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5.16 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 operation of the Pio Pico Energy Center (PPEC). This screening health risk assessment has been performed in accordance with guidance established by the California Office of Environmental Health Hazard Assessment (OEHHA),[1] the California Air Resources Board (CARB),[2] and the San Diego Air Pollution Control District (SDAPCD).[3] The results of this risk assessment demonstrate that the potential impacts of the project will be below public health-related thresholds of significance. Beneficial aspects of the PPEC 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 and sulfur dioxide (SO_2) generation
- Highly efficient combustion gas turbine technology to minimize the amount of fuel and associated combustion emissions needed to produce electricity
- Water injection and selective catalytic reduction (SCR) technology to control nitrogen oxides (NO_x) emissions
- Oxidation catalyst technology to control carbon monoxide (CO) emissions, and to reduce emissions of various toxic air contaminants (TAC)
- Optimized stack height to reduce ground-level concentrations of exhaust pollutants below public health-related significance thresholds

These project features will ensure that the public health impacts of the PPEC will be minimized.

Impacts associated with the project's emissions of criteria pollutants (i.e., pollutants for which federal or California ambient air quality standards [AAQS] have been promulgated) are described in Section 5.2, Air Quality. Potential public exposure to accidental releases of hazardous materials on the project site during operation is addressed in Section 5.15, Hazardous Materials Handling. To ensure worker safety during operations and construction, safe work practices will be followed (see Section 5.17, Worker Safety).

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. Topographical information is provided. Sensitive receptors within a 3-mile radius of the project site are identified in Figure 5.16-1.

1 OEHHA. Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, April 2005.

2 CARB. Consolidated Table of OEHHA/CARB-Approved Risk Assessment Health Values, February 2009, at http://www.arb.ca.gov/toxics/healthval/healthval.htm.

3 SDAPCD. Personal communication, Michael Kehetian, SDAPCD, 12/30/2010.

- Section 5.16.2, Environmental Consequences, discusses the potential public health consequences of the project. The HRA approach is described. The project's emissions of toxic air pollutants are discussed, and the potential impacts of these emissions are evaluated. The results of the HRA show that the maximum incremental off-site cancer risk from the project will be 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) and the acute 1- and 8-hour THIs are below the significance criteria of 1.0.

- Section 5.16.3, Cumulative Impacts, addresses the cumulative impacts of the project with other nearby sources of toxic air contaminants.

- Section 5.16.4, Mitigation Measures and Conditions of Certification, discusses mitigation measures to minimize the impacts of the project's emissions of TACs.

- Section 5.16.5, Laws, Ordinances, Regulations, and Standards, describes all applicable laws, ordinances, regulations, and standards (LORS) pertaining to the public health aspects of the project.

- Section 5.16.6, Involved Agencies and Agency Contacts, lists the agency contacts consulted in conducting the public health analysis.

- Section 5.16.7, Permits Required and Permit Schedule, lists the permits required and provides the permit schedule.

- Section 5.16.8, References, lists the references used to conduct the public health analysis.

5.16.1 Affected Environment

PPEC consists of the project site, linears, and a temporary laydown area (Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears). The project site is located in an unincorporated area of San Diego County known as Otay Mesa. It is comprised of a 9.99 acre parcel located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection. The proposed project site comprises the entire parcel with Assessor's Parcel Number (APN) 648-040-45, and the laydown area is 6.00 acres of an adjacent parcel to the south (APN 648-040-46) (Figure 3.3-2, Project Location). The existing setting within one-mile of the project site and potential transmission line routes are presented on Figure 3.3-4. The project affects the following areas:

- Plant site – 9.99 acres.

- Temporary laydown and parking area – 6.00 acres, on an adjacent parcel that is contiguous to the project site.

- Natural Gas pipeline – There are two possible routes for the gas supply pipeline. Both routes would connect to an existing SDG&E natural gas pipeline, but at different locations. Route A would extend approximately 8,000 feet south along Alta Road to near the U.S.–Mexico border, at which point it would connect to the existing SDG&E natural gas pipeline. Route B would extend approximately 2,375 feet south along Alta Road, turn west on Otay Mesa

Road, and continue approximately 7,920 feet to Harvest Road at which point it would connect to the existing SDG&E natural gas pipeline (Figure 3.3-3, Potential Linears) for a total of approximately 10,300 feet. The pipeline will be constructed, owned, and operated by SDG&E.

- Sewer pipeline – A short connection will be made to an existing 12-inch sewer main along Calzada de la Fuente along the north project site boundary, or to an existing 15-inch sewer main along Alta Road, along the west project site boundary.

- Stormwater pipeline – A short connection will be made from a detention pond located at the northwest corner of the project site to an existing 30-inch stormwater pipeline located along Calzada de la Fuente, adjacent to the project site.

- Power line – Two possible routes are provided for a 230kV transmission line that will connect the project into the existing 230kV Otay Mesa switchyard. Route A would begin as an overhead power line along Calzada de la Fuente, extend approximately 1,700 feet east where it would then be routed underground for approximately 400 feet into the Otay Mesa switchyard (total length of Route A would be approximately 2,100 feet). Route B would begin as an overhead power line from the eastern edge of the project site, run south approximately 550 feet, then turn east along the northern border of the parcels with APN 648-040-48 and APN 648-040-43 for 1,400 feet, and finally turn north for approximately 700 feet into the Otay Mesa switchyard (total length of Route B would be approximately 2,650 feet). The power line will be owned and maintained by the Applicant.

- Water supply pipelines – The project will make a short connection to the potable service system, either at an existing 12-inch main along Calzada de la Fuente, or at an existing 24-inch main along Alta Road. Upon the Otay Water District (OWD)'s completion of the planned Otay Mesa area recycled water system, the project will make a connection to an existing 8-inch recycled water main along Calzada de la Fuente or a new recycled water main to be constructed in Alta Road.

These features are illustrated on Figure 3.3-1, Facility Plot Plan and Figure 3.3-3, Potential Linears. The project will be a new major stationary source under District New Source Review regulations because it will have a potential to emit more than 50 TPY of NO_x; it will also be a new major source under the federal PSD program because it will have a potential to emit more than 100,000 TPY of CO_2 and construction will commence after July 1, 2011.

The California Energy Commission (CEC) defines sensitive receptors as infants and children, the elderly, the chronically ill, and any other members of the general population who are more susceptible to the effects of exposure to environmental contaminants than the population at large. For the purposes of this analysis, sensitive receptors are defined as the locations occupied by groups of individuals who may be more susceptible to health risks from a chemical exposure: schools (public and private), day-care facilities, convalescent/nursing homes, retirement homes, health clinics, and hospitals. Because sensitive individuals may be located at any residential site, risk-based standards apply to existing residences and places where residences may be built without a change in zoning as well as sensitive receptors. If project impacts are protective of sensitive individuals at the point of maximum impact, they are protective at all locations.

Identification of sensitive receptors is typically done to ensure that notice of possible impacts is provided to the community.

There are no sensitive receptors in the U.S. within three miles of the project site. The closest residences are a group of rural residences to the WSW, located approximately 0.8 miles from the project boundary. Richard J. Donovan Correctional Facility is located 0.8 miles northwest of the project site.

The nearest U.S. school is Olympian High School, 3.9 miles to the northwest of the project. The nearest U.S. day care is the Danmar Day Care, 3.9 miles to the northwest of the project. The nearest U.S. convalescent home is Sharp Chula Vista Medical Center, 6.4 miles west of the project. The nearest U.S. retirement home is Erachel and H Street Board-Care, 6.2 miles northwest of the project. The nearest U.S. hospital is the Kaiser Hospital located on Zane Street, 6.4 miles west of the project site.

Several studies have been conducted recently related to respiratory illnesses to address health risks in the neighborhoods surrounding the project site. The California Office of Environmental Health Hazard Assessment and California Environmental Protection Agency investigated the effects of exposure to particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and several of its constituents—including elemental carbon (EC), organic carbon (OC), and nitrates (NO_3)—on hospital admissions for respiratory diseases among children 0–18 years of age in six California counties (including San Diego County). The methodology, results, discussion, and conclusions of this study are described in The Effects of Fine Particle Components on Respiratory Hospital Admissions in Children (Ostro et al., 2009). The study concluded that $PM_{2.5}$ and several of its constituents do have an important effect on hospital admissions associated with respiratory diseases, particularly in cases related to acute bronchitis and pneumonia. Specifically, the results of the study indicated a relationship between acute exposure to total $PM_{2.5}$ and total respiratory hospital admissions for children 0–18 years of age. Young children appear especially sensitive to the $PM_{2.5}$ effects, as 75% of the admissions for this age range were under five years of age.

Two other studies on childhood asthma were also conducted in San Diego County. The first study (English, 1998) examined the correlation between childhood asthma hospitalizations from 1983 to 1994 along the U.S.–Mexico border and the corresponding concentrations of ozone and particulate matter less than ten microns in diameter (PM_{10}) (two air pollutants known to aggravate asthma) in the two California border counties (San Diego and Imperial). The study found a decrease in childhood asthma hospitalization rates in San Diego County throughout the study period along with a general improvement in ozone and PM_{10} levels in San Diego County. The study concluded that improved access to preventive health care is imperative in border areas with high poverty rates and suggests that efforts should be made to reduce the exposure of children to sources of ozone and particulate matter, such as dust from unpaved roads and motor vehicle emissions, which may aggravate respiratory illness.

The second study (English, 1999) examined associations between childhood asthma and traffic flow in a low-income population in San Diego County. Although the study found no evidence of increased asthma risk with higher traffic counts near a child's residence, asthmatic children living near busy roads were found to have a higher chance of multiple medical care visits in a year compared to asthmatic children living near lower traffic flows. This suggests that higher

exposure to particulate matter and other air pollutants from traffic exhaust due to higher traffic flows may aggravate symptoms in individuals already diagnosed with asthma.

Working with the local public health department at San Diego County, cancer-related health studies could not be identified concerning the potentially affected population(s) within a 6- mile radius of the project site (Murphy, 2009).

The nearest California Air Resources Board (CARB) TAC monitor is in the City of Chula Vista, approximately 11 miles northwest of the project site. Although this station is in an urban neighborhood, the proximity to the PPEC site makes it conservatively representative of local air quality. The most recent monitoring data are from year 2007, which are presented in Table 5.16-1 along with the estimated excess cancer risk. Summing the risk from all monitored TACs predicts an incremental background cancer risk of 102 in a million. By comparison, the risk of getting cancer for an individual in the United States from all causes is about 1 in 3, or 333,000 in one million.

TABLE 5.16-1
ANNUAL AVERAGE CONCENTRATIONS AND CANCER RISKS FOR MONITORED TACS FOR YEAR 2007 - CHULA VISTA MONITORING STATION

Toxic Air Contaminant	Annual Concentration (ppbv)	Excess Cancer Risk (chances in one million)
Acetaldehyde	0.7	3
Benzene	0.273	25
1,3-Butadiene	0.056	21
Carbon Tetrachloride[1]	0.091	24
Chromium, Hexavalent	0.03 ng/m^3	5
Para-Dichlorobenzene[1]	0.15	10
Formaldehyde	1.83	13
Methylene Chloride	0.11	<1
Perchloroethylene	0.025	1
Total Cancer Risk		**102**

Notes:
ppb = parts per billion
ng/m^3 = nanograms per cubic meter
[1]Carbon Tetrachloride and para-Dichlorobenzene data are from year 2002.
Source: California ARB Almanac 2009 – Appendix C: Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants

5.16.2 Environmental Consequences

This section describes the evaluation of potential public health risks due to construction and operation of the proposed PPEC power generation facility and the methodology and results of the HRA. A significant impact is defined as a maximum incremental cancer risk greater than ten in one million, a chronic total hazard index (THI) greater than 1.0, or an acute THI greater than 1.0. Also, uncertainties in the HRA are discussed and other potential health impacts of the project are described

5.16.2.1 Construction Impacts

Construction of the PPEC is expected to take approximately 16 months. 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, mitigation measures to reduce air emissions from construction impacts will be implemented as described in Section 5.2.

Temporary air emissions from construction are presented in detail in Appendix G-2, followed by a criteria pollutant air dispersion analysis that demonstrates ambient air quality standards will not be exceeded by construction of the project. The dominant emission with potential health risk is Diesel particulate matter (DPM) from combustion of Diesel fuel in construction equipment (e.g., cranes, dozers, excavators, graders, front-end loaders, backhoes). DPM emissions from on-site construction are summarized in Table 5.16-2.

TABLE 5.16-2
MAXIMUM ONSITE CONSTRUCTION DPM EMISSIONS

Emitting Activity	Pounds per Day	Tons per Year
Construction Equipment	1.6	0.2

The health risk assessment calculations in Appendix P demonstrate that the potential cancer risk of DPM emissions during project construction will not exceed the significance threshold of 10 in one million. This HRA was performed in accordance with OEHHA (2003) guidance, which requires adjusting the 70-year lifetime dosage to an exposure period of nine years (despite the fact that project construction will only last 16 months). When the dosage is adjusted to account for the reduced period of time that a worker is present at the workplace receptor that is the point of maximum impact (8 hours per day, 245 days per year), the calculated risk from this temporary activity is 3.2 in one million. This is below the significance threshold of ten in one million. The calculated risk is even lower at the nearest residential receptor.

Ambient air modeling for PM_{10}, $PM_{2.5}$, CO, SO_2 and NO_2 was performed as described in Section 5.2 and Appendix G-2. Construction-related emissions are temporary and localized, resulting in no long-term significant health impacts to the public.

Small quantities of hazardous waste may be generated during construction. 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 onsite during construction (see Section 5.15, Hazardous Materials Handling). To ensure worker safety during construction, safe work practices will be followed (see Section 5.17, Worker Safety).

5.16.2.2 Operations Impacts

Project emissions to the air will consist of combustion by-products from the natural gas-fired turbines. These pollutants include certain volatile organic compounds and polycyclic aromatic hydrocarbons (PAHs) from the combustion of natural gas, and ammonia from the SCR NOx control systems. These pollutants are listed in Table 5.16-3, and the detailed emission

summaries and calculations are presented in Appendix P. 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, fish, and drinking water, and dermal absorption, are also evaluated for potential exposure. As discussed below, these health risks are not significant.

TABLE 5.16-3
NON-CRITERIA POLLUTANT EMISSIONS FROM ACTIVITIES AT PPEC

	Emissions (Per turbine)		Emissions (Total, 3 units)	
Pollutant	**Lb/hr**	**TPY**	**Lb/hr**	**TPY**
Turbines				
Ammonia	6.12E+00	1.33E+01	1.83E+01	3.98E+01
Propylene	3.37E-01	7.30E-01	1.01E+00	2.19E+00
Acetaldehyde	1.78E-02	3.86E-02	5.35E-02	1.16E-01
Acrolein	2.86E-03	6.19E-03	8.57E-03	1.86E-02
Benzene	5.33E-03	1.16E-02	1.60E-02	3.47E-02
1,3-Butadiene	1.92E-04	4.16E-04	5.75E-04	1.25E-03
Ethylbenzene	1.42E-02	3.09E-02	4.27E-02	9.26E-02
Formaldehyde	4.01E-01	8.69E-01	1.20E+00	2.61E+00
Hexane, n-	1.13E-01	2.45E-01	3.39E-01	7.36E-01
Naphthalene	5.81E-04	1.26E-03	1.74E-03	3.78E-03
PAHs (listed individually below)	2.86E-04	6.21E-04	8.59E-04	1.86E-03
Acenaphthene	8.30E-06	1.80E-05	2.49E-05	5.40E-05
Acenapthyene	6.42E-06	1.39E-05	1.93E-05	4.18E-05
Anthracene	1.48E-05	3.20E-05	4.43E-05	9.61E-05
Benzo(a)anthracene	9.87E-06	2.14E-05	2.96E-05	6.42E-05
Benzo(a)pyrene	6.07E-06	1.32E-05	1.82E-05	3.95E-05
Benzo(e)pyrene	2.38E-07	5.15E-07	7.13E-07	1.55E-06
Benzo(b)fluoranthrene	4.94E-06	1.07E-05	1.48E-05	3.21E-05
Benzo(k)fluoranthrene	4.81E-06	1.04E-05	1.44E-05	3.13E-05
Benzo(g,h,i)perylene	5.98E-06	1.30E-05	1.80E-05	3.89E-05
Chrysene	1.10E-05	2.39E-05	3.30E-05	7.16E-05
Dibenz(a,h)anthracene	1.03E-05	2.23E-05	3.08E-05	6.68E-05
Fluoranthene	1.89E-05	4.09E-05	5.66E-05	1.23E-04
Fluorene	2.53E-05	5.49E-05	7.60E-05	1.65E-04
Indeno(1,2,3-cd)pyrene	1.03E-05	2.23E-05	3.08E-05	6.68E-05
Phenanthrene	1.37E-04	2.97E-04	4.11E-04	8.92E-04
Pyrene	1.21E-05	2.63E-05	3.64E-05	7.90E-05
Propylene oxide	1.29E-02	2.80E-02	3.88E-02	8.41E-02
Toluene	5.81E-02	1.26E-01	1.74E-01	3.78E-01
Xylene	2.85E-02	6.19E-02	8.56E-02	1.86E-01
Cooling Tower				
Arsenic	9.90E-08	2.15E-07	9.90E-08	2.15E-07
Carbon Tetrachloride	1.16E-07	2.50E-07	1.16E-07	2.50E-07
Chlorine	1.27E-02	2.74E-02	1.27E-02	2.74E-02
Chromium	1.54E-07	3.34E-07	1.54E-07	3.34E-07
Copper	3.58E-07	7.75E-07	3.58E-07	7.75E-07
Fluoride	6.06E-05	1.31E-04	6.06E-05	1.31E-04
Lead	4.73E-08	1.03E-07	4.73E-08	1.03E-07
Total HAPs[a]				4.26

Note: a. Ammonia, propylene oxide, copper and fluoride are not HAPs so are not included in this total.

5.16.2.3 Public Health Impact Assessment Approach

Significance Criteria

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 SDAPCD 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 if the emitting units are determined by the District to be using Toxics Best Available Control Technology (T-BACT). The ten-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.

Non-cancer health effects can be either long-term (chronic) or short-term (acute). In determining potential non-cancer health risks from air toxics, it is assumed there is a dose of the TAC below which there would be no impact on human health. The air concentration corresponding to this dose is called the Reference Exposure Level (REL). A non-cancer health risk is measured in terms of a health hazard quotient, which is the calculated maximum exposure (concentration) of each TAC divided by its REL. Health hazard quotients for TACs affecting the same target organ are typically summed with the resulting totals expressed as health hazard indices for each organ system. A health hazard index of less than 1.0 is considered to be a less-than-significant health risk.

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 noncarcinogenic 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 acute health hazard quotients are typically summed to calculate the acute health hazard index. The maximum one-hour average concentration of each TAC with acute health effects is divided by the TAC's acute REL to obtain a health hazard index for health effects caused by relatively high, short-term exposure to air toxics. An additional conservative procedure in this health risk assessment is that the health hazard quotients for all TACs having potential acute impacts were summed regardless of target organ. This method leads to an upper bound assessment.

Methodology

District Rule 1200 requires a health risk assessment (HRA). The potential human health risks posed by the project's emissions were assessed using procedures consistent with the San Diego Air Pollution Control District (SDAPCD) Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (SDAPCD, 2006),[4] Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Risk Assessment Guidelines (Cal-EPA/OEHHA, 2003),[5] and guidance from SDAPCD staff. The SDAPCD and 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 to inventory air toxics emissions from individual facilities, as well as guidance for execution of risk assessments and requirements for public notification of potential health risks.

Air dispersion modeling combined the project emissions with site-specific terrain and meteorological conditions to analyze short-term and long-term concentrations in the air for use in the health risk assessment. The EPA-recommended air dispersion model, AERMOD, was used along with three years (2006–2008) of compatible meteorological data from the Otay Mesa/Paseo International meteorological monitoring station assembled and provided by the staff of the SDAPCD. The meteorological data combined surface measurements made at Otay Mesa with upper air data from MCAS Miramar (see Section 5.2.2.6). Because Hotspots Analysis and Reporting Program (HARP) is built on a previous EPA-approved air dispersion model, Industrial Source Complex Short Term, Version 3 (ISCST3), the CARB HARP On-Ramp was used to integrate the air dispersion modeling output from the required air dispersion mode, AERMOD, with the risk calculations in the HARP risk module.[6,7]

The HRA modeling was prepared using CARB's HARP computer program (Version 1.4c, August 2010). The HARP model was used to assess cancer risk as well as non-cancer chronic and acute health hazards. The HRA includes the five following pathways: inhalation, dermal absorption, soil ingestion, drinking water ingestion, and fish ingestion.[8]

Health risks were evaluated for a hypothetical Maximum Exposed Individual (MEI) located at the point of maximum impact (PMI). The cancer risk to the MEI at the PMI is referred to as the Maximum Incremental Cancer Risk, or MICR. Human health risks associated with emissions from the project are unlikely to be higher at any other location than at the PMI. If there is no significant impact associated with concentrations in air at the PMI location, it is inferred that there would not be significant impacts in any other location. Health risks were also evaluated for a hypothetical Maximum Exposed Individual at an existing Residential receptor (MEIR), an

[4] SDAPCD, *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs)*, Version 1.0, March 1, 2006.

[5] Office of Environmental Health Hazard Analysis, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

[6] HARP On-Ramp Version 1, accessed at http://www.arb.ca.gov/toxics/harp/downloads.htm.

[7] The modeling protocol submitted for the project indicated that a unit-impact modeling technique would be used, based on the procedure described in Part B of Topic 8 of the HARP How-To Guides ("How to Perform Health Analyses Using a Ground-Level Concentration"). However, since CARB has officially released the HARP On-Ramp to facilitate the use of HARP with AERMOD, this more streamlined approach has been utilized in this screening HRA, consistent with CARB guidance.

[8] The drinking water and fish ingestion pathways were included at the request of the SDAPCD staff.

individual assumed to be located at the existing residence where the highest concentrations of air pollutants associated with facility emissions are predicted to occur. The PMI (and thus the MICR) is not necessarily associated with actual exposure because in many cases the PMI is in an uninhabited area. Therefore, the MICR is generally higher than the MEIR. Both the MICR and the MEIR are residential risks and are based on 24 hour per day, 365 day per year, 70-year lifetime exposure. Because this is a screening analysis, the MEIR is assessed at the PMI.

Health risks are also assessed for the hypothetical Maximum Exposed Individual at an existing Worker receptor, or MEIW. This assessment reflects potential workplace risks, which are lower than residential risks because of lower exposure. Workplace risks reflect 8 hour per day, 245 day per year, 40-year exposure. Because this is a screening analysis, the MEIW risk is assessed at the PMI (the most conservative assumption).

The inhalation cancer potency factors and RELs used to characterize health risks associated with modeled concentrations in air are taken from the *Consolidated Table of OEHHA/CARB Approved Risk Assessment Health Values* (CARB, October 18, 2010) and are presented in Table 5.16-4.

TABLE 5.16-4
TOXICITY VALUES USED TO CHARACTERIZE HEALTH RISKS

Toxic Air Contaminant	Inhalation Cancer Potency Factor (mg/kg-d)-1	Chronic Reference Exposure Level (µg/m3)	Acute Reference Exposure Level (µg/m3)
Acetaldehyde	0.010	140	470/3001
Acrolein	—	0.35	2.5/0.71
Ammonia	—	200	3,200
Benzene	0.10	60	1,300
1,3-Butadiene	0.60	20	—
Ethylbenzene	0.0087	2,000	—
Formaldehyde	0.021	9	55/91
Hexane	—	7,000	—
Naphthalene	0.12	9.0	—
PAHs		—	—
Acenaphthene	3.9	—	—
Acenapthyene	3.9	—	—
Anthracene	3.9	—	—
Benzo(a)anthracene0	0.39	—	—
Benzo(a)pyrene	3.9	—	—
Benzo(e)pyrene	3.9	—	—
Benzo(b)fluoranthrene	0.39	—	—
Benzo(k)fluoranthrene	0.39	—	—
Benzo(g,h,i)perylene	3.9	—	—
Chrysene	0.039	—	—
Dibenz(a,h)anthracene	4.1	—	—
Fluoranthene	3.9	—	—
Fluorene	3.9	—	—
Indeno(1,2,3-cd)pyrene	0.39	—	—
Phenanthrene	3.9	—	—
Pyrene	3.9	—	—
Propylene	—	3,000	—

Toxic Air Contaminant	Inhalation Cancer Potency Factor (mg/kg-d)-1	Chronic Reference Exposure Level (µg/m3)	Acute Reference Exposure Level (µg/m3)
Propylene oxide	0.013	30	3,100
Toluene	—	300	37,000
Xylene	—	700	22,000
Arsenic	12	0.015	0.20
Carbon Tetrachloride	0.15	40	1,900
Chlorine	—	0.2	210
Chromium (hexavalent)	510	0.2	20
Copper	—	—	100
Fluoride	—	13	40
Lead	0.042	—	(note 3)

Notes:
[1]Derived (Adjusted) Method used by San Diego Air Pollution Control District to determine compliance with Regulation 1200.
[2]The worker is assumed to be exposed at the work location 8 hours per day, instead of 24; 245 days per year, instead of 365; and for 40 years, instead of 70.
[3]Lead is a criteria pollutant with state and federal sub-chronic exposure standards. See Table 5.16-6.

Health Risk Assessment Results

The estimated potential maximum cancer risk associated with concentrations in air estimated for the Maximally Exposed Individual Residence location is shown in Table 5.16-5. The maximum carcinogenic risk is well below the 10 x 10^{-6} threshold of significance for emitting units determined by the District to be applying T-BACT.

TABLE 5.16-5
SUMMARY OF POTENTIAL HEALTH RISKS FROM PROJECT OPERATION

Receptor	Carcinogenic Risk (per million)[1]	Cancer Burden	Acute Health Hazard Index	Chronic Health Hazard Index
Maximum Incremental Cancer Risk (MICR) at Point of Maximum Impact (PMI)	0.094	0	--	--
Maximum Exposed Individual at an Existing Residential receptor (MEIR) (assumed to be at the PMI)	0.094	--	0.034	0.011
Maximally Exposed Individual at an Existing Worker receptor (MEIW) (assumed to be at the PMI)[2]	0.014	--	0.034	0.011
Significance Level and SDAPCD Rule 1200 Threshold	10	1.0	1.0	1.0

Notes:
[1]Derived (Adjusted) Method used by San Diego Air Pollution Control District to determine compliance with Regulation 12.
[2]The worker is assumed to be exposed at the work location 8 hours per day, instead of 24; 245 days per year, instead of 365; and for 40 years, instead of 70.

Cancer risks potentially associated with project operation 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 project. Cancer burden is calculated as the maximum product of any potential carcinogenic risk greater than one in one million and the number of individuals at that risk level. Because the MICR is less than one in one million, the potential cancer burden is zero.

The maximum potential acute non-cancer health hazard index associated with concentrations in air is shown in Table 5.16-5. As indicated in the table, the acute non-cancer health hazard index for all target organs falls below 1.0, the threshold of significance.

Similarly, the maximum potential chronic non-cancer health hazard index associated with concentrations in air is also shown in Table 5.16-5. The chronic non-cancer health hazard index also falls below 1.0, the threshold of significance.

Therefore, the analyses of cancer and non-cancer risks associated with chronic or acute exposures demonstrate that the risks fall below significance thresholds used for regulating emissions of toxic air contaminants to the air, and the project will be in compliance with the requirements of District Regulation 12.

Lead is a criteria pollutant, with explicit ambient standards. The one-hour average impact of lead emissions from the cooling tower is compared with the applicable state and federal standards in Table 5.16-6. This comparison is extremely conservative, in that it compares one-hour modeled concentrations with longer term standards. Even this highly conservative assessment shows that impacts of lead from the cooling tower will be well below the ambient standards.

TABLE 5.16-6
COMPARISON OF PROJECT LEAD IMPACTS WITH STATE AND FEDERAL STANDARDS

Averaging Period	Standard (µg/m^3)	Maximum 1-hour Average Concentration (µg/m^3)	Complies? (Y/N)
30 day Average (state)	1.5	5.49E-07	Y
Calendar Quarter (federal)	1.5	5.49E-07	Y
Rolling 3-Month Average (federal)	0.15	5.49E-07	Y

The District also requested that predicted impacts of certain pollutants be compared with the eight-hour RELs published by OEHHA. The maximum eight-hour concentration for these pollutants was calculated by multiplying the eight-hour unit impact factor from the turbine impact screening runs (see Table P-1.4) times the emission rate for each pollutant. The result is the eight-hour concentration (in µg/m^3), which can be compared with the REL. Table 5.16-7 shows that the project impacts are below the eight-hour RELs.

TABLE 5.16-7
COMPARISON OF MAXIMUM 8-HOUR AVERAGE IMPACTS FROM PROJECT OPERATION WITH 8-HOUR RELS

Pollutant	8-hour REL[1] (µg/m³)	Maximum 8-hour Average Concentration (µg/m³)	Complies? (Y/N)
Acetaldehyde	300	0.02	Y
Acrolein	0.7	0.003	Y
Formaldehyde	9	0.4	Y

Notes:
[1]OEHHA, *Table of All Acute, Chronic and 8 hour Reference Exposure Levels,* http://www.oehha.ca.gov/air/allrels.html (December 18, 2008)

Uncertainty in the HRA Results

Historically, exposure to any level of a carcinogen has been considered to have a finite risk of inducing cancer. 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 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 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 1991).

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, this analysis uses highly conservative methods and assumptions, meaning they tend to overpredict the potential for adverse effects. Conservative methodology and assumptions include those outlined below.

- The analysis includes representative weather data over a period of three years to ensure that the least favorable conditions producing the highest ground-level concentration of emissions are included. The analysis then assumes that these worst-case annual weather conditions, which in reality occurred only once in three years, will occur every year for 70 years.

- The PPEC is assumed to operate at hourly, daily, and annual emission conditions that produce the highest ground-level concentrations. In reality, the plant is expected to operate at a variety of conditions that will produce lower emissions and impacts.

- The location of the highest ground-level concentration of PPEC emissions is identified and the characterization of risk is based on the assumption that an individual resides at this location 24 hours a day, seven days a week over the entire 70 year period (or works at a workplace receptor eight hours per day, 250 days per year, for 40 years), even though these assumptions are physically impossible. In reality, people rarely live in their homes for 70 years; even if they do, they leave their homes to attend school, go to work, go shopping, and so on.

Taken together, these methods and assumptions create a scenario that is more potentially adverse to human health than conditions that exist in the real world. For example, if the worst-case weather conditions could occur on a winter evening but the worst-case emission rates could occur on a summer afternoon, the analysis nonetheless assumes that these events occur at the same time. The point of using these conservative assumptions is to consciously overstate the potential impacts of the project. No one individual 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 provides 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.

A separately transmitted compact disc contains the HRA modeling input and output files.

5.16.2.4 Hazardous Materials

Hazardous materials will be used and stored at the PPEC site. The hazardous materials stored in significant quantities on-site and descriptions of their uses are presented in Section 5.15. Use of chemicals at the project site will be in accordance with standard practices for storage and management of hazardous materials. Routine 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 an 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. Materials listed in the RMP and proposed to be used at the facility include aqueous ammonia, as discussed in Section 5.15.

5.16.2.5 Operation Odors

A small amount of ammonia used to control NO_x emissions can “slip” past the SCR catalyst and be emitted from the exhaust stack, but this amount is less than that required to produce an odor offsite. The expected exhaust gas ammonia concentration, known as ammonia “slip,” will be less than 5 ppmv. After mixing with the atmosphere, the concentration at ground level will be far below the detectable odor threshold of 5 ppmv that the Compressed Gas Association has determined to be acceptable, as well as being below the ACGIH[9] TLV[10] and STEL[11] values of 25 and 35 ppm respectively (adopted 2003). Therefore, potential ammonia emissions would not create a significant odor. Other combustion contaminants are not present at concentrations that could produce a significant odor.

[9] American Congress of Industrial Hygienists
[10] Threshold Limit Value
[11] Short-term Exposure Level

5.16.2.6 Electromagnetic Field Exposure

The PPEC will connect to the SDG&E transmission grid through a newly constructed transmission line, which will connect to the existing SDG&E 230 kV Otay Mesa switchyard east of the facility. The project will include additional onsite electric power handling transformers and associated equipment, as discussed in more detail in Section 3.7. Based on recent findings of the National Institute of Environmental Health Sciences (NIEHS, 1999), electromagnetic field exposures from the electric power handling equipment 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"(NIEH 1999).

5.16.2.7 Summary of Impacts

Results from the health risk assessment based on emissions modeling indicate that there will be no significant incremental public health risks from construction or operation of the PPEC. The summary of health risks in Table 5.16-5 shows that the risks are below the thresholds in SDAPCD Rule 1200. Results from criteria pollutant modeling for routine operations indicate that potential ambient concentrations of NO_2, CO, SO_2, and PM_{10} would not exceed ambient air quality standards, with the exception of the state PM_{10} and $PM_{2.5}$ standards. For these pollutants, existing 24-hour average PM_{10} background concentrations and PM_{10} and $PM_{2.5}$ annual background concentrations already exceed state standards, while the project would not add a significant contribution. The ambient air quality standards protect public health with a margin of safety for the most sensitive subpopulations (Section 5.2).

5.16.3 Cumulative Impacts

An analysis of potential cumulative air quality impacts that may result from the PPEC and other reasonably foreseeable projects is required by the CEC. The following requirements for other projects to qualify for cumulative air quality impact analysis were submitted to the SDAPCD in a request letter on November 22, 2010:

- Have a net emissions increase of five tons per year or more of NO_x, PM_{10}, SO_x, or CO;
- Be located within a six-mile radius of the PPEC project site; and
- Be issued a new Authority to Construct permit after January 1, 2004.

The SDAPCD provided a list of permits within the county issued after January 1, 2004. None of the facilities had a net emissions increase exceeding five tons per year of the listed pollutants. Hence, a cumulative impacts analysis for either criteria pollutants or TACs is not required.

5.16.4 Mitigation Measures and Conditions of Certification

The criteria pollutant emissions from the project will be mitigated by the use of Best Available Control Technology (BACT) and through emissions offsets. These measures are described in Section 5.2, Air Quality. The toxic pollutant emissions from the project will also be mitigated by

the exclusive use of natural gas fuel. In addition, pollution control technologies employed to control criteria pollutants (specifically, the oxidation catalyst on the turbines) will further reduce turbine emissions of organic TACs. These measures satisfy the SDAPCD requirements for toxics (TBACT) for natural gas-fired generation units. Emissions from the cooling system will be limited by the use of an efficient drift control eliminator, and a biocide will be used to minimize the possibility of Legionella being transmitted from the cooling system.

The HRA presented in the foregoing subsections shows that the health effects impacts of the project as proposed would be well below the significance thresholds identified in Section 5.16.2.1. Therefore, no further mitigation of emissions from the project is required to protect public health.

5.16.5 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 the PPEC are identified in Table 5.16-8. The compliance of the project with each of the LORS applicable to public health is demonstrated is also presented in the table.

TABLE 5.16-8
LAWS, ORDINANCES, REGULATIONS, AND STANDARDS APPLICABLE TO PUBLIC HEALTH

LORS	Purpose	Regulating Agency	AFC Section Explaining Conformance
Federal			
Clean Air Act (CAA) §160-169A and implementing regulations, Title 42 United States Code (USC) §7470-7491 (42 USC 7470-7491), Title 40 Code of Federal Regulations (CFR)	Protect public health by limiting emissions and resulting exposure to air contaminants	SDAPCD, with CARB and EPA oversight	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3) Based on an ambient air quality modeling analysis performed in accordance with SDAPCD and EPA guidance, project criteria pollutant impacts would not exceed primary ambient air quality standards established to protect public health. (§5.2.4)
40 CFR Part 68 (Risk Management Plan)	Public exposure to acutely hazardous materials	EPA, San Diego Department of Environmental Health	As discussed in Section 5.15, Hazardous Materials Handling, an RMP will be developed prior to commencement of facility operations. (§5.16.2.4)
State			
California Health & Safety Code (H&SC) §25249.5 et.seq. (Safe Drinking Water and Toxic Enforcement Act of 1986—Proposition 65)	Inform public at a facility of potential exposure to chemicals known to cause cancer or reproductive toxicity	OEHHA	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines non-criteria pollutant emission rates and resulting doses and carcinogenic risks (see Section 5.16.2) will not exceed thresholds that require Proposition 65 exposure warnings.
H&SC §25531-25541; California Code of Regulations (CCR) Title 19 (Public Safety), Division 2 (Office of Emergency Services), Chapter 4.5 (California Accidental Release Prevention Program)	Public exposure to regulated substances	San Diego Department of Environmental Health	As discussed in Section 5.15, Hazardous Materials Handling, an RMP will be developed prior to commencement of facility operations. (§5.16.2.4)
California Public Resource Code § 25523(a); 20 CCR § 1752.5, 2300-2309, and Division 2 Chapter 5, Article 1, Appendix B, Part (1)	Ensure protection of environmental quality; requires a quantitative HRA.	CEC	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)
California Clean Air Act, TAC Program, HSC § 39650, et seq.	Requires quantification of TAC emissions, use of BACT, and preparation of an HRA.	SDAPCD with CARB oversight	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)
HSC § 41700	Prohibits emissions in quantities that adversely affect public health, other businesses, or property.	SDAPCD with CARB oversight	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)

LORS	Purpose	Regulating Agency	AFC Section Explaining Conformance
California Code of Regulations, Title 22, Section 60306	Requires use of a drift eliminator and biocides to minimize Legionella transmission from the cooling system.	SDAPCD with CARB oversight	Emissions from the cooling system will be limited by the use of an efficient drift control eliminator, and a biocide will be used to minimize the possibility of Legionella being transmitted from the cooling system. (§5.164)
Local			
SDAPCD Rule 1200, Toxic Air Contaminants New Source Review	Limit public exposure to toxic air contaminants from new sources	SDAPCD	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)
SDAPCD Regulation IV – Rule 51 - Nuisance	Prevents creation of a public nuisance	SDAPCD with CARB oversight	Based on a health risk assessment that follows CARB/OEHHA and SDAPCD guidelines, project emissions of non-criteria pollutants do not result in a significant health risk (§5.16.2.3)

5.16.6 Involved Agencies and Agency Contacts

Table 5.16-9 provides contact information for agencies involved with public health.

TABLE 5.16-9
AGENCY CONTACTS

Agency	Authority	Contact
California Air Resources Board	Public exposure to air pollutants	Mike Tollstrup, Chief Project Assessment Branch California Air Resources Board 2020 L Street Sacramento, CA 95814 (916) 322-6026
Cal-EPA, Office of Environmental Health and Hazard Assessment (OEHHA)	Public exposure to chemicals known to cause cancer or reproductive toxicity	Cynthia Oshita or Susan Long Office of Environmental Health Hazard Assessment 1001 I Street, Sacramento, CA 95814 (916) 445-6900
California Office of Emergency Services	Public exposure to accidental releases of hazardous materials	Moustafa Abou-Taleb Governor's Office of Emergency Services 3650 Schriever Avenue Mather, CA 95655 (916) 845-8741
San Diego County Department of Environmental Health	Public exposure to accidental releases of hazardous materials	Matt Trainor County of San Diego Department of Environmental Health Administrative Offices 1255 Imperial Avenue, 3rd Floor San Diego, CA 92101 (619) 338-2372
San Diego Air Pollution Control District	Public exposure to air pollutants	Steve Moore, Senior Air Pollution Control Engineer San Diego County Air Pollution Control District 10124 Old Grove Road San Diego, CA 92131 858-586-2750

5.16.7 Permits Required and Permit Schedule

Agency-required permits related to public health are listed in Table 5.16-10 and include a Risk Management Plan for hazardous materials, and the SDAPCD Determination of Compliance (DOC). Upon approval of the PPEC by the CEC, the DOC serves as the SDAPCD Authority to Construct. A Permit to Operate will be issued by the SDAPCD after construction and commencement of operation. These requirements are discussed in detail in Sections 5.2 (Air Quality) and 5.15 (Hazardous Materials Handling).

TABLE 5.16-10
PERMITS AND PERMIT SCHEDULES FOR PUBLIC HEALTH

Permit	Agency	Schedule
Determination of Compliance/Authority to Construct/ Permit to Operate	San Diego Air Pollution Control District	District must issue a Preliminary DOC within 180 days after issuing the Application Completeness Determination Letter.
Risk Management Plan (CalARP)	San Diego County Department of Environmental Health	RMP application must be approved before arrival of hazardous materials on site.

5.16.8 References

California Air Resources Board (CARB). 2010. Consolidated table of OEHHA/ARB approved risk assessment health values. (http://arbis.arb.ca.gov/toxics/healthval/contable.pdf). October 18.

California Air Resources Board (CARB). HARP Model, Version 1.4c, http://www.arb.ca.gov/toxics/harp/harp.htm.

California Air Resources Board (CARB). HARP On-Ramp, Version 1, http://www.arb.ca.gov/toxics/harp/downloads.htm.

English, P., R. Neutra, et al. 1999. "Examining associations between childhood asthma and traffic flow using a geographic information system." *Environ Health Perspect* 107(9): 761-7.

English, Paul B., Julie Von Behren, Martha Harnly, and Raymond R Neutra. 1998. "Childhood asthma along the United States/ Mexico border: Hospitalizations and air quality in two California counties." Rev Panam Salud Publica [online]. 1998, vol.3, n.6, pp. 392-399. ISSN 1020-4989. doi: 10.1590/S1020-49891998000600005.

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

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

Office of Environmental Health Hazard Assessment (OEHHA). 2009. *Air Toxics Hot Spots Program Risk Assessment Guidelines Part II: Technical Support Document for Cancer Potency Factors*, California Environmental Protection Agency. May.

Ostro, B., Lindsey Roth, et al. 2009. "The Effects of Fine Particle Components on Respiratory Hospital Admissions in Children." Environmental Health Perspectives 117(3): 475-480.

San Diego Air Pollution Control District (SDAPCD). 2005. *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs).* March.

San Diego Air Pollution Control District (SDAPCD). 2009. Carlsbad Energy Center Project (CECP) Final Determination of Compliance (FDOC). August.

Adequacy Issue: Adequate ____ Inadequate ____

DATA ADEQUACY WORKSHEET

Revision No. 0 Date ____

Technical Area: **Public Health** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND 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.	See Below		
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 (OEHHA Guidelines, Cal-EPA 2005).	Section 5.16.2.3, Tables 5.16-4 and 5.16-5.		
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.	Input data shown in Appendix P-1, Tables P-1.1 to P-1.3. Electronic input/output files discussed in Section 5.16.2.3 (regarding attached modeling CD).		
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		

Adequacy Issue: Adequate ____ Inadequate ____

DATA ADEQUACY WORKSHEET

Revision No. 0 Date ____

Technical Area: **Public Health** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (9) (D)	A map showing sensitive receptors within the area exposed to the substances identified in subsection (g)(9)(A).	N/A (No sensitive receptors within 3 miles of the receptor site).		
Appendix B (g) (9) (E)	For purposes of this section, the following definitions apply:	--		
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;	--		
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	--		
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.	--		
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, Table 5.16-8.		

Adequacy Issue: Adequate ____ Inadequate ____

DATA ADEQUACY WORKSHEET

Revision No. 0 Date ____

Technical Area: **Public Health** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
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 5.16.6, Table 5.16-9 and Section 5.16.7, Table 5.16-10.		
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 5.16.6, Table 5.16-9.		
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 5.16.7, Table 5.16-10.		