PV solar development on agricultural lands within ¼ mile of the WSP site.

Within the far-term cumulative study area there are several existing potential sources of hazards and hazardous materials that occur within and in the vicinity of the WSP plan area. Although there are no known contamination sites included on hazardous materials lists, apart from those at NAS Lemoore located 2 miles north of WSP, there are existing (abandoned) oil wells, a natural gas transmission pipeline, and two high-voltage power transmission lines within the cumulative study area. There is also the potential that residual pesticides from past agricultural operations may still be present in the soils in hazardous concentrations. Also, any cumulative development could involve the use, handling and transport of hazardous materials. For any WSP solar development that may occur in the far-term, these potential impacts would be mitigated through implementation of MM HAZ-1 through MM HAZ-5. It is expected that any far-term cumulative projects planned in the WSP vicinity would be required to implement similar mitigation measures, as applicable to their sites and projects, such that all potential

hazardous materials impacts would be reduced to less-than-significant levels at each project site. There is virtually no possibility that the residual less-than-significant health and safety risks associated with far-term cumulative projects would combine to produce a cumulatively significant health and safety impact. Therefore, the far-term cumulative impact associated with WSP solar development in terms of hazards and hazardous materials would be *less than significant with mitigation*.

WSP Gen-Tie Corridors

Near Term

Under near-term conditions, there are 3 approved and pending solar projects and two transmission projects on lands in the vicinity of the WSP gen-tie corridors. (Note: The Westside Solar project and Westlands Aquamarine solar project are located within the WSP plan area; since the impacts associated with these projects are covered in the WSP impact analysis, they are not included again in the list of cumulative projects below.) These projects are listed below and shown in Figures PD-10, and described in Section *2.5. Completed, Approved, and Pending Projects/Introduction to Cumulative Impact Analysis*.

- Mustang/Orion/Kent South solar projects
- Central Valley Power Connect transmission project (Gates to Gregg Substation)
- Westside Transmission Project (Gates to Dos Amigos/Los Banos Substation)

Project-Related Contaminant Sources

The construction of the WSP gen-tie projects and the other cumulative projects would involve the use of various hazardous materials such as fuels, lubricants, solvents, and welding supplies, among other things. As required under MM HAZ-1, the transport, use, and disposal of these materials would take place in accordance with construction standards and laws and regulations that would prescribe safe handling and disposal protocols and set forth emergency procedures to be followed in case of spills or accidental discharges. The implementation of this mitigation measure would ensure that impacts associated with the use of hazardous materials would be less than significant for each of the cumulative projects. The residual hazardous materials impacts from each project would not combine to produce a cumulatively significant effect. Therefore, the cumulative impact due to handling and disposal of hazardous materials would be *less than significant with mitigation.*

Existing Sources of Hazards and Contamination

In terms of existing sources of hazards and contamination, there are no reported contamination sites within a half mile of the gen-tie corridors, and there are no reported contamination sites on the cumulative project sites. Given that the major portion of the gen-tie corridors, and most if not all of the cumulative project sites have been in agricultural cultivation, there is a potential for agricultural pesticides to be present in hazardous concentrations. Some of the cumulative project sites are traversed by existing high voltage transmission lines and oil or gas pipelines. The cumulative sites also have the potential to contain Valley Fever fungal spores in the soils. These potential hazards would be mitigated within the WSP plan area through implementation of MM HAZ-2 through MM-HAZ-5. It is expected that any near-term cumulative projects planned in the WSP vicinity would be required to implement similar mitigation measures, as applicable to their sites and projects, such that all potential hazardous materials impacts would be reduced to less-than-significant levels at each project site. The

residual near-term health and safety impacts at each cumulative project would not combine to produce a cumulatively significant effect. Therefore, the cumulative impact due to existing sources of potential hazards and contamination would be *less than significant with mitigation*.

Hazards to Aviation

The WSP gen-tie projects would not include structures tall enough to pose physical obstructions to flight operations in the area. None of the cumulative projects would include structures tall enough to pose physical obstructions to flight operations, and none of the cumulative projects would produce glare. Thus the hazards to aviation from each cumulative project, including the WSP gen-tie projects, would be less than significant. There is virtually no potential that the less-than-significant hazards to aviation at each cumulative project could combine to produce a cumulatively significant hazard to aviation. Therefore, the cumulative impact in terms of hazard to aviation would be *less than significant*.

Electromagnetic Fields

As discussed under Impact HAZ-6, EMF levels from the 230-kV gen-tie facilities would drop off rapidly to background or ambient levels within approximately 150 feet of the transmission rights-of-way. There are several residences located approximately 125-130 feet of the southern WSP gen-tie corridor, but EMF levels at these residences would be well within the range for typical household EMF levels. Although construction workers on the transmission projects would be subject to higher than ambient EMF emissions, the levels would be well within recommended occupational exposure levels.

There are two other transmission projects that include segments that may be constructed adjacent to or near the WSP gen-tie projects. These include the southern segment of the Westside Transmission Project, which would run north from the Gates Substation, and an alternative segment of the Gates to Gregg Transmission Project (Central Valley Power Connect) which would run parallel to the WSP-North to Gates Gen-Tie corridor. These transmission projects would also emit EMFs, while the non-transmission projects would emit negligible or no EMFs. For the two parallel transmission projects, existing dwellings would be at least 200 feet from the transmission right-of-way, so the nearest residents would not be subject to higher than ambient EMF levels. The nearest dwellings would be about 1,100 feet from the parallel segment of Gates to Gregg Transmission Project, and at least 250 feet from the southern segment of the Westside Transmission Project. At these distances, EMF levels would fall back to ambient levels at the nearest residential receptors. The nearest residential receptors that are common to both the WSP gen-tie corridors and another nearby project are located on Gale Avenue east of the San Luis Canal/California Aqueduct. These comprise 6 ranch houses located 0.3 to 0.5 miles from the northern WSP gen-tie corridor, which are also proximate to the Gates to Gregg transmission corridor which would run parallel to the northern WSP gen-tie in this area. At these distances, the combined EMF levels from the two transmission projects would have dropped to approximate ambient levels at the nearest common receptor location. For all transmission projects, worker exposure would be well below recommended occupational exposures. Therefore, cumulative impacts associated with EMF emissions would be *less than significant*.

Wildland Fire Risk

As discussed under Impact HAZ-11, the north gen-tie corridor is subject to moderate wildland fire risk in the vicinity of the California Aqueduct. For the north gen-tie project, this impact would be mitigated through implementation of a fire protection and safety plan, as required in MM HAZ-6. It is expected that any near-term cumulative projects located within or near a wildland fire hazard area would be required to

implement a similar mitigation measure. . The residual wildland fire risk at each project would not combine to produce a cumulatively significant effect. Therefore, the cumulative impact due to wildfire risk would be *less than significant with mitigation*.

In summary, the near-term cumulative hazards and hazardous materials impacts associated with the WSP gen-tie projects would be *less than significant with mitigation*.

Far Term

For far-term conditions, the analysis of cumulative hazards and hazardous materials impacts considers the full buildout of land uses adjacent to and near the WSP gen-tie corridors, as shown in the general plans of the Kings County and Fresno County. Under both general plans, the predominant land use planned in the vicinity of the WSP gen-tie corridors is agricultural. Thus it is reasonable to assume that agricultural production will remain the dominant land use on the adjacent and surrounding lands for the life of the general plans. There is the potential for additional solar and transmission projects to be proposed and planned along the transmission route over the next 20 years, although the precise location and nature of such projects is currently unforeseeable.

Within the far-term cumulative study area there are several existing potential sources of hazards and hazardous materials as occur in the vicinity of the WSP gen-tie corridors. Although there are no known contamination sites included on hazardous materials lists, there are existing (abandoned) oil wells, natural gas and petroleum transmission pipelines, and several high-voltage power transmission lines within the cumulative study area. There is also the potential that residual pesticides from past agricultural operations may still be present in the soils in hazardous concentrations. Also, any far-term cumulative development could involve the use, handling and transport of hazardous materials, and could also be located within a wildlife fire hazard area. At any far-term cumulative projects, it is expected that these potential impacts would be mitigated through implementation mitigation measures similar to of MM HAZ-1 through MM HAZ-6 applicable to the WSP gen-tie projects. There is virtually no possibility that the less-than-significant residual health and safety risks associated with far-term cumulative projects would combine to produce a cumulatively significant health and safety impact. Therefore, the far-term cumulative impact associated with WSP gen-tie projects in terms of hazards and hazardous materials would be *less than significant with mitigation*.

Mitigation Measures:

***Westlands Solar Park*. Implement MM HAZ-1 through HAZ-5. No additional mitigation is required.**

***WSP Gen-Tie Corridors*. Implement MM HAZ-1 through HAZ-6. No additional mitigation is required.**

REFERENCES/BIBLIOGRAPHY – HAZARDS AND HAZARDOUS MATERIALS

CalFire 2007a — California Department of Forestry and Fire Protection (CalFire). 2007. Draft *Fire Severity Zones in LRA – Fresno County* (map). September. http://frap.fire.ca.gov/webdata/maps/fresno/fhszl06_1_map.10.pdf

CalFire 2007b — California Department of Forestry and Fire Protection (CalFire). 2007. *Draft Fire Severity Zones in LRA – Kings County* (map). September. http://frap.fire.ca.gov/webdata/maps/kings/fhszl06_1_map.16.pdf

CDC 2014 — Centers for Disease Control. 2013. *Fungal Diseases – Valley Fever (Coccidioidomycosis)*. July. http://www.cdc.gov/fungal/diseases/coccidioidomycosis/index.html

CDE 2012 — California Department of Education (CDE). *Title 5, California Code of Regulations. School Facilities Construction. Article 2. School Sites; Section 14010. Standards for School Site Selection*. http://www.cde.ca.gov/ls/fa/sf/title5regs.asp

CDIR 2016 — California Department of Industrial Relations, Division of Occupational Health and Safety (Cal/OSHA). 2016. *Notable Citations Issued*. http://www.dir.ca.gov/dosh/citation.html

CDPH 2013a — California Department of Public Health (CDPH). 2013. *Preventing Work-Related Coccidioidomycosis (Valley Fever)*. June. http://www.cdph.ca.gov/programs/hesis/Documents/CocciFact.pdf.

CDPH 2013b — California Department of Public Health (CDPH). 2013. *Valley Fever Fact Sheet*. September. http://www.cdph.ca.gov/HealthInfo/discond/Documents/VFGeneral.pdf

CPUC 1993 — California Public Utilities Commission (CPUC). 1993. *Order Instituting Investigation on the Commission's own motion to develop policies and procedures for addressing the potential health effects of electric and magnetic fields of utility facilities*. Decision No. 93-11-013, Investigation No. 91-01-012. Available at http://www.cpuc.ca.gov/Environment/emf/emfopen.htm

CPUC 1994 — California Public Utilities Commission (CPUC). 1994. *General Order No. 131-D. Rules relating to the Planning and Construction of Electric Generation, Transmission/Power/Distribution Line Facilities and Substations Located in California*. Decision 94-06-014, adopted June 8, 1994, as modified. http://162.15.7.24/PUBLISHED/Graphics/589.PDF

CPUC 2012a — California Public Utilities Commission (CPUC). 2012. *General Order 95 - Rules for Overhead Electric Line Construction*. As revised January 12, 2012 http://www.cpuc.ca.gov/Environment/emf/emfopen.htm

CPUC 2012b — California Public Utilities Commission (CPUC). 2012. *CPUC Website - CPUC EMF Policy*. http://www.cpuc.ca.gov/Environment/emf/emfopen.htm

DOGGR 2001 — California Department of Conservation (DOC), Division of Oil, Gas, and Geothermal Resources. 2001. *Oil, Gas, and Geothermal Fields in California 2001* (map). ftp://ftp.consrv.ca.gov/pub/oil/maps/Map_S-1.pdf

DOGGR 2003 — California Department of Conservation (DOC), Division of Oil, Gas, and Geothermal Resources. 2003. *Oil, Gas & Geothermal – District 5 Maps*. http://www.conservation.ca.gov/dog/maps/Pages/d5_index_map1.aspx

DOGGR 2017 — California Department of Conservation (DOC), Division of Oil, Gas, and Geothermal Resources (DOGGR). 2017. *Division of Oil, Gas and Geothermal Resources Well Finder*. http://maps.conservation.ca.gov/doggr/index.html#close

DHS 1999 — California Department of Health Services (DHS). 1999. *Short Fact Sheet on EMF*. http://sfpl.org/pdf/about/commission/emffactsheet040104.pdf

DTSC 2008 — California Department of Toxic Substances Control (DTSC). 2008. *Interim Guidance for Sampling Agricultural Properties* (Third Revision). http://www.energy.ca.gov/sitingcases/palmdale/documents/2011-02-02_Exhibits_FSA_TN-59585.pdf

DTSC 2012 — California Department of Toxic Substances Control (DTSC). 2012. *Initial Statement of Reasons – Standards for the Management of Hazardous Waste Solar Modules*. August. https://dtsc.ca.gov/LawsRegsPolicies/Regs/upload/ISOR-080112.pdf

DTSC 2017 — California Department of Toxic Substances Control (DTSC). 2016. *Hazardous Waste and Substances List – Site Cleanup (Cortese List) – EnviroStor Database*. http://www.envirostor.dtsc.ca.gov/public

FAA 2010 — Federal Aviation Administration. 2010. *Technical Guidance for Evaluating Selected Solar Technologies on Airports*. November. http://www.faa.gov/airports/environmental/policy_guidance/media/airport-solar-guide.pdf

First Solar 2016 — First Solar, Inc. 2016. *First Solar Recycling Services*. http://firstsolar.com/en/technologies-and-capabilities/recycling-services

Fraunhofer 2010 — Fraunhofer Institute. 2010. Scientific Comment of Fraunhofer to Life Cycle Assessment of CdTe Photovoltaics. June. http://www.en.csp.fraunhofer.de/press-and-events/details/id/852/

Fthenakis 2003 — Fthenakis, Vasilis, and Ken Sweibel. 2003. *CdTe PV: Real and Perceived EHS Risks*. ND. https://www.bnl.gov/pv/files/pdf/art_166.pdf

Hannigan 2013 — Hannigan, James, P.E. 2013. "Effects of Electrical and Magnetic Fields on Transmission Line Design." *Electric Energy T&D Magazine*. June. http://electricenergyonline.com/show_article.php?mag=89&article=718

Lavey 2014 — Lavey, Stephanie, APEX Companies LLC. 2014. *Phase I Dilemma – Evaluating Historic Use of Pesticides and Herbicides as a Recognized Environmental Condition*. http://www.apexenv.com/blog/183-phase-i-dilemma-%E2%80%93-evaluating-historic-use-of-pesticides-and-herbicides-as-a-recognized-environmental-condition

Jager-Waldau 2006 — Jager-Waldau, Arnulf; European Commission, Institute for Environment and Sustainability, Renewable Energies Unit. 2006. *Summary Report – Peer Review of Major Published Studies on the Environmental Profile of Cadmium Telluride (CdTe) Photovoltaic (PV) Systems*. March.

JLUSPC 2011 — Naval Air Station Lemoore Joint Land Use Study Policy Committee, 2011. *NAS Lemoore Joint Land Use Study – Final Release*. August 30. http://www.kingscog.org/index.asp?SEC=1E7B4327-327C-4971-85B4-05AF6F18D22A&Type=B_LIST

Kings County 2009a — Kings County. 2009. *Draft Air Quality Element Background Report, County of Kings, California.* February. http://www.countyofkings.com/home/showdocument?id=3138

Kings County 2010 — Kings County. 2010. *2035 Kings County General Plan*. Adopted January 26, 2010. http://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan

Kings County 2016 — Kings County. 2016. *Kings County Development Code. Kings County Code of Ordinances, Appendix A - Ordinance No. 668.12*. Dated January 26, 2016; Effective February 26, 2016. http://www.countyofkings.com/home/showdocument?id=12535

MTA 2011 — Moore Twinning Associates (MTA). 2011. *Phase I Environmental Site Assessment, Proposed Westside Solar Park, Assessor's Parcel Numbers (APNs) 026-300-032, 026-300-033, 026-300-038, 026-300-043, 026-320-002, 026-320-003, 026-320-017, and 026-320-020, Lemoore, California.* April. [Available for review at Westlands Water District headquarters in Fresno.]

MTA 2015 — Moore Twinning Associates (MTA). 2015. *Environmental Assessment of Soils for Arsenic and Environmentally Persistent Pesticides (OCPs); Westside Solar Project – Northern 18 acres, Southeast Corner of Avenal Cutoff Road and 25th Avenue, Lemoore, California.* February. [Available for review at Westlands Water District headquarters in Fresno.]

MTA 2016 — Moore Twinning Associates (MTA). 2016. *Phase I Environmental Records Review, Westlands Solar Park, Stratford, Kings County, California.* January. [Available for review at Westlands Water District headquarters in Fresno.]

NIEHS 2002 — National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health (NIH). 2002. EMF - *Electric and Magnetic Fields Associated with the Use of Electric Power*. June. http://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf

S2S 2016 — Sierra2theSea. 2016. "Solar Keeps on Shining in Kings County." July 13. http://sierra2thesea.net/central-valley/around-kings-county-solar-shines-corcoran-hospital-sale

SoCalGas 2016 — Southern California Gas Company (SoCalGas). 2016. *Locate and Mark Transmission Lines Video*. ND. https://www.socalgas.com/newsroom/video-library

Sunpower 2011 — Sunpower Corporation. 2011. *PV Systems: Low Levels of Glare and Reflectances vs. Surrounding Environment*. https://us.sunpower.com/sites/sunpower/files/media-library/white-papers/wp-pv-systems-low-levels-glare-reflectance-vs-surrounding-environment.pdf

SWRCB 2016 — State Water Resources Control Board (SWRCB). 2016. *GeoTracker Database*. http://geotracker.waterboards.ca.gov/

UCD 2016 — University of California-Davis (UCD) et al. 2016. *Extoxnet – Pesticide Information Profiles (PIPs)*. http://extoxnet.orst.edu/pips/ghindex.html

US EPA 2000 — U.S. Environmental Protection Agency (US EPA). 2000. *Cadmium Compounds – Hazard Summary.* Created in April 1993; Revised in January 2000. http://www.epa.gov/ttn/atw/hlthef/cadmium.html