8.9 Public Health

This section presents the methodology and results of a human health risk assessment performed to assess potential impacts and public exposure associated with airborne emissions from the construction and routine operation of the Sun Valley Energy Project (SVEP). Section 8.9.1 describes the affected environment. Section 8.9.2 discusses the environmental consequences from construction and operation of the power plant and associated facilities. Section 8.9.3 discusses cumulative impacts. Section 8.9.4 discusses mitigation measures. Section 8.9.5 presents applicable laws, ordinances, regulations, and standards (LORS). Section 8.9.6 presents agency contacts, and Section 8.9.7 presents permit requirements and schedules. Section 8.9.8 contains references cited or consulted in preparing this section.

Air will be the dominant pathway for public exposure to chemical substances released by the project. Emissions to the air will consist primarily of combustion by-products produced by the natural gas-fired turbines, combustion products from the fire pump and emergency generator engines, and particulate emissions from the cooling towers. Potential health risks from combustion and cooling tower emissions will occur almost entirely by direct inhalation. To be conservative, additional pathways were included in the health risk modeling; however, direct inhalation is considered the most likely exposure pathway. The risk assessment was conducted in accordance with guidance established by the California Office of Environmental Health Hazard Assessment (OEHHA) and the California Air Resources Board.

Combustion byproducts with established CAAQS or NAAQS, including oxides of nitrogen (NO_x), carbon monoxide and fine particulate matter are addressed in the Ambient Air Quality section (see Section 8.1). However, some discussion of the potential health risks associated with these substances is presented in this section. Human health risks potentially associated with accidental releases of stored acutely hazardous materials at the proposed facility (aqueous ammonia) are discussed in Section 8.5.

8.9.1 Affected Environment

The SVEP will be located southeast of the unincorporated community of Romoland and northeast of the city of Sun City, California, in western Riverside County. Surrounding land uses are described in Section 8.6, Land Use. The nearest residence is located approximately 0.31 mile west from the site.

Terrain within a 10-mile radius of equal or greater elevation than the stack exhaust exit point (i.e., stack height plus grade elevation) is shown in Figure 8.9-1.

Sensitive receptors are defined as groups of individuals that may be more susceptible to health risks due to chemical exposure. Schools (public and private), day care facilities, convalescent homes, and hospitals are of particular concern. The nearest sensitive receptors within 2 miles of the SVEP site are listed in Table 8.9-1. Appendix 8.9 contains a list of all sensitive receptors within a radius of 6 miles from the site, and figures showing all sensitive receptors within 6 miles of the project site, and the spatial distribution of census tracts within the six-mile radius. Appendix 8.1D delineates the population data by census tract.

TABLE 8.9-1
Sensitive Receptors within Two Miles of the SVEP

Receptor Name	Receptor Type	Distance (miles) and Direction from Site
Menifee Valley Hospital	Hospital	0.88 miles – South
Romoland School	School	1.08 miles – Northwest
Homeland School	School	1.68 miles – Northeast
Boulder Ridge Elementary	School	0.50 miles – South
Nearest Residence	Residence	0.31 miles – West

Air quality and health risk data presented by CARB in the 2005 Almanac of Emissions and Air Quality for the South Coast Air Basin shows that over the period 1990 through 2003, the average concentrations for the top ten toxic air contaminants (TACs) have been substantially reduced, and the associated health risks for the air basin are showing a steady downward trend as well. CARB estimated emissions inventory values for the top ten TACs for 2004 and ambient concentration and associated risk values for 1990-2003 are presented in Table 8.9-2 for the air basin.

TABLE 8.9-2
Top Ten Air Basin TACs

TAC	Year 2004 Emissions (tons/yr)	1990-2003 Data Averages	
		Concentration	Risk per Million
Acetaldehyde	7273	1.89 ppb	9.2
Benzene	13183	1.71 ppb	158.6
1,3 Butadiene	3030	0.38 ppb	142.5
Carbon tetrachloride	2.3	0.104 ppb	27.4
Chromium 6	1.73	0.24 ng/m3	35.3
Para-Dichlorobenzene	1879	0.15 ppb	10.0
Formaldehyde	20251	3.63 ppb	26.7
Methylene Chloride	7637	1.03 ppb	3.43
Perchloroethylene	6244	0.33 ppb	13.0
Diesel PM	24497	2.9 ug/m^3	870.0

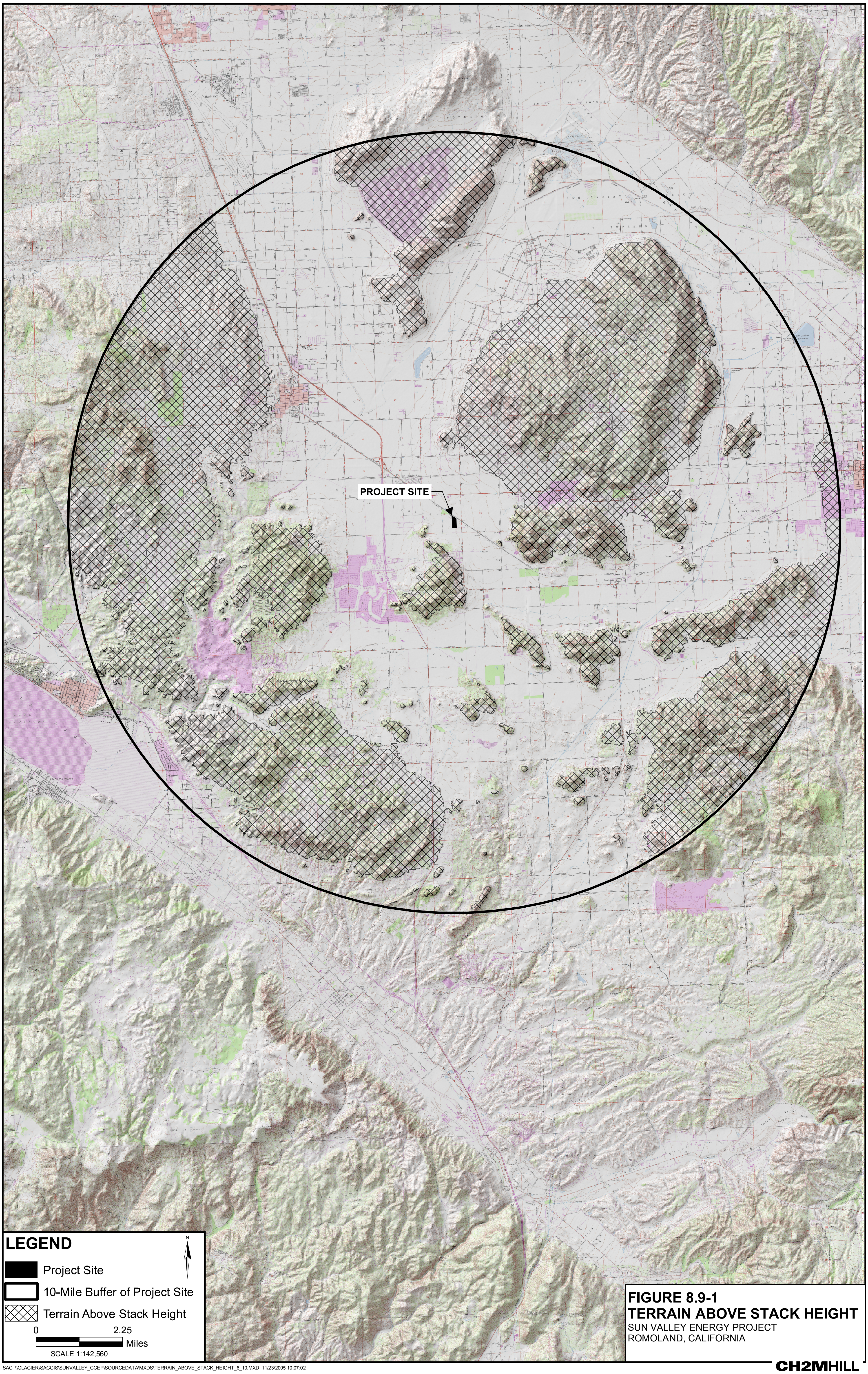

FIGURE 8.9-1
TERRAIN ABOVE STACK HEIGHT
SUN VALLEY ENERGY PROJECT
ROMOLAND, CALIFORNIA

CH2MHILL

SAC \\GLACIER\SACGIS\SUNVALLEY_CCEP\SOURCEDATA\MXDS\TERRAIN_ABOVE_STACK_HEIGHT_6_10.MXD 11/23/2005 10:07:02

8.9.2 Environmental Consequences

8.9.2.1 Significance Criteria

8.9.2.1.1 Cancer Risk

Cancer risk is the probability or chance of contracting cancer over a human life span (assumed to be 70 years). Carcinogens are not assumed to have a threshold below which there would be no human health impact. In other words, any exposure to a carcinogen is assumed to have some probability of causing cancer; the lower the exposure, the lower the cancer risk (i.e., a linear, no-threshold model). Under various state and local regulations, an incremental cancer risk greater than 10-in-one million due to a project is considered to be a significant impact on public health. For example, the 10-in-one-million risk level is used by the Air Toxics Hot Spots (AB 2588) program and California's Proposition 65 as the public notification level for air toxic emissions from existing sources.

8.9.2.1.2 Non-Cancer Risk

Non-cancer health effects can be either chronic or acute. In determining potential non-cancer health risks (chronic and acute) from air toxics, it is assumed there is a dose of the chemical of concern below which there would be no impact on human health. The air concentration corresponding to this dose is called the Reference Exposure Level (REL). Non-cancer health risks are measured in terms of a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are typically summed with the resulting totals expressed as hazard indices for each organ system. A hazard index of less than 1.0 is considered to be an insignificant health risk. For this health risk assessment, all hazard quotients were summed regardless of target organ.

This method leads to a conservative (upper bound) assessment. RELs used in the hazard index calculations were those published in the CARB/OEHHA listings dated April 2005 (see Appendix 8.1D).

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure, caused by chemicals accumulating in the body. Because chemical accumulation to toxic levels typically occurs slowly, symptoms of chronic effects usually do not appear until long after exposure commences. The lowest no-effect chronic exposure level for a non-carcinogenic air toxic is the chronic REL. Below this threshold, the body is capable of eliminating or detoxifying the chemical rapidly enough to prevent its accumulation. The chronic hazard index was calculated using the hazard quotients calculated with annual concentrations.

Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. For most chemicals, the air concentration required to produce acute effects is higher than the level required to produce chronic effects because the duration of exposure is shorter. Because acute toxicity is predominantly manifested in the upper respiratory system at threshold exposures, all hazard quotients are typically summed to calculate the acute hazard index. One-hour average concentrations are divided by acute RELs to obtain a hazard index for health effects caused by relatively high, short-term exposure to air toxics.

8.9.2.2 Construction Phase Impacts

The construction phase of the SVEP is expected to take approximately 12 months. No significant public health effects are expected during the construction phase. Strict construction practices that incorporate safety and compliance with applicable LORS will be followed (see Section 8.9.5). In addition, mitigation measures to reduce air emissions from construction impacts will be implemented as described in Section 8.1.

Temporary emissions from construction-related activities are discussed in Section 8.1. Ambient air modeling for PM_{10}, CO, SO_2 and NO_X was performed as described in Section 8.1. Construction related emissions are temporary and localized, resulting in no long-term impacts to the public.

Small quantities of hazardous waste may be generated during the construction phase of the project. Hazardous waste management plans will be in place so the potential for public exposure is minimal. Refer to Section 8.14 (Waste Management) for more information. No acutely hazardous materials will be used or stored on-site during construction (see Section 8.5, Hazardous Materials Handling). To ensure worker safety during construction, safe work practices will be followed (see Section 8.16, Worker Safety).

TABLE 8.9-3
Chemical Substances Potentially Emitted to the Air from SVEP

Criteria Pollutants	**Noncriteria Pollutants (Continued)**
Carbon monoxide	Polycyclic aromatic hydrocarbons (PAHs)
Oxides of nitrogen	Benzo(a)anthracene
Particulate matter	Benzo(a)pyrene
Oxides of sulfur	Benzo(b)fluoranthene
Volatile organic compounds	Benzo(k)fluoranthene
	Chrysene
Noncriteria Pollutants (Toxic Pollutants)	Dibenz(a,h)anthracene
Ammonia	Indeno(1,2,3-cd)pyrene
Acetaldehyde	Naphthalene
Acrolein	Diesel Particulate
1,3-Butadiene	Arsenic
Benzene	Cadmium
Ethylbenzene	Chromium
Formaldehyde	Copper
Hexane	Lead
Propylene	Mercury
Propylene oxide	Nickel
Toluene	Silver
Xylene	Zinc

8.9.2.3 Operational Phase Impacts

Environmental consequences potentially associated with the project are potential human exposure to chemical substances emitted into the air. The human health risks potentially associated with these chemical substances were evaluated in a health risk assessment. The chemical substances potentially emitted to the air from the proposed facility include ammonia, volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) from the combustion turbines, and metals from the cooling tower. These chemical substances are listed in Table 8.9-3.

Emissions of criteria pollutants will adhere to NAAQS or CAAQS as discussed in the Ambient Air Quality section (see Section 8.1). The proposed facility also will include emission control technologies necessary to meet the required emission standards specified for criteria pollutants under South Coast Air Quality Management District (SCAQMD) rules. Offsets will be required for emissions of criteria pollutants that exceed specified thresholds, to assure that the project will not result in an increase in total emissions in the vicinity. Finally, air dispersion modeling results (presented in the Ambient Air Quality section, Section 8.1) show that emissions will not result in concentrations of criteria pollutants in air that exceed ambient air quality standards (either NAAQS or CAAQS). These standards are intended to protect the general public with a wide margin of safety. Therefore, the project is not anticipated to have a significant impact on public health from emissions of criteria pollutants.

Potential impacts associated with emissions of toxic pollutants to the air from the proposed facility were addressed in a health risk assessment, presented in Appendix 8.1D. The risk assessment was prepared using guidelines developed by OEHHA and CARB, as implemented in the latest version of the HARP model (Updated 4-19-05, #230221).

8.9.2.4 Public Health Impact Study Methods

Emissions of toxic pollutants potentially associated with the facility were estimated using emission factors approved by SCAQMD, CARB, and the U.S. Environmental Protection Agency (USEPA). Concentrations of these pollutants in air potentially associated with the emissions were estimated using the HARP dispersion modeling module. Modeling allows the estimation of both short-term and long-term average concentrations in air for use in a risk assessment, accounting for site-specific terrain and meteorological conditions. Health risks potentially associated with the estimated concentrations of pollutants in air were characterized in terms of excess lifetime cancer risks (for carcinogenic substances), or comparison with reference exposure levels for non-cancer health effects (for non-carcinogenic substances).

Health risks were evaluated for a hypothetical maximum exposed individual (MEI) located at the MIR (maximum impact receptor). The hypothetical MEI is an individual assumed to be located at the MIR point (assumed residential receptor) where the highest concentrations of air pollutants associated with facility emissions are predicted to occur, based on air dispersion modeling. Human health risks associated with emissions from the proposed facility are unlikely to be higher at any other location than at the location of the MIR. If there is no significant impact associated with concentrations in air at the MIR location, it is unlikely that there would be significant impacts in any location in the vicinity of the facility. The 1st highest concentration location represents the MIR.

Health risks potentially associated with concentrations of carcinogenic pollutants in air were calculated as estimated excess lifetime cancer risks. The excess lifetime cancer risk for a pollutant is estimated as the product of the concentration in air and a unit risk value. The unit risk value is defined as the estimated probability of a person contracting cancer as a result of constant exposure to an ambient concentration of 1 μg/m³ over a 70-year lifetime. In other words, it represents the increased cancer risk associated with continuous exposure to a concentration in air over a 70-year lifetime. Evaluation of potential non-cancer health effects from exposure to short-term and long-term concentrations in air was performed by comparing modeled concentrations in air with the RELs. An REL is a concentration in air at or below which no adverse health effects are anticipated. RELs are based on the most sensitive adverse effects reported in the medical and toxicological literature. Potential non-cancer effects were evaluated by calculating a ratio of the modeled concentration in air and the REL. This ratio is referred to as a hazard quotient. The unit risk values and RELs used to characterize health risks associated with modeled concentrations in air were obtained from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (CARB, 4/05), and are presented in Table 8.9-4.

TABLE 8.9-4
Toxicity Values Used to Characterize Health Risks

Compound	Unit Risk Factor $(\mu g/m^3)^{-1}$	Chronic Reference Exposure Level $(\mu g/m^3)$	Acute Reference Exposure Level $(\mu g/m^3)$
Acetaldehyde	2.7E-06	9.00E+00	--
Acrolein	--	6.00E-02	1.90E-01
Ammonia	--	2.00E+02	3.2E+03
Arsenic	3.3E-03	3.00E-01	1.9E-01
Benzene	2.9E-05	6.00E+01	1.3E+03
1,3-Butadiene	1.7E-04	--	--
Cadmium	4.2E-03	2.00E-02	--
Chromium	1.5E-01	2.00E-01	--
Copper	--	2.40E+00	1.0E+02
Diesel PM	3.00E-04	5.00E+00	--
Ethylbenzene	--	2.00E+03	--
Formaldehyde	6.0E-06	3.00E+00	9.4E+01
Hexane	--	--	--
Lead	1.2E-05	--	--
Mercury(inorganic)	--	9.00E-02	1.8E+00
Naphthalene	3.4E-05	9.00E+00	--
Nickel	2.6E-04	5.00E-02	6.0E+00
PAHs (as BaP for HRA)	1.3E-03	--	--
Propylene	--	3.00E+03	--
Propylene oxide	3.7E-06	3.00E+01	3.1E+03
Silver	--	--	--
Toluene	--	3.00E+02	3.7E+04
Xylene	--	7.00E+02	2.2E+04
Zinc	--	3.50E+01	--

Source: CARB/OEHHA, 4/2005.

8.9.2.5 Characterization of Risks from Toxic Air Pollutants

The excess lifetime cancer risk associated with concentrations in air estimated for the SVEP MIR location is estimated to be 1.37 x 10^{-6}. Excess lifetime cancer risks less than 1 x 10^{-6} are unlikely to represent significant public health impacts that require additional controls of facility emissions. Risks higher than 1 x 10^{-6} may or may not be of concern, depending upon several factors. These include the conservatism of assumptions used in risk estimation, size of the potentially exposed population and toxicity of the risk-driving chemicals. Risks associated with pollutants potentially emitted from the facility are presented in Table 8.9-5. Further description of the methodology used to calculate health risks associated with emissions to the air is presented in Appendix 8.1D. As described previously, human health risks associated with emissions from the proposed facility are unlikely to be higher at any other location than at the location of the MIR. If there is no significant impact associated with concentrations in air at the MIR location, it is unlikely that there would be significant impacts in any other location in the vicinity of the facility.

TABLE 8.9-5
Summary of Health Risks for the SVEP Maximum Impact Receptor

Emission Source	Cancer Risk (per million)	Cancer Burden	Acute HI	Chronic HI
Total Pathway Risk (Combustion Sources* and Cooling Tower)	1.37	0.0081	0.0152	0.079

* Combustion sources are the turbines.

Cancer risks potentially associated with facility emissions also were assessed in terms of cancer burden. Cancer burden is a hypothetical upper-bound estimate of the additional number of cancer cases that could be associated with emissions from the facility. Cancer burden is calculated as the worst case product of excess lifetime cancer risk and the number of individuals at that risk level. A worst-case estimate of cancer burden was calculated based upon the following assumptions.

The MIR concentration was applied to all affected portions of identified census tracts within the radius area defined by the distance to the 1st high (MIR) concentration. A detailed listing and map of affected census tracts and year 2000 population estimates are provided in Appendix 8.1D, along with the 1-, 2-, and 3-mile radius plots in relationship to the census tract locations and site. This procedure results in a conservatively high estimate of cancer burden. The calculated cancer burden for SVEP is 0.0081.

As described previously, human health risks associated with emissions from the proposed facility are unlikely to be higher at any other location than at the location of the MIR. Therefore, the risks for all of these individuals would be lower (and in most cases, substantially lower) than 1.37 x 10-6. The estimated cancer burden was 0.0081, indicating that emissions from the facility would not be associated with any increase in cancer cases in the previously defined population. In addition, the cancer burden is less than the Rule 1401 threshold value of 0.5. As stated previously, the methods used in this calculation considerably overstate the potential cancer burden, further suggesting that facility emissions are unlikely to represent a significant public health impact in terms of cancer risk.

Table 8.9-6 shows the HRA values for the other equipment and operational scenarios.

TABLE 8.9-6
HRA Summary

Emission Source	Cancer Risk	Chronic HI	Acute HI
Turbines	1.37 E-06	0.0152	0.079
Cooling Tower	5.98 E-13	2.47 E-10	4.7 E-07
Fire Pump	8.27 E-08	0.0000475	0.00162
Emergency Generator	5.27 E-07	0.000303	0.00312
Construction*	3.15 E-07	0.0138	0.0

* Construction cancer risk values adjusted by 1/70 to account for short exposure period.

The acute non-cancer hazard quotient associated with concentrations in air is shown in Table 8.9-5. The acute non-cancer hazard quotients for all target organs fall below 1.0. As described previously, a hazard quotient less than 1.0 is unlikely to represent significant impact to public health. Further description of the methodology used to calculate health risks associated with emissions to the air is presented in Appendix 8.1D. As described previously, human health risks associated with emissions from the proposed facility are unlikely to be higher at any other location than at the location of the MIR. If there is no significant impact associated with concentrations in air at the MIR location, it is unlikely that there would be significant impacts in any other location in the vicinity of the facility.

Detailed risk and hazard values are provided in the HARP output presented in Appendix 8.1D.

The estimates of excess lifetime cancer risks and non-cancer risks associated with chronic or acute exposures fall below thresholds used for regulating emissions of toxic pollutants to the air. Historically, exposure to any level of a carcinogen has been considered to have a finite risk of inducing cancer. In other words, there is no threshold for carcinogenicity. Since risks at low levels of exposure cannot be quantified directly by either animal or epidemiological studies, mathematical models have estimated such risks by extrapolation from high to low doses. This modeling procedure is designed to provide a highly conservative estimate of cancer risks based on the most sensitive species of laboratory animal for extrapolation to humans (i.e., the assumption being that humans are as sensitive as the most sensitive animal species). Therefore, the true risk is not likely to be higher than risks estimated using unit risk factors and is most likely lower, and could even be zero (USEPA, 1986; USEPA, 1996).

An excess lifetime cancer risk of 1×10^{-6} is typically used as a screening threshold of significance for potential exposure to carcinogenic substances in air. The excess cancer risk level of 1×10^{-6}, which has historically been judged to be an acceptable risk, originates from efforts by the Food and Drug Administration (FDA) to use quantitative risk assessment for regulating carcinogens in food additives in light of the zero tolerance provision of the Delany Amendment (Hutt, 1985). The associated dose, known as a “virtually safe dose” (VSD) has become a standard used by many policy makers and the lay public for evaluating cancer risks. However, a study of regulatory actions pertaining to carcinogens found that an acceptable risk level can often be determined on a case-by-case basis. This analysis of 132 regulatory decisions, found that regulatory action was not taken to control estimated risks below 1 x 10^{-6} (one-in-one million), which are called *de minimis* risks. *De minimis* risks are historically considered risks of no regulatory concern. Chemical exposures with risks above 4 x 10^{-3} (four-in-ten thousand), called *de manifestis* risks, were consistently regulated. *De manifestis* risks are typically risks of regulatory concern. The risks falling between these two extremes were regulated in some cases, but not in others (Travis et al, 1987).

The estimated lifetime cancer risks to the maximally exposed individual located at the SVEP MIR are slightly greater than 1 x 10^{-6}, and the aggregated cancer burden associated this risk level is less than 1.0 excess cancer case. In addition, the cancer burden is less than the Rule 1401 threshold value of 0.5. These risk estimates were calculated using assumptions that are highly health conservative. Evaluation of the risks associated with the facility emissions should consider that the conservatism in the assumptions and methods used in risk estimation considerably overstate the risks from facility emissions. Based on the results of this risk assessment, there are no significant public health impacts anticipated from emissions of toxic pollutant to the air from the proposed facility.

8.9.2.6 Hazardous Materials

Hazardous materials will be used and stored at the facility. The hazardous materials stored in significant quantities on-site and descriptions of their uses are presented in Section 8.5. Use of chemicals at the proposed facility will be in accordance with standard practices for storage and management of hazardous materials. Normal use of hazardous materials, therefore, will not pose significant impacts to public health. While mitigation measures will be in place to prevent releases, accidental releases that migrate offsite could result in potential impacts to the public.

The California Accidental Release Program regulations (CalARP) and Code of Federal Regulations (CFR) Title 40 Part 68 under the Clean Air Act establish emergency response planning requirements for acutely hazardous materials. These regulations require preparation of a Risk Management Plan (RMP), which is a comprehensive program to identify hazards and predict the areas that may be affected by a release of a program listed hazardous material. RMP listed materials proposed to be used at the facility include aqueous ammonia as discussed in Section 8.5.

An offsite consequence analysis was performed to assess potential risks to offsite human populations if a spill or rupture of the aqueous ammonia storage tank were to occur. Results of this analysis are presented in Section 8.5.

8.9.2.7 Operation Odors

Small amounts of ammonia used to control oxides of nitrogen (NO_x) emissions may escape up the exhaust stack but would not produce objectionable odors. The expected exhaust gas ammonia concentration, known as ammonia “slip,” will be less than 5 parts per million (ppm). After mixing with the atmosphere, the concentration at ground level will be far below the detectable odor threshold of 5 ppm that the Compressed Gas Association has determined to be acceptable, as well as being below the ACGIH TLV and STEL values of 25 and 35 ppm respectively (adopted 2003). Therefore, potential ammonia emissions are not expected to create objectionable odors. Other combustion contaminants are not present at concentrations that could produce objectionable odors.

8.9.2.8 Electromagnetic Field Exposure

Because the electric transmission line does not travel through residential areas, and based on recent findings of the National Institute of Environmental Health Sciences (NIEHS 1999), electromagnetic field exposures are not expected to result in a significant impact on public health. The NIEH report to the U.S. Congress found that "the probability that EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm (NIEH 1999)."

8.9.2.9 Summary of Impacts

Results from an air toxics risk assessment based on emissions modeling indicate that there will be no significant incremental public health risks from construction or operation of the proposed project. Results from criteria pollutant modeling for routine operations indicate that potential ambient concentrations of NO_2, CO, SO_2, and PM_{10} will not significantly impact air quality (Section 8.1). Potential concentrations are below the federal and California standards established to protect public health, including the more sensitive members of the population.

8.9.3 Cumulative Impacts

The health risk assessment for the proposed project indicates that the maximum cancer risk will be approximately 1.37 in one million (versus a significance threshold of 10.0 in one million with T-BACT) at the point of maximum exposure to air toxics from power plant emissions. This risk level is considered to be insignificant. Non-cancer chronic and acute effects will also be less than significant.

8.9.4 Mitigation Measures

8.9.4.1 Criteria Pollutants

Emissions of criteria pollutants will be minimized by applying Best Available Control Technology (BACT) to the facility. BACT for the combustion turbine includes the combustion of natural gas.

The proposed project location is in an area that is designated by the state and federal air agencies as nonattainment for ozone and particulate matter (PM). Pursuant to SCAQMD Rule 1304, offsets must be obtained for any source with actual or potential emissions above the following thresholds: 4 tons per year for VOCs, NO_x, SO_x, PM_{10}, and 29 tons per year for CO. In addition, a RECLAIM source must hold sufficient Reclaim Trading Credits to fully mitigate the source's NO_x, and, if applicable, SO_x emissions on an annual basis. The combination of using BACT, and providing emission offsets as needed, will result in no net increase in criteria pollutants. Therefore, further mitigation of emissions is not required to protect public health.

8.9.4.2 Toxic Pollutants

Emissions of toxic pollutants to the air will be minimized through the use of natural gas as the only fuel at the proposed facility. Emissions from tanks storing liquid organic chemicals will be minimized through the use of one or a combination of the following:

- Use of small capacity fixed roof tanks
- Use of low vapor pressure organic substances
- Use of exempt compounds
- Use of vapor balance and/or vapor recovery systems on a case-by-case basis as deemed appropriate

8.9.4.3 Hazardous Materials

Mitigation measures for hazardous materials are presented below and discussed in more detail in Section 8.5. Potential public health impacts from the use of hazardous materials are only expected to occur as a result of an accidental release. The plant has many safety features designed to prevent and minimize impacts from the use and accidental release of hazardous materials. The SVEP plant site will include the following design features:

- Curbs, berms, and/or secondary containment structures will be provided where accidental release of chemicals may occur.
- A fire protection system will be included to detect, alarm, and suppress a fire, in accordance with the applicable LORS.
- Construction of the aqueous ammonia storage system will be in accordance with applicable LORS.

A Risk Management Plan (RMP) for the SVEP facility will be prepared prior to commencement of facility operations. The RMP will estimate the risk presented by handling aqueous ammonia at the facility. The RMP will include a hazard analysis, off-site consequence analysis, seismic assessment, emergency response plan, and training procedures. The RMP process will accurately identify and propose adequate mitigation measures to reduce the risk to the lowest possible level.

A safety program will be implemented and will include safety training programs for contractors and operations personnel, including instructions on: 1) the proper use of personal protective equipment, 2) safety operating procedures, 3) fire safety, and 4) emergency response actions. The safety program will also include programs on safely operating and maintaining systems that use hazardous materials. Emergency procedures for SVEP personnel include power plant evacuation, hazardous material spill cleanup, fire prevention, and emergency response.

Areas subject to potential leaks of hazardous materials will be paved and bermed. Incompatible materials will be stored in separate containment areas. Containment areas will be drained to either a collection sump or to holding or neutralization tanks. Also, piping and tanks exposed to potential traffic hazards will be additionally protected by traffic barriers.

8.9.5 Laws, Ordinances, Regulations, and Standards

An overview of the regulatory process for public health issues is presented in this section. The relevant LORS that affect public health and are applicable to this project are identified in Table 8.9-7. 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 selection locations within this report where each of these issues is addressed. Table 8.9-8 summarizes the primary agencies responsible for public health, as well as the general category of the public health concern regulated by each of these agencies.

TABLE 8.9-7
Laws, Ordinances, Regulations, and Standards

LORS	Public Health Concern	Primary Regulatory Agency	Project Conformance
Clean Air Act	Public exposure to air pollutants	USEPA Region IX CARB SCAQMD	Based on results of risk assessment as per CARB/OEHHA guidelines, toxic contaminants do not exceed acceptable levels. Emissions of criteria pollutants will be minimized by applying BACT to the facility. Increases in emissions of criteria pollutants will be fully offset.
Health and Safety Code 25249.5 et seq. (Safe Drinking Water and Toxic Enforcement Act of 1986—Proposition 65)	Public exposure to chemicals known to cause cancer or reproductive toxicity	OEHHA	Based on results of risk assessment as per CARB/OEHHA guidelines, toxic contaminants do not exceed thresholds that require exposure warnings.
40 CFR Part 68 (Risk Management Plan)	Public exposure to acutely hazardous materials	USEPA Region IX Riverside County Department of Health Services Riverside County Fire Department	A vulnerability analysis will be performed to assess potential risks from a spill or rupture of the aqueous ammonia storage tank. An RMP will be prepared prior to commencement of facility operations.
Health and Safety Code Sections 25531 to 25541	Public exposure to acutely hazardous materials	Riverside County Department of Health Services CARB SCAQMD	A vulnerability analysis will be performed to assess potential risks from a spill or rupture of the aqueous ammonia storage tank.
Health and Safety Code Sections 44360 to 44366 (Air Toxics "Hot Spots" Information and Assessment Act—AB 2588)	Public exposure to toxic air contaminants	CARB SCAQMD	Based on results of risk assessment as per CARB/OEHHA guidelines, toxic contaminants do not exceed acceptable levels.

8.9.6 Permits Required and Schedule

Agency-required permits related to public health include a Risk Management Plan and South Coast Air Quality Management District Permit to Construct/Permit to Operate. These requirements are discussed in detail in Sections 8.5 (Hazardous Materials Handling) and 8.1 (Air Quality), respectively.

8.9.7 Agencies Involved and Agency Contacts

Table 8.9-8 provides contact information for agencies involved with Public Health.

TABLE 8.9-8
Summary of Agency Contacts for Public Health

Public Health Concern	Primary Regulatory Agency	Regulatory Contact
Public exposure to air pollutants	USEPA Region IX	David Howekamp, (916) 744-1219
	CARB	Mike Tollstrup, (916) 322-6026
	South Coast AQMD	Pang Mueller, (909) 396-2433
Public exposure to chemicals known to cause cancer or reproductive toxicity	Office of Environmental Health and Hazard Assessment (OEHHA)	Cynthia Oshita or Susan Long, (916) 445-6900
Public exposure to acutely hazardous materials	USEPA Region IX	David Howekamp, (916) 744-1219
	Riverside County Department of Health Services	Environmental Health HazMat (951) 358-5055

8.9.8 References

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