5.9 Public Health

This section presents the methodology and results of a screening human health risk assessment performed to assess potential impacts and public exposure associated with airborne emissions from the construction and operation of the CPV Vaca Station.

The CPV Vaca Station will be a combined-cycle 660-megawatt (MW) power generation facility consisting of two GE Energy Frame 7FA or Siemens Westinghouse SGT6 5000F natural gas-fired turbine-generators and associated equipment. The facility will be located in the City of Vacaville, Solano County, California, on a 24-acre parcel. The project site is located on property owned by the City of Vacaville (City). To the northwest is the City's Easterly Wastewater Treatment Plant (EWTP). There are agricultural land uses to the east, west, and south. This project site is currently occupied by a fallow agricultural field.

Air will be the dominant pathway for potential public exposure to non-criteria pollutants released by the CPV Vaca Station. Emissions to the air will consist primarily of combustion byproducts produced by the turbines, duct burners, auxiliary boiler, emergency engine, emergency fire pump engine, and cooling tower. Potential health risks from combustion emissions will occur almost entirely by direct inhalation. To be conservative, additional pathways for dermal absorption, soil ingestion, and mother's milk ingestion were included in the health risk modeling; however, direct inhalation is the dominant exposure pathway. The screening health risk assessment methodology was conducted in accordance with guidance established by the California Office of Environmental Health Hazard Assessment (OEHHA) and the California Air Resources Board (CARB, 2005).

CPV Vaca Station generates electric energy by combusting natural gas in gas turbines. Waste heat from the turbines (supplemented part of the time by natural gas combustion in the duct burners) will heat steam to generate additional electricity in steam turbines. An auxiliary boiler will be used to assist in plant startups. Emergency Diesel fuel-fired engines will be used if the facility's power supply fails, or in case of fire. The boiler and engines must be periodically tested to ensure they will operate when needed.

Public health benefits are derived from the generated electric power that is provided to homes, businesses, hospitals, and other societal institutions. However, an analysis of these benefits is beyond the scope of this public health analysis.

Combustion byproducts with established national and California ambient air quality standards (referred to as "criteria pollutants") are addressed in Section 5.1, Air Quality. However, some discussion of the potential health risks associated with these substances is presented in this section.

5.9.1 Affected Environment

Because health risks at the point of maximum impact from operation of CPV Vaca Station will be below public health significance criteria thresholds, no residential, workplace or sensitive receptors will be impacted. Sensitive receptors are locations where groups of individuals—including infants, children, the elderly, and the chronically ill—who may be more susceptible than the general population to health risks from air pollution may be found. Schools, day-care facilities, convalescent homes, and hospitals are of particular

concern. A search was conducted for sensitive receptors within six miles of CPV Vaca Station. Sensitive receptors are listed in Appendix 5.1C.

The nearest residence to CPV Vaca Station is a residence 800 feet south of the site (See Figure 5.9-1).

Beneficial aspects of CPV Vaca Station regarding protection of public health include the following:

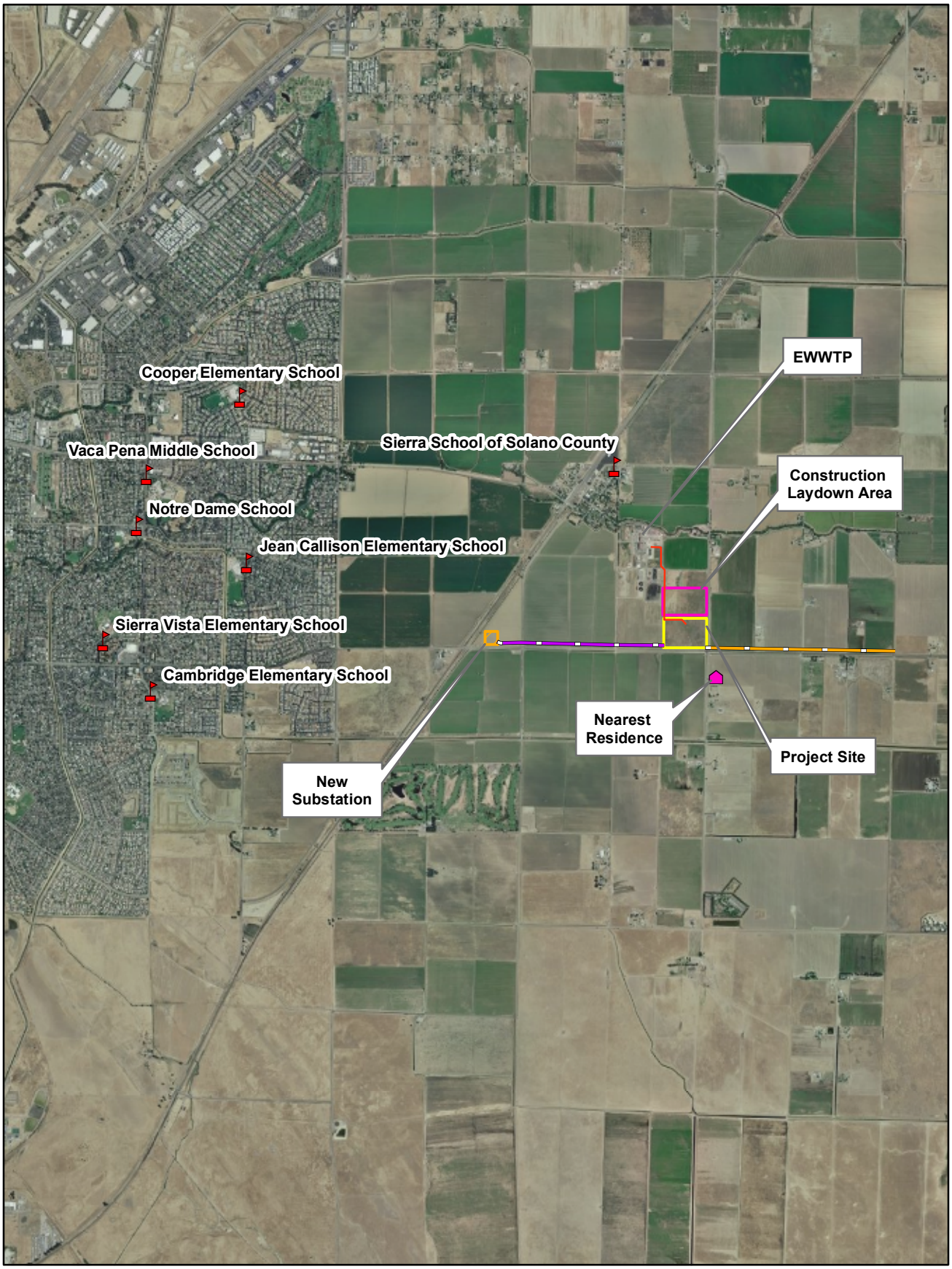
- Use of clean burning natural gas fuel.
- Low-sulfur content of the natural gas, which reduces sulfate fine particulate generation.

The Bay Area Air Quality Management District monitors toxic air contaminants in Vallejo, 24 miles to the southwest of the project site. Air quality and health risk data are summarized in the most recent BAAQMD report (2003 Toxic Program Description and Status Report), which indicates that more than half of the ambient cancer risk (excluding Diesel particulate) is from benzene and 1,3 butadiene, which are associated with motor vehicles. Benzene levels in the Bay Area are one-third what they were in 1996 due to widespread use of Phase 2 reformulated gasoline. The BAAQMD expects ambient risks to continue to decline due to control measures adopted by CARB. Similar trends are anticipated in Vacaville, and at the project site.

5.9.2 Available Health Studies

Available health studies through the Solano County Department of Health & Social Services that contain information related to respiratory illnesses, cancers or related diseases of the potentially affected population within six miles of the Project include the following:

- Solano County. Solano County Health & Social Services Health Status Report, http://www.solanocounty.com/resources/PublicHealth/MCHbureau/Health_Status_Report.pdf. 2003.
- Solano County Health and Social Services Department. Maternal, Child and Adolescent Health Five Year Needs Assessment 2005-2009. http://www.solanocounty.com/resources/PublicHealth/MCHbureau/MCH%20Resources/complete_mch_needs_assessment.doc. June 2004.
- Solano Coalition for Better Health. Health Disparity in Solano County 2004, Detailed Report. http://www.solanocounty.com/resources/PublicHealth/MCHbureau/MCH%20Resources/HealthDisparitySolanoCounty.pdf. February 1, 2005.
- Solano County Health and Social Services Department. Fetal and Infant Mortality Review Project 1999-2001. http://www.solanocounty.com/resources/PublicHealth/MCHbureau/FIMR/FIMRreport99-01.pdf. August 2002, updated January 2003.



LEGEND

- Sensitive Receptors
- Residence
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- Utility Corridor to WWTP
- New Substation
- Construction Laydown Area
- Project Boundary

0 2,000 4,000
Feet

N

FIGURE 5.9-1
OFFSITE RECEPTORS

CPV VACA STATION
VACAVILLE, CA

CH2MHILL

SAC \\ZION\SACGIS\PROJ\VACAVILLE_AFC_370668\MAPFILES\OFFSITERECEPTORS.MXD KMORGAN 7/29/2008 13:55:51

5.9.3 Environmental Analysis

This public health section is organized to discuss the sources and different kinds of air emissions associated with construction and operation of CPV Vaca Station (see Section 5.1, Air Quality), the methodology used in the health risk assessment, and the results of the assessment of potential health risks from CPV Vaca Station. Other potential public health risks associated with CPV Vaca Station are discussed in different sections of the AFC, as follows:

- Potential exposure to wastes generated by CPV Vaca Station is discussed in Section 5.14, Waste Management.
- Potential safety and health impacts relative to the work environment of Project employees are discussed in Section 5.16, Worker Health and Safety.
- Potential exposure to transmission line electric and magnetic fields is discussed in Section 3.4, Transmission Line Safety and Nuisance.

Project emissions to the air will consist of combustion byproducts from the natural gas-fired turbines and duct burners, and the auxiliary boiler. Another source of combustion pollutants will be the routine testing and maintenance of the Diesel-fueled emergency standby generators and emergency fire water pump engine. After dispersion to ground level, inhalation is the main pathway by which air pollutants can potentially cause public health impacts. Other pathways, including ingestion of soil and mother's milk, and dermal contact, also are evaluated for potential exposure. As discussed below, these health risks are not significant.

Construction emissions are presented in detail in Appendix 5.1F, followed by an air dispersion analysis that demonstrates ambient air quality standards will not be exceeded by CPV Vaca Station. The dominant emission with potential health risk is Diesel particulate matter from combustion of Diesel fuel in construction equipment (e.g., cranes, dozers, excavators, graders, front-end loaders, backhoes). A screening-type calculation in Appendix 5.1F demonstrates that the potential carcinogenic risk of Diesel particulate matter emissions during construction will be less than significant.

To evaluate potential health risks, the measures of these risks are first described in terms of the types of public health effects and the significance criteria and thresholds for those effects. Project impacts are then discussed and compared with the significance criteria.

5.9.3.1 Significance Criteria

Significance criteria exist for both carcinogenic and non-carcinogenic risks, and are discussed separately.

5.9.3.1.1 Cancer Risk

Carcinogenic or cancer risk is the probability or chance of contracting cancer over a human life span (assumed to be 70 years). Carcinogens are assumed to have no 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 state and Yolo-Solano Air Quality Management District (YSAQMD) regulations, an incremental cancer risk less than 10 in one million due to a project is considered to be an insignificant impact on public

health. The 10 in one million risk level is also 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.

5.9.3.1.2 Non-Cancer Risk

Non-carcinogenic or non-cancer health effects can be either long-term (chronic) or short-term (acute). In determining potential non-carcinogenic health risks 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-carcinogenic 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 25, 2005 (see Appendix 5.1E).

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.

5.9.3.2 Construction Phase Impacts

The project has a 24-month construction schedule. No significant public health effects are expected during construction. Strict construction practices that incorporate safety and compliance with applicable LORS will be followed. In addition, measures to reduce impacts from construction air emissions will be implemented as described in Section 5.1.6.6.

Temporary air emissions from construction-related activities are discussed in Section 5.1.6.3.4, and a detailed emission inventory is presented in Appendix 5.1F. Ambient air modeling for particulate matter less than 10 microns in equivalent diameter (PM_{10}), $PM_{2.5}$, carbon monoxide (CO), sulfur dioxide (SO_2), and oxides of nitrogen (NO_X) was performed as described in Section 5.1.6.6 and Appendix 5.1F. Construction-related

emissions are temporary and localized, resulting in no long-term significant 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 5.14 (Waste Management) for more information. No acutely hazardous materials will be used or stored on-site during construction (see Section 5.5, Hazardous Materials Handling). To assure worker safety during construction, safe work practices will be followed (see Section 5.16, Worker Health and Safety).

5.9.3.3 Operational Phase Impacts

Potential human health impacts associated with CPV Vaca Station stem from exposure to air emissions from operation of turbines and duct burners and routine testing of the emergency engine and fire water pump engine. The non-criteria pollutants emitted from CPV Vaca Station include certain volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) from the combustion of natural gas and Diesel exhaust particulate matter (DPM) from combustion of Diesel fuel in the emergency engines. These pollutants are listed in Table 5.9-1, and their emission rates are presented in Appendix 5.1E.

Emissions of criteria pollutants will not cause or contribute significantly to existing violations of the National Ambient Air Quality Standards or California Ambient Air Quality Standards as discussed in Section 5.1 (Air Quality).

TABLE 5.9-1
Pollutants Potentially Emitted to the Air from CPV Vaca Station

Criteria Pollutants	**Non-criteria (Toxic) Pollutants**
Carbon monoxide	1,3-Butadiene
Oxides of nitrogen	Acetaldehyde
Particulate matter	Acrolein
Oxides of sulfur	Ammonia
Volatile organic compounds	Benzene
	Ethylbenzene
	Formaldehyde
	Hexane
	Naphthalene
	Propylene
	Toluene
	Xylene
	Polycyclic aromatic hydrocarbons (PAHs)
	Diesel Exhaust Particulate

Finally, air dispersion modeling results (see Section 5.1.6) show that emissions will not result in ambient concentrations of criteria pollutants that exceed or contribute significantly to existing exceedances of ambient air quality standards. These standards are intended to protect the general public with a wide margin of safety. Therefore, CPV Vaca Station will not have a significant impact on public health from emissions of criteria pollutants.

The screening health risk assessment containing potential impacts associated with emissions of non-criteria pollutants to the air from CPV Vaca Station is presented in Appendix 5.1E. The risk assessment was prepared using guidelines developed by OEHHA and CARB, and implemented in the latest version (1.3) of the HARP model.

5.9.3.4 Public Health Impact Study Methods

Emissions of non-criteria pollutants from CPV Vaca Station were estimated using emission factors developed by the U.S. Environmental Protection Agency (EPA). Air dispersion modeling combines the emissions with site-specific terrain and meteorological conditions to estimate short-term and long-term arithmetic mean concentrations in air for use in the health risk assessment carried out with HARP Version 1.3. Health risks potentially associated with the estimated concentrations of pollutants in air were characterized in terms of potential lifetime cancer risk (for carcinogenic substances), or comparison with reference exposure levels (RELs) for non-cancer health effects (for non-carcinogenic substances).

Health risks were evaluated for a hypothetical maximum exposed individual (MEI) located at the Maximum Impact Receptor (MIR). This is also called the Maximum Incremental Cancer Risk (MICR). The hypothetical MEI is an individual assumed to be located at the MIR point (i.e., 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 MIR. If there is no significant impact associated with concentrations in air at the MIR location, it is assumed to be unlikely that there would be significant impacts in any other location. Health risks potentially associated with concentrations of carcinogenic pollutants in air were calculated as estimated excess lifetime cancer risks. The inhalation excess cancer risk associated with CPV Vaca Station is calculated by the HARP model from the ground-level concentration and inhalation cancer potency slope as follows:

$$ECRij = CONCij * ICPFi * BR$$

where: ECRij = excess cancer risk from carcinogenic substance i at location j

CONCij = ground-level concentration (in µg/m3) of carcinogenic substance i at location j

ICPFi = inhalation cancer potency factor for carcinogenic substance i (in kg-day/mg)

BR = breathing rate (in L/kg-day)

The total carcinogenic risk at location j is found by summing the contributions from each carcinogenic substance i. The resulting ECRj can be plotted over all calculated locations.

Evaluation of potential non-carcinogenic 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-carcinogenic 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, 2005), and are presented in Table 5.9-2.

TABLE 5.9-2
Toxicity Values Used to Characterize Health Risks

Compound	Inhalation Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Chronic Reference Exposure Level ($\mu g/m^3$)	Acute Reference Exposure Level ($\mu g/m^3$)
Benzene	0.10	60	1,300
Diesel PM	1.1	5.0	--
Ethylbenzene	--	2,000	--
Formaldehyde	0.021	3.0	94
Hexane	--	7,000	--
1,3-Butadiene	0.6	20	--
Acetaldehyde	0.01	9.0	--
Acrolein	--	0.06	0.19
Ammonia	--	200	3,200
Ethylbenzene	--	2000	--
Propylene	--	3000	--
Xylene	--	700	22,000
Naphthalene	0.12	9.0	--
PAHs (as BaP for HRA)	3.9	--	--
Toluene	--	300	37,000

Source: CARB, 2005.

5.9.3.5 Characterization of Risks from Toxic Air Pollutants

The estimated potential maximum carcinogenic risk associated with concentrations in air estimated for the MIR location is shown in Table 5.9-3. The maximum carcinogenic risk is well below the 10 x 10-6 threshold of significance.

TABLE 5.9-3
Estimated Potential Maximum Carcinogenic Risk for the MIR Location

Receptor	Carcinogenic Risk (per million)*	Acute Health Hazard Index	Chronic Health Hazard Index	Cancer Burden
Maximum Incremental Cancer Risk (MICR) Location	**3.0**	0.05	0.11	0
Significance Level	10	1.0	1.0	1.0

*Derived (OEHHA) Method

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 any potential carcinogenic risk greater than 1 in one million and the number of individuals at that risk level.

There are no existing residences with a potential carcinogenic risk greater than 1 in one million. Therefore, the cancer burden is zero.

This procedure results in a conservatively high estimate of cancer burden.

By definition, human health risks associated with emissions from CPV Vaca Station cannot be higher elsewhere than at the location of the MIR. Therefore, the potential carcinogenic risk elsewhere also would be lower than the maximum listed in Table 5.9-3. Because the potential cancer burden listed in Table 5.9-3 is less than one, the emissions from CPV Vaca Station would not be associated with any increase in cancer cases in the previously defined population. The methods that would have been used in this calculation considerably overstate the potential cancer burden, further supporting the conclusion that Project emissions would not cause a significant public health impact in terms of cancer risk.

The maximum potential acute non-carcinogenic hazard index associated with concentrations in air is shown in Table 5.9-3. The acute non-carcinogenic hazard index for all target organs falls below 1.0, the threshold of significance. Further description of the methodology used to calculate health risks associated with emissions to the air is presented in Appendix 5.1E.

Similarly, the maximum potential chronic non-carcinogenic hazard index associated with concentrations in air is shown in Table 5.9-3. The chronic non-carcinogenic hazard index falls below 1.0, the threshold of significance.

The estimates of carcinogenic and non-carcinogenic 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. Because 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 carcinogenic 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 inhalation cancer potency factors and is most likely lower, and could even be zero (EPA, 1986; EPA, 1996).

The analysis of potential cancer risk described in this section employs methods and assumptions generally applied by regulatory agencies for this purpose. Given the importance of assuring public health, these methods and assumptions are highly conservative. Conservative methodology and assumptions are summarized below.

- The analysis includes representative weather data over a period of five years to assure that the least favorable conditions producing the highest ground-level concentration of power plant emissions are included.
- The power plant is assumed to operate at hourly, daily, and annual emission conditions that produce the highest ground-level concentrations.

- The location of the highest ground-level concentration of power plant emissions is identified and the analysis then assumes that a sensitive individual is at this location constantly over the entire 70-year period.

Taken together, these methods and assumptions create a scenario that cannot exist in the real world. For example, if the worst-case weather conditions occur on a winter evening, but the worst-case emission rates occur on a summer afternoon, the analysis nonetheless assumes that these events occur at the same time. The point of using these unrealistic assumptions is to consciously overstate the potential impacts. No one will experience exposures as great as those assumed for this analysis. By determining that even this highly overstated exposure will not be significant, the analysis enables a high degree of confidence that the much lower exposures that actual persons will experience will not result in any significant increase in cancer risk. In short, the analysis ensures that there will not be any significant public health impacts at any location, under any weather condition, under any operating condition.

5.9.3.6 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 5.5. 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, if an accidental release migrated offsite, potential impacts to the public could result.

The California Accidental Release Program (CalARP) regulations 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.

An RMP is not required for this facility. No regulated substance will be present in quantities exceeding the applicability thresholds. See Section 5.5 for a more detailed discussion of management of hazardous substances at CPV Vaca Station.

5.9.3.7 Operation Odors

The fuels used at the CPV Vaca Station include natural gas and very low sulfur Diesel fuel. Combustion contaminants are not present at concentrations that could produce a significant odor.

5.9.3.8 Electromagnetic Field Exposure

The existing electric transmission lines are not part of CPV Vaca Station. CPV Vaca Station electric power handling equipment does not travel through residential areas, and, based on findings of the National Institute of Environmental Health Sciences (NIEHS, 1999), electromagnetic field exposures would not result in a significant impact on public health. The NIEHS 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" (NIEHS, 1999).

5.9.3.9 Summary of Impacts

Results from the screening health 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, PM_{10} and $PM_{2.5}$ would not exceed or will not contribute significantly to existing exceedances of ambient air quality standards, which protect public health with a margin of safety for the most sensitive subpopulations (Section 5.1.6.5).

5.9.4 Cumulative Effects

An analysis of potential cumulative air quality impacts that may result from the proposed CPV Vaca Station and other reasonably foreseeable projects is required by the CEC. A protocol for performing the cumulative impacts analysis is presented in Appendix 5.1H. The analysis will be submitted upon receipt of the necessary data from the YSAQMD. The cumulative impact analysis determines if the total set of proposed Project and foreseeable projects will cause a combined air quality impact that exceeds significance thresholds. In contrast with the approach used to estimate impacts for criteria pollutants, the significance thresholds developed for toxic air contaminants are set sufficiently stringently so as to preclude the potential for any significant cumulative impacts. Thus, a separate cumulative impacts analysis for toxic air contaminants was not prepared.

5.9.5 Mitigation Measures

5.9.5.1 Criteria Pollutants

As discussed in Section 5.1, YSAQMD regulations require the provision of offsets, at a greater than 1:1 ratio, for emissions from operations of all criteria pollutants except SO_2. Additionally, it is expected that the CEC will require offsets for SO_2 at a 1:1 offset ratio. As a result of these offsets, the net effect of the project on air quality will be a net air quality benefit.

Construction emissions will be minimized using all feasible construction emission controls, as identified by the CEC and the District.

5.9.5.2 Toxic Pollutants

No mitigation measures are needed for CPV Vaca Station toxic air emissions because the potential public health impacts are less than significant.

5.9.5.3 Hazardous Materials

No mitigation measures are needed because the potential public health impacts are less than significant.

5.9.6 Laws, Ordinances, Regulations, and Standards

An overview of the regulatory process for public health issues is presented in this section. Table 5.9-4 identifies the relevant LORS that affect public health and are applicable to this project. The compliance of CPV Vaca Station with each of the LORS applicable to public health is also presented in this table.

TABLE 5.9-4
Laws, Ordinances, Regulations, and Standards for Public Health

LORS	Public Health Concern	Primary Regulatory Agency	Project Conformance
Federal			
Clean Air Act	Federal ambient air quality standard; Hazardous Air Pollutants	EPA Region 9, CARB, and YSAQMD	Subsection 5.9.5.1 (Page 12)
40 CFR Part 68 (Risk Management Plan)	Potential releases from storing or handling significant amounts of acutely hazardous materials	EPA Region 9 and San Bernardino County Fire Department	Subsection 5.9.5.1 (Page 12)
State			
Health and Safety Code 25249.5 et seq. (Safe Drinking Water and Toxic Enforcement Act of 1986—Proposition 65)	Activities resulting in doses or carcinogenic risks above specified thresholds require Proposition 65 exposure warnings.	OEHHA	Subsection 5.9.5.2 (Page 13)
Health and Safety Code, Article 2, Chapter 6.95, Sections 25531 to 25541; CCR Title 19 (Public Safety), Division 2 (Office of Emergency Services), Chapter 4.5 (California Accidental Release Prevention Program)	Potential releases from storing or handling significant amounts of acutely hazardous materials	Vacaville Fire Department	Subsection 5.9.5.2 (Page 13)
Health and Safety Code Sections 44360 to 44366 (Air Toxics “Hot Spots” Information and Assessment Act—AB 2588)	Acute, chronic, and cancer risks from toxic air contaminants	YSAQMD and CARB	Subsection 5.9.5.2 (Page 13)

TABLE 5.9-4
Laws, Ordinances, Regulations, and Standards for Public Health

LORS	Public Health Concern	Primary Regulatory Agency	Project Conformance
YSAQMD Risk Management Plan	Requires that pre-construction review be conducted for all proposed new or modified sources of toxic air contaminants	YSAQMD	Subsection 5.9.5.2 (Page 13)

5.9.6.1 Federal LORS

5.9.6.1.1 Clean Air Act

The Clean Air Act requires large projects (new or modified sources at major stationary sources) to go through a federal permitting process that ensures that the project will not cause or contribute to a violation of a federal ambient air quality standard. The CPV Vaca Station is subject to the federal permitting requirements. See sections 5.1.4 and 5.1.6 for further discussion of compliance with applicable Clean Air Act requirements.

Major sources of hazardous air pollutants are subject to National Emission Standards for Hazardous Air Pollutants (NESHAPs). Because the CPV Vaca Station will not be a major source of hazardous air pollutants, there are no NESHAPs applicable to the project.

5.9.6.1.2 CFR Part 68 (Risk Management Plan)

Facilities storing or handling significant amounts of acutely hazardous materials are required to prepare and submit risk management plans. No regulated substance will be present in quantities exceeding the applicability thresholds. A Risk Management Plan (RMP) is not required.

5.9.6.2 State LORS

5.9.6.2.1 Health and Safety Code 25249.5 et seq. (Safe Drinking Water and Toxic Enforcement Act of 1986—Proposition 65)

Activities which expose the public to significant levels of chemicals that are carcinogenic or that can cause reproductive harm must provide warnings.

Based on a health risk assessment that follows CARB/OEHHA guidelines, non-criteria pollutant emission rates and resulting doses and carcinogenic risks will not exceed thresholds that require Proposition 65 exposure warnings.

5.9.6.2.2 Health and Safety Code, Article 2, Chapter 6.95, Sections 25531 to 25541; CCR Title 19 (Public Safety), Division 2 (Office of Emergency Services), Chapter 4.5 (California Accidental Release Prevention Program)

Facilities storing or handling significant amounts of acutely hazardous materials are required to prepare and submit risk management plans.

No regulated substance will be present in quantities exceeding the applicability thresholds. A RMP is not required.

5.9.6.2.3 Health and Safety Code Sections 44360 to 44366 (Air Toxics "Hot Spots" Information and Assessment Act—AB 2588)

Under this program, facilities with emissions of toxic air contaminants are prioritized based on emissions. If the facility's priority score is high enough, the facility is required to prepare a health risk assessment. High risk facilities may be required to provide notification to neighbors or to develop and implement a risk reduction plan.

Based on the emission estimates described in this report, CPV Vaca Station is not a high-priority facility.

5.9.6.2.4 YSAQMD Risk Management Plan - New Source Review for Toxic Air Contaminants

Projects which increase the emissions of Toxic Air Contaminants (TACs) above certain levels are required by District regulations to prepare a Health Risk Assessment evaluating cancer and non-cancer risks. If risks are above certain thresholds, the project must use Toxic Best Available Control Technology (TBACT), or may be denied.

A screening health risk assessment has been prepared. The health risk assessment confirms that potential health risks are less than District Risk Management thresholds.

5.9.7 Agencies and Agency Contacts

Table 5.9-5 provides contact information for agencies involved with public health.

TABLE 5.9-5
Summary of Agency Contacts for Public Health

Issue	Agency	Contact
Public exposure to air pollutants	EPA Region 9	Gerardo Rios EPA Region 9 75 Hawthorne Street San Francisco, CA 94105 (916) 972-3974
	CARB	Mike Tollstrup Project Assessment Branch California Air Resources Board 1001 I Street Sacramento, CA 95812 (916) 323-8473
	Yolo-Solano Air Quality Management District	Mat Erhardt Air Pollution Control Officer Yolo-Solano Air Quality Management District 1947 Galileo Ct, Suite 103 Davis, CA 95618

TABLE 5.9-5
Summary of Agency Contacts for Public Health

Issue	Agency	Contact
Public exposure to chemicals known to cause cancer or reproductive toxicity	Cal-EPA, Office of Environmental Health and Hazard Assessment (OEHHA)	Cynthia Oshita or Susan Long Office of Environmental Health Hazard Assessment 1001 I Street Sacramento, CA 95814 (916) 445-6900
Public exposure to accidental releases of hazardous materials	EPA Region 9	Deborah Jordan EPA Region 9 75 Hawthorne Street San Francisco, CA 94105 (916) 947-4157
	California Office of Emergency Services	Moustafa Abou-Taleb Governor's Office of Emergency Services 3650 Schriever Avenue Mather, CA 95655 (916) 845-8741
	Vacaville Fire Department	Vacaville Fire Department Field Operations Division 650 Merchant Street Vacaville, CA 95688 (707) 449-5452

5.9.8 Permits and Permit Schedule

Agency-required permits related to public health include a Risk Management Plan for hazardous materials, and the YSAQMD Determination of Compliance (DOC). Upon approval of the project by the CEC, the DOC serves as the District Authority to Construct. These requirements are discussed in detail in Sections 5.1 (Air Quality) and 5.5 (Hazardous Materials Handling).

5.9.9 References

CARB (California Air Resources Board). *2006 Almanac of Emissions and Air Quality*

CARB (California Air Resources Board). 2005. *Consolidated Table of OEHHA/ARB-Approved Risk Assessment Health Values, April 25, 2005*. Available at: http://www.arb.ca.gov/toxics/healthval/healthval.htm. Last updated June 7, 2005. Accessed March 19, 2006.

CARB (California Air Resources Board). HARP Model, Version 1.3.

National Institute of Environmental Health Sciences. Environmental Health Institute report concludes evidence is 'weak' that EMFs cause cancer. Press release. National Institute of Environmental Health Sciences, National Institutes of Health, 1999.

OEHHA (California Office of Environmental Health Hazard Assessment). 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guideline, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. CalEPA. August 2003.