

5.16 PUBLIC HEALTH AND SAFETY

This section describes the evaluation of the potential effects of the SES Solar Two, LLC (Solar Two or Applicant) Project and ancillary systems (Project) on public health and safety. Due to the nature of a solar electric generating facility, there will be only minimal releases of toxic substances to the environment, including very low emissions of toxic air contaminants (TACs) to the atmosphere. In fact, the only emissions of TACs from stationary sources of the operational facility will be short weekly tests of the diesel engine drivers for one emergency fire water pump and one emergency generator. A screening level health risk assessment (HRA) was conducted to assess the potential health effects of TAC emissions from these engines. This section describes the methodology and results of the HRA for the Project. Potential public exposure to criteria pollutants emitted by the Project, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), volatile organic compounds, and particulate matter with an aerodynamic diameter less than 10 microns (PM₁₀) is addressed in Section 5.2, Air Quality. A limited number of hazardous materials will be used during normal operations at the Solar Two Project. These are discussed further in Section 5.15, Hazardous Materials Handling.

The details of the public health analysis are contained in the following sections: Section 5.16.1, Affected Environment, describes the local environment surrounding the Project Site. Sensitive receptors within a 3-mile radius of the Project Site are identified in Figure 5.16-1, Sensitive Receptors and Nearby Residences within 3 Miles of the Project Site. Section 5.16.2, Environmental Consequences, discusses the potential public health consequences of the Project, including its emissions of TACs, the HRA technical approach, and quantitative estimates of the maximum potential effects of these emissions. The results of the HRA show that the maximum incremental off-site cancer risk from the Project will be well below the accepted cancer risk significance threshold for new sources of 10 in 1 million. The results of the assessment also show that the chronic total hazard index (THI) resulting from Project emissions will be well below the accepted significance criterion of 1.0. Section 5.16.3, Cumulative Effects, discusses the cumulative effects of the Project, as required by the California Energy Commission (CEC). Section 5.16.4, Mitigation Measures, discusses mitigation measures to minimize the effects of the Project's emissions of TACs; Section 5.16.5, Compliance with LORS, describes all applicable laws, ordinances, regulations, and standards (LORS) pertaining to the public health aspects of the Project; involved agencies and agency contacts consulted in conducting the HRA; and the permits required and the permitting schedule. Section 5.16.6, References, lists the references used to conduct the public HRA.

5.16.1 Affected Environment

The Project will consist of newly constructed solar electric facilities (and ancillary systems) located in an undeveloped area of Imperial County, California. The Project Site is approximately 100 miles east of San Diego, California, and 14 miles west of El Centro, California. The Project will be located south of Plaster City, north of and adjacent to Interstate 8 at the Dunaway Road exit. The Solar Two Project will encompass approximately 6,500 acres of land. The Project will consist of approximately 30,000 SunCatchers with a combined capacity of 750-megawatts. The Project Site consists of generally flat desert terrain.

The CEC defines sensitive receptors as infants and children, the elderly, the chronically ill, and any other member of the general population who is more susceptible to the effects of exposure than the population at large. For purposes of this analysis, sensitive receptors are defined as the locations occupied by groups of individuals that may be more susceptible to health risks from a chemical exposure, schools (public and private), day care facilities, convalescent homes, parks, and hospitals. Nearby residences are also included in the sensitive receptor analysis. Figure 5.16-1, Sensitive Receptors and Nearby Residences within 3 Miles of the Project Site, shows the sensitive receptors that are located within 3 miles of the Project; however, the HRA approach treats all receptors as sensitive receptors.

No sensitive receptors were identified within 3 miles of the Project. The nearest sensitive receptor identified was the Westside Elementary School, approximately 4 miles to the east of the Project. The nearest resident is located approximately 2,500 feet northwest of the northwestern corner of the property line. The nearest residents are also shown on Figure 5.16-1, Sensitive Receptors and Nearby Residences within 3 Miles of the Project Site.

The Imperial County Public Health Department and the Imperial County Air Pollution Control District (ICAPCD) were consulted to determine if any health studies related to respiratory illnesses, cancers, or related diseases had been conducted within a 6-mile radius of the Project Site. An extensive internet search was also conducted. No such health studies were identified for the areas within a 6-mile radius of the Project Site.

5.16.2 Environmental Consequences

This section describes the potential public health risks due to the construction and operation of the Project, and the methodology and results of the HRA. A potentially significant carcinogenic risk is indicated when the predicted maximum incremental cancer risk is greater than 10 in one million. Non-cancer risk is typically reported as a THI, which is a ratio calculated for each target organ. Specifically, the maximum predicted acute or chronic exposure due to the Project is expressed as a fraction of the corresponding maximum acceptable exposure level for a pollutant. The acceptable exposure level is the level at (or below) which no adverse health effects are expected. Thus, a non-cancer risk is considered significant when a chronic or acute THI above 1.0 is predicted. These significance thresholds are defined by the California Air Resources Board AB2588 program.

5.16.2.1 Public Health Risk Assessment Approach

The potential human health risks posed by the Project's emissions were assessed using procedures consistent with the Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Risk Assessment Guidelines – The Air Toxics Hot Spots Program Guidance Manual for Preparation of HRA (OEHHA 2003). The OEHHA guidelines were developed to provide risk assessment procedures, as required under the Air Toxics Hot Spots Information and Assessment Act of 1987, Assembly Bill 2588 (Health and Safety Code Sections 44360 *et seq.*). The Hot Spots law established a statewide program for inventorying emissions of TACs from individual facilities, as well as requirements for risk assessment and public notification of potential health risks.

The HRA was conducted in three steps by: (1) determining the TAC emitted from the Project; (2) calculating the ground-level concentrations for each TAC; and (3) characterizing the health risks, based on the TAC emission rates, “unit” ground level concentrations, and toxicological data.

The only TAC emitted from operation of the Project is diesel particulate from the testing of the diesel emergency fire water pump and emergency generator engines. Emissions are calculated based on vendor guaranteed PM₁₀ emission rates. Diesel particulate only has long-term health risk thresholds, thus only cancer risk and the chronic non-cancer THI will be calculated in this HRA. No acute non-cancer reference exposure level (REL) has been established for diesel particulate, thus no acute non-cancer THI will be calculated.

Dispersion modeling was performed using the SCREEN3 model to estimate the ground-level concentrations at the nearest points off-site from the Project. The methods used in the dispersion modeling were consistent with the approach for modeling criteria pollutants from the Project diesel engines, as described in Section 5.2, Air Quality. The SCREEN3 model was run with the full meteorology option that examines a range of stability classes and wind speeds. The maximum concentration predicted by SCREEN3 occurs at a specified distance from the source regardless of direction. The SCREEN3 model was run with a unit emission rate (1 gram per second [g/s]) for the source to calculate the χ/Q “unit” ground-level 1-hour concentration in (micrograms per cubic meter [$\mu\text{g}/\text{m}^3$])/(g/s). The 1-hour χ/Q concentration was converted to an annual concentration by multiplying it by 0.08, per the Environmental Protection Agency (EPA) Screening Procedures (EPA 1992). This annual χ/Q concentration was then multiplied by the combined annual emission rates in g/s from the diesel emergency fire water pump and emergency generator engines to estimate the maximum annual ground level particulate concentration at the property line. Diesel particulate only has health risk factors for cancer and chronic non-cancer risks, thus, only annual ground-level particulate concentrations need to be calculated.

Risk characterization was performed to integrate the health effects and public exposure information and provide quantitative estimates of health risks from Project emissions.

Carcinogenic and chronic non-carcinogenic health risks corresponding to the maximum modeled annual diesel particulate concentration were estimated using an Excel spreadsheet. The chronic non-cancer risk is calculated by dividing the annual ground level particulate concentration by the diesel particulate matter chronic REL from OEHHA. The cancer risk is calculated by estimating the inhalation dose (milligrams per kilogram per day [mg/kg-day]) from the annual ground level particulate concentration, which is then multiplied by the diesel particulate inhalation cancer potency factor from OEHHA. For the calculation of cancer risk, the duration of exposure to the Project’s emissions was assumed to be 70 years.

Detailed descriptions of the model input parameters and results of the HRA are presented later in this section and in Appendix DD, Public Health and Safety Data.

5.16.2.2 Construction Phase Emissions

Due to the relatively short duration of the Project's construction phase (i.e., approximately 35 months), significant long-term public health effects are not expected. To ensure worker safety during actual construction, safe work practices will be followed. A detailed analysis of the potential environmental effects due to criteria pollutant emissions during construction and control of these emissions is discussed in Section 5.2, Air Quality.

5.16.2.3 Operation Emissions

Project operations were evaluated to determine whether particular substances will be used or generated that may cause adverse health effects if released to the air. The only stationary Project sources of TAC emissions are the emergency diesel internal combustion engines that will be used as drivers for the fire water pump and stand-by power generator. The fire water pump and power generator will normally be operated (exercised) for short periods (15 minutes per engine per week) in testing mode to ensure their operability if needed. The PM₁₀ emissions were calculated based on a vendor guaranteed emission factor and are presented in Table 5.16-1, Emission Rates from Normal Testing of the Diesel Emergency Fire Water Pump and Emergency Generator Engines. Detailed emissions calculations can be found in Appendix DD, Public Health and Safety Data.

Table 5.16-1
Emission Rates from Normal Testing of the Diesel Emergency Fire Water Pump and Emergency Generator Engines

Chemical Species	Emission Factor (g/hp-hr)	Maximum Hourly Emission Rate (lb/hr) ¹	Annual Emission Rate (lb/yr) ²
Emergency Fire Water Pump Engine			
Diesel particulate	0.06	0.002	0.03
Emergency Power Generator Engine			
Diesel particulate	0.06	0.01	0.14

Source: EPA, 1992.

Notes:

¹ Hourly emissions include only 15 minute engine operations for testing.

² Annual emissions are based on 13 hours of engine operation per year.

g/hp-hr = gram per horsepower hour

lb/hr = pounds per hour

lb/yr = pounds per year

5.16.2.4 Model Input Parameters

The HRA was conducted using the combined worst case annual emissions from the diesel emergency fire water pump and emergency generator engines. Stack parameters were obtained from the vendor. Dispersion modeling was performed using the SCREEN3 model using methods consistent with the approach described in Section 5.2, Air Quality. The diesel particulate cancer potency factors and chronic REL used in the HRA are 1.1 (mg/kg-day)⁻¹ and 5 (μg/m³), respectively.

5.16.2.5 Calculation of Health Effects

Adverse health effects are expressed in terms of cancer or non-cancer health risks. Cancer risk is typically reported as “lifetime cancer risk,” which is the maximum estimated increased risk of contracting cancer caused by long-term exposure to a pollutant suspected of being a carcinogen. Cancer risk is calculated by assuming that an individual is exposed continuously to pollutants at the computed long-term average concentration of 24 hours per day for a period of 70 years. Although this continuous lifetime exposure is unlikely, the goal of the approach is to produce a worst case estimate of potential cancer risk.

The cancer risk is calculated by estimating the inhalation dose (mg/kg-day) from the annual ground level particulate concentration, and then multiplying by the diesel particulate inhalation cancer potency factor from OEHHA. Inhalation dose is calculated using the following equation:

$$\text{Inhalation dose (mg/kg-day)} = (\text{Annual concentration } (\mu\text{g/m}^3)) * \text{DBR} * \text{A} * \text{EF} * \text{ED} * 10^{-6} / \text{AT}$$

where:

- DBR = daily breathing rate (L/kg-day), used 95th percentile = 393
- A = Inhalation absorption factor (fraction of chemical absorbed), default = 1
- EF = Exposure frequency (days/year) = 52
- ED = Exposure duration (years), default = 70
- AT = Averaging time period over which exposure is averaged (days), default = 25,550

Non-cancer risk is typically reported as a THI. The THI is calculated for each target organ as a fraction of the maximum acceptable exposure level to a pollutant. The acceptable exposure level is generally the level at (or below) which no adverse health effects are expected. THI in this analysis is calculated for long-term (chronic) exposure by dividing the maximum predicted annual ground level concentration of diesel particulate by the diesel particulate matter chronic REL.

Both the cancer and chronic non-cancer risk estimates provided in this HRA represent incremental risks (i.e., risks due to Project sources only) and do not include potential health risks posed by existing background concentrations. This approach is consistent with the significance criteria used to evaluate predicted effects, which are also based on the incremental contributions to risk by Project sources. Detailed health risk calculations can be found in Appendix DD, Public Health and Safety Data.

5.16.2.6 Health Effects Significance Criteria

Various state and local agencies use different significance criteria for cancer and non-cancer health effects. For carcinogenic health effects, an exposure to a new emissions source is normally considered potentially significant when the predicted incremental lifetime cancer risk of the source exceeds 10 in 1 million. For non-carcinogenic health effects (chronic or acute), an exposure that affects each target organ is considered potentially significant when the THI exceeds a value of 1.

5.16.2.7 *Estimated Lifetime Cancer Risk*

Based on the risk assessment methodology described in the foregoing subsections, the maximum incremental cancer risk resulting from the diesel emergency fire water pump and emergency generator engines particulate emissions was estimated to be 0.01 in 1 million. The maximum cancer risk was predicted to occur at the nearest property line, approximately 358 meters southeast of the sources. Cancer risk was not calculated at any of the sensitive receptors since the risk at the point of maximum effect was well below the significance threshold.

Table 5.16-2, Estimated Cancer Risk and Chronic Total Hazard Index, presents the results of the HRA for Project operations for cancer and chronic health risks. All model files, along with all air quality modeling files are provided electronically on a CD that is supplied separately with this Application for Certification.

**Table 5.16-2
Estimated Cancer Risk and Chronic Total Hazard Index**

Cancer Risk at Point of Maximum Effect	Chronic Risk at Point of Maximum Effect
0.01 excess risk in 1 million	0.00003 Total Hazard Index

Source: EPA, 1992.

The estimated cancer risk at all locations is well below the significance criteria of 10 in 1 million. Thus, it is concluded that the Project's emissions from the diesel emergency fire water pump and emergency generator engines will not pose a significant cancer risk to any population that would potentially be exposed to these emissions.

5.16.2.8 *Estimated Chronic and Acute THI*

The maximum chronic THI resulting from the Project's emissions was estimated to be 0.00003. The location of the maximum predicted chronic THI is the same as the location of the maximum cancer risk since these risk calculations were both based on the maximum annual PM₁₀ concentration. The chronic THI values at specific sensitive receptors were not calculated, since the THI at the point of maximum effect was predicted to be so far below the significance threshold.

Table 5.16-2, Estimated Cancer Risk and Chronic Total Hazard Index, presents the detailed non-cancer results of the HRA for Project operations. The estimated chronic THI is well below the significance criteria of 1. Thus, it is concluded that the Project's emissions from the diesel emergency fire water pump and emergency generator engines will not pose a significant non-cancer health risk to any population that would potentially be exposed to these emissions.

5.16.2.9 *Uncertainty in the Public Health Effect Assessment*

Sources of uncertainty in HRAs include emissions estimates, dispersion modeling, exposure characteristics, and extrapolation of toxicity data in animals for application to humans. For this reason, assumptions used in HRAs are designed to provide sufficient health protection to avoid underestimation of health risk to the public. Some sources of uncertainty that are applicable to this HRA are discussed below.

The annual PM₁₀ emission rates for the emergency diesel engines were derived using vendor data assuming the anticipated testing schedule at a maximum load for the maximum number of annual operating hours requested in this application. Under actual operating conditions, these engines may operate less and the actual load may be less than 100 percent of capacity. Consequently, the emissions used for this HRA may be higher than those that will actually occur.

The dispersion models used in HRAs contain assumptions that tend to lead toward over-prediction of ground-level contaminant concentrations. The modeling performed in the HRA assumed conservation of mass (i.e., the entire mass of particulate emissions from these engines was assumed to remain airborne during transport downwind, and none of the material was assumed to be converted or removed through chemical reaction or lost at the ground surface through reaction, gravitational settling, or turbulent impaction). In reality, these mechanisms work to reduce the level of pollutants remaining in the atmosphere during plume travel; this is especially true for particulate matter. The modeling performed in the HRA assumed that the emissions from both engines would be emitted from a common stack, although in reality, they would use separate stacks.

The exposure characteristics assessed in the HRA included the assumption that all receptors (including residents) were continuously exposed to emissions from the Project at the same location for 24 hours per day, 365 days per year, for 70 years. It is extremely unlikely that any resident would actually be subject to such continued, long-term exposure. This conservative exposure assumption tends to cause risks to be over estimated by the HRA methods used in this analysis.

The toxicity data used in the HRA contain uncertainties resulting from the extrapolation of health effects data from animals to humans. Typically, safety factors are applied when doing the extrapolation. Furthermore, the human population is much more diverse, both genetically and culturally than bred experimental animals. The intraspecies variability among humans is expected to be much greater than in laboratory animals. With all of the uncertainty in the assumptions used to extrapolate toxicity data, significant measures are taken to ensure that there is sufficient health protection built into the health effects criteria used in assessments such as this one.

The conservatism introduced at each step in the HRA to compensate for all of these sources of uncertainty is compounded in the predicted health risks; therefore, the actual risks resulting from exposure to emissions from the Project are expected to be well below the values presented in this analysis.

5.16.2.10 Criteria Pollutants

Effects due to emissions of the criteria pollutants (NO₂, CO, SO₂, and PM₁₀) from the Project's diesel emergency fire water pump and emergency generator engines were evaluated with modeling, as presented in Section 5.2, Air Quality. The National Ambient Air Quality Standards and California Ambient Air Quality Standards specify allowable levels of specific air pollutants that should not be exceeded in order to protect the public health. The results presented in Section 5.2, Air Quality, show that the Project will not cause or significantly contribute to exceedances of any National or California Ambient Air Quality Standards. Thus, no significant adverse health effects are anticipated to result from the Project's criteria pollutant emissions.

5.16.3 Cumulative Effects

CEC requirements specify that an analysis must be conducted to determine the cumulative effects of the Project, and other projects within a 6-mile radius, that have recently received construction permits but are not yet operational, or that are currently in the permitting process or expected to be in the near future. There are no such other new potential sources of TAC within 6 miles of the Project; thus no additional cumulative analysis will be conducted.

5.16.4 Mitigation Measures

The criteria pollutant and TAC emissions from the Project’s sources, the diesel emergency fire water pump, and emergency generator engines will be mitigated by using clean EPA Tier 3 diesel engines. A discussion of the emission limits pertaining to the Project’s emergency diesel engines is included in Section 5.2, Air Quality.

The HRA presented in the foregoing subsections shows that the health effects of the Project will be well below the significance thresholds identified in Section 5.16.2.6, Health Effects Significance Criteria; therefore, no further mitigation of emissions from the Project is required to protect public health.

5.16.5 Compliance with LORS

The relevant federal, state, and local LORS that have been established to protect public health are identified in Table 5.16-3, Summary of LORS – Public Health and Safety. This table also summarizes the agencies that are principally responsible for public health, as well as the general category of public health concerns regulated by each of these agencies. The conformity of the Project to each of the LORS applicable to public health is also presented in this table, as well as references to the locations in this document where each relevant issue is addressed. Points of contact with the primary agencies responsible for public health are identified in Section 5.16.5.1, Agencies and Agency Contacts.

**Table 5.16-3
Summary of LORS – Public Health and Safety**

LORS	Administering Agency	Requirement	Project Compliance
Federal Jurisdiction			
Clean Air Act	EPA CARB ICAPCD	Protect public from unhealthful exposure to air pollutants.	Based on the results of the risk assessment, air toxics emissions from the Project will not exceed acceptable levels (Section 5.16, Public Health and Safety). Emissions of criteria pollutants will be minimized by using EPA Tier 3 diesel engines (Section 5.2, Air Quality).

**Table 5.16-3
Summary of LORS – Public Health and Safety**

LORS	Administering Agency	Requirement	Project Compliance
State Jurisdiction			
California Public Resource Code § 25523(a); 20 CCR § 1752.5, 2300-2309, and Division 2 Chapter 5, Article 1, Appendix B, Part(1)	CEC	Assure protection of environmental quality, requires quantitative HRA.	The HRA in Section 5.16, Public Health and Safety, of this application satisfies this requirement.
California Clean Air Act, TAC Program, CHSC § 39650, <i>et seq.</i>	ICAPCD with CARB oversight	Requires quantification of TAC emissions and preparation of an HRA.	The Project will not cause unsafe exposure to TACs based on results of the HRA.
CHSC, Part 6, § 44300 <i>et seq.</i> (Air Toxics Hot Spots)	ICAPCD with CARB/OEHHA oversight	Regulates public exposure to air toxics. Requires inventory of TACs and HRA.	The HRA presented in this section of this Application for Certification satisfies this requirement, although participation in the California Hot Spots program is not required due to the negligible TAC emissions from the emergency engines.
CHSC § 41700	ICAPCD with CARB oversight	Prohibits emissions in quantities that adversely affect public health, other businesses or property.	Section 5.2, Air Quality, and the HRA presented in this Application for Certification satisfy this requirement.
Local Jurisdiction			
ICAPCD Rule 216	ICAPCD	Requires use of T-BACT for major sources.	The Project has no major sources thus T-BACT will not be required.
ICAPCD Rule 309	ICAPCD	Requires annual fees for the Air Toxic Hot Spots (AB2588)	The negligible TAC emissions from the emergency engines are exempt from this requirement.
ICAPCD Rule 407	ICAPCD	No source shall cause injury, detriment, nuisance or annoyance to the public, which could endanger their comfort, repose, health and safety, or property.	Section 5.2, Air Quality, and the HRA presented in this Application for Certification satisfies this requirement.

**Table 5.16-3
Summary of LORS – Public Health and Safety**

LORS	Administering Agency	Requirement	Project Compliance
ICAPCD Rule 1002	ICAPCD	California Airborne Toxic Control Measures.	Use of EPA Tier 3 diesel engines satisfies this requirement as described in Section 5.2, Air Quality.

Source: SES Solar Two, LLC, 2008.

Notes:

- CARB = California Air Resources Board
- CCR = California Code of Regulations
- CEC = California Energy Commission
- CHSC = California Health & Safety Code
- HRA = health risk assessment
- ICAPCD = Imperial County Air Pollution Control District
- LORS = laws, ordinances, regulations, and standards
- OEHHA = Office of Environmental Health Hazard Assessment
- TAC = toxic air contaminant
- EPA = Environmental Protection Agency
- T-BACT = Toxic-Best Available Control Technology

5.16.5.1 Agencies and Agency Contacts

Agency contacts regarding the public health assessment of the Project are listed in Table 5.16-4, Agency Contact List for LORS.

**Table 5.16-4
Agency Contact List for LORS**

	Agency	Contact	Address	Telephone
1	California Energy Commission	Keith Golden	Air Quality Specialist 1516 Ninth Street Sacramento, CA 95814	916-654-4287
2	California Air Resources Board	Mike Tollstrup	1001 I Street Sacramento, CA 95814	916-322-6026
3	Imperial County Air Pollution Control District	Reyes Romero	Deputy Air Pollution Control Officer 150 South 9 th Street El Centro, CA 92243	760-482-4606

Source: SES Solar Two, LLC, 2008.

Note:

LORS = laws, ordinances, regulations, and standards

5.16.5.2 Permits Required and Permitting Schedule

The Permit to Operate will be issued by the ICAPCD and the CEC’s final decision on this Application for Certification will serve as the principal approval required to ensure that the Project’s effects to public health will be within acceptable levels. Award of the Authority to Construct permit is expected to occur within 3 to 6 months after submittal of complete applications to ICAPCD. Table 5.16-5, Applicable Permits, shows the required permits for this Project.

**Table 5.16-5
Applicable Permits**

Responsible Agency	Permit/Approval	Schedule
Imperial County Air Pollution Control District	Authority to Construct/Permit to Operate	Application to be filed concurrent with Application for Certification filing.

Source: SES Solar Two, LLC, 2008.

5.16.6 References

Cal/EPA (California Environmental Protection Agency) and OEHHA (Office of Environmental Health Hazard Assessment). 2003a. Air Toxics Hot Spots Program Risk Assessment Guidelines – The Air Toxics Hot Spots Program Guidance Manual for EPA Preparation of Health Risk Assessments.

_____. 2003b. Air Toxics Hot Spots Risk Assessment Guidelines, Part III: Technical Support Document for the Determination of Non-cancer Chronic Reference Exposure Levels.

_____. 2005. Air Toxics Hot Spots Risk Assessment Guidelines, Part II: Technical Support Document for Describing Available Cancer Potency Factors.

EPA (Environmental Protection Agency). 1992. Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised, EPA-454/R-92-019. October.

ICAPCD (Imperial County Air Pollution Control District). 2007. CEQA – Air Quality Handbook – Guidelines for the Implementation of the California Environmental Quality Act of 1970, as amended. November.

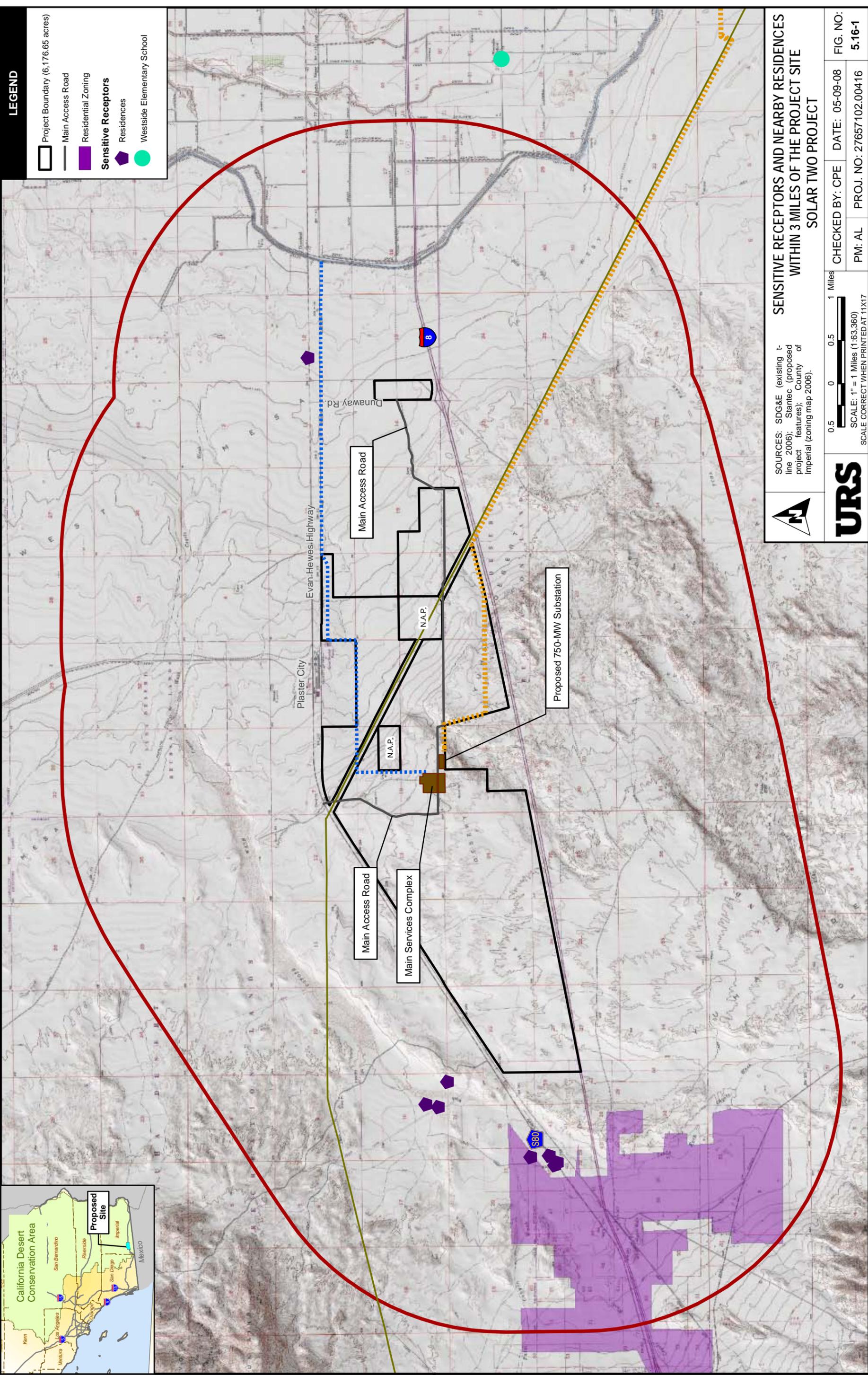
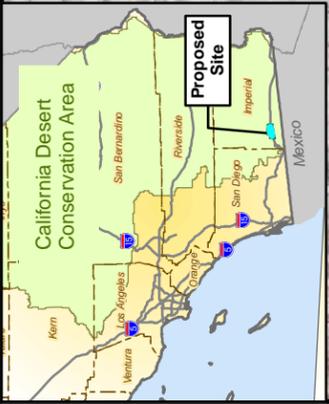
OEHHA (Office of Environmental Health Hazard Assessment). 2003. Air Toxics Hot Spots Program Risk Assessment Guidelines. August.

SES Solar Two, LLC. 2008. *Project Description and Plan of Development*.

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET		Revision No.	0	Date
Technical Area:		Public Health		Project:	Solar Two Project	Technical Staff:		
Project Manager:				Docket:		Technical Senior:		
SITING REGULATIONS		INFORMATION		AFC SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS		
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.			Section 5.16.1 Section 5.16.2 Section 5.16.3 Section 5.16.4				
Appendix B (g) (9) (A)	An assessment of the potential risk to human health from the project's hazardous air emissions using the Air Resources Board Hotspots Analysis and Reporting Program (HARP) (HSC §§44360-44366) or its successor and Approved Risk Assessment Health Values. These values should include the cancer potency values and noncancer reference exposure levels approved by the Office of Environmental Health Hazard Assessment (OEHA Guidelines, Cal-EPA 2005).			Section 5.16.2				
Appendix B (g) (9) (B)	A listing of the input data and output results, in both electronic and print formats, used to prepare the HARP health risk assessment.			Section 5.16.2 Modeling DVD				
Appendix B (g) (9) (C)	Identification of available health studies through the local public health department concerning the potentially affected population(s) within a six-mile radius of the proposed power plant site related to respiratory illnesses, cancers or related diseases.			Section 5.16.1				
Appendix B (g) (9) (D)	A map showing sensitive receptors within the area exposed to the substances identified in subsection (g)(9)(A).			Figure 5.16-1				

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET		Revision No.	0	Date	
Technical Area:		Public Health		Project: Solar Two Project		Technical Staff:			
Project Manager:		Docket:				Technical Senior:			
SITING REGULATIONS		INFORMATION		AFC SECTION NUMBER		ADEQUATE YES OR NO		INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS	
Appendix B (g) (9) (E)		For purposes of this section, the following definitions apply:		See Below					
Appendix B (g) (9) (E) (i)		A sensitive receptor refers to infants and children, the elderly, and the chronically ill, and any other member of the general population who is more susceptible to the effects of the exposure than the population at large;		Section 5.16.1 Figure 5.16-1					
Appendix B (g) (9) (E) (ii)		An acute exposure is one which occurs over a time period of less than or equal to one (1) hour; and		N/A					
Appendix B (g) (9) (E) (iii)		A chronic exposure is one which is greater than twelve (12) percent of a lifetime of seventy (70) years.		Section 5.16.2					
Appendix B (i) (1) (A)		Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance with each law or standard during both construction and operation of the facility is discussed; and		Section 5.16.5					
Appendix B (i) (1) (B)		Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.		Section 5.16.5					

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET		Revision No.	0	Date
Technical Area:	Public Health			Project:	Solar Two Project	Technical Staff:		
Project Manager:				Docket:		Technical Senior:		
SITING REGULATIONS	INFORMATION			AFC SECTION NUMBER		ADEQUATE YES OR NO		INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.			Section 5.16.5				
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.			Section 5.16.5.2				



LEGEND

- Project Boundary (6,176.65 acres)
- Main Access Road
- Residential Zoning
- Sensitive Receptors**
- Residences
- Westside Elementary School

SENSITIVE RECEPTORS AND NEARBY RESIDENCES WITHIN 3 MILES OF THE PROJECT SITE

SOLAR TWO PROJECT

SOURCES: SDG&E (existing line 2006); Stantec (proposed project features); County of Imperial (zoning map 2006).

0.5 0 0.5 1 Miles

SCALE: 1" = 1 Miles (1:63,360)
SCALE CORRECT WHEN PRINTED AT 11X17

URS

CHECKED BY: CPE	DATE: 05-09-08	FIG. NO:
PM: AL	PROJ. NO: 27657102.00416	5.16-1

