D.2 Air Quality

This section addresses the Proposed Project and alternatives as they would affect air quality. Section D.2.1 provides a description of the environmental setting, including existing air quality. Applicable air quality management plans, regulations, and requirements are discussed in Section D.2.2. An analysis of potential impacts from the Proposed Project and associated mitigation measures are provided in Section D.2.3, and the air quality impacts related to the project alternatives are described in Section D.2.4. The mitigation monitoring, compliance, and reporting program is discussed in Section D.2.5 and the references cited in this section are listed in Section D.2.6.

D.2.1 Environmental Setting for the Proposed Project

The Proposed Project is located approximately 2 miles south of United States Highway 50 along Power Inn Road. The area west of the Proposed Project includes single-family homes and some commercial uses. The area east of the project site is occupied by industrial and commercial uses. The project site, as measured from the compressor station site in Depot Park, is located less than 5 miles southeast of downtown Sacramento and approximately 6.5 miles east of Interstate 5 (I-5). Emissions sources in the project area primarily consist of motor vehicle travel.

D.2.1.1 Climate and Meteorology

Climate and air quality are determined by the geographic location, topography, and urbanization of an area. This section describes pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the project area.

Climate

The State of California, for purposes of air quality classification, has divided the state into meteorologically and geographically similar areas called air basins. The project area is located primarily in the City of Sacramento, with portions of the project in the unincorporated County of Sacramento, which lies within the Sacramento Valley Air Basin (Basin or SVAB). The climate of the SVAB is Mediterranean in character, with mild, rainy winter weather from November through March. Rainfall averages nearly 20 inches per year, with almost all precipitation occurring between November and March. The climate is warm to hot, with dry weather from May through September. Maximum temperatures frequently approach or exceed 100°F. The topographic features giving shape to the SVAB are the Coast Range to the west, the Sierra Nevada to the east, and the Cascade Range to the north. These ranges channel winds through the Sacramento Valley but also inhibit dispersion of pollutant emissions.

The City is 55 miles northeast of the Carquinez Strait, a sea-level gap between the Coast Range and the Diablo Range. The intervening terrain between Sacramento and the strait is primarily flat. The

prevailing wind is from the south, primarily because of marine breezes through the Carquinez Strait. During winter, sea breezes diminish and winds blow from the north more frequently.

Meteorological Influences on Air Quality

Vertical dispersion of air pollutants in the project area is often hampered by the presence of a persistent temperature inversion in the atmospheric layers of the earth's surface. The net input of cumulative pollutants into the atmosphere from mobile and stationary sources does not vary substantially by season. The duration of an inversion layer increases the concentration of pollutants in the inversion layer and the air mass trapped beneath the inversion layer. Strong winds or daytime warming of the surface air layer is required to disperse the pollutants horizontally. During the winter, motor vehicle emissions such as carbon monoxide (CO) and oxides of nitrogen (NO_x) are of concern because of low inversions and stagnant air that prevent pollutants from dispersing. Ozone (O_3) is less prevalent in the winter due to the lack of intense sunlight needed to produce it from its chemical precursors, volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), with higher O_3 levels occurring between the late spring and early fall.

D.2.1.2 Existing Air Quality

Criteria Air Pollutants

Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation.

With the assistance of the Sacramento Metropolitan Air Quality Management District (SMAQMD), the California Air Resources Board (CARB) compiles inventories and projections of emissions of the major pollutants and monitors air quality conditions. Air quality conditions are tracked for both "criteria air pollutants" and "toxic air contaminants." Criteria air pollutants refer to a group of pollutants for which CARB or the U.S. Environmental Protection Agency (EPA) have adopted health-based ambient air quality standards and regionwide pollution reduction plans. Seven air pollutants have been identified by the EPA as being of concern nationwide: CO; O_3; nitrogen dioxide (NO_2); particulate matter sized 10 microns or less (PM_{10}), also called respirable particulate matter or coarse particulate matter; fine particulate matter less than or equal to 2.5 microns in size ($PM_{2.5}$); sulfur dioxide (SO_2); and lead (Pb). These pollutants are collectively referred to as "criteria" pollutants. The sources of these pollutants, their effects on human health and the nation's welfare, and their final deposition in the atmosphere vary considerably.

Ozone (O_3)

O_3 is the principal component of smog and is formed in the atmosphere through a series of reactions involving reactive organic gases (ROG, also referred to as volatile organic compounds or VOCs) and

NO_x in the presence of sunlight. ROG and NO_x are called precursors of O_3. NO_x includes various combinations of nitrogen and oxygen, primarily consisting of nitric oxide (NO) and NO_2. O_3 is a principal cause of lung and eye irritation in the urban environment. Significant O_3 concentrations are primarily produced in the summer, when atmospheric inversions are greatest and temperatures are high. ROG and NO_x emissions are both considered critical in O_3 formation. Control strategies for O_3 have focused on reducing emissions from motor vehicles; industrial processes using solvents and coatings; stationary combustion devices, such as boilers, engines, and gas turbines; and consumer products.

Respirable Particulate Matter (PM_{10})

Particulate matter includes both liquid and solid particles of a wide range of sizes and composition. While some PM_{10} comes from automobile exhaust, the principal source in Sacramento is dust from construction and from the action of vehicle wheels on paved and unpaved roads. Agriculture, wind-blown sand, and fireplaces can be important sources. PM_{10} can cause increased respiratory disease, lung damage, and premature death. Control of PM_{10} is achieved through the control of dust at construction sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

Fine Particulate Matter ($PM_{2.5}$)

The sources, health effects, and control of $PM_{2.5}$ are similar to those of PM_{10}. In 1997, the EPA determined that the health effects of $PM_{2.5}$ were severe enough to warrant an additional standard (EPA 1997a). In addition, CARB adopted an annual standard for $PM_{2.5}$ in June 2002 (CARB 2002).

Carbon Monoxide (CO)

CO is a colorless and odorless gas that, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Overall CO emissions have decreased as a result of the state and federal motor vehicle control programs, which have mandated increasingly lower emission levels for vehicles manufactured since 1973 as well as inspection and maintenance programs, and of reformulated gasoline. CO concentrations in the atmosphere are typically higher in winter. The use of oxygenated gasoline in the winter months is required to reduce CO emissions.

Nitrogen Dioxide (NO_2)[1]

NO_2 is a product of combustion and is generated in vehicles and in stationary sources such as power plants and boilers. NO_2 can cause lung damage. As noted above, NO_2 is part of the NO_x family and is a principal contributor to O_3 and smog.

Sulfur Dioxide (SO_2)[2]

SO_2 is a combustion product, with the primary source being power plants and heavy industry that use coal or oil as fuel. SO_2 is also a product of diesel engine combustion. The health effects of SO_2 include lung disease and breathing problems for asthmatics. SO_2 in the atmosphere contributes to the formation of acid rain. In the SVAB, there is relatively little use of coal and oil, and SO_2 is of lesser concern than in many other parts of the country.

Lead (Pb)

Lead is a stable compound, which persists and accumulates both in the environment and in animals. The lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere. However, lead emissions have significantly decreased due to the near elimination of the use of leaded gasoline.

Toxic Air Contaminants

Toxic air contaminants (TACs) refer to a category of air pollutants that pose a present or potential hazard to human health but that tend to have more localized impacts than criteria pollutants. The CARB has identified diesel particulate matter as the predominant TAC in California. Diesel particulate matter is emitted into the air by mobile vehicles that are diesel powered. Such vehicles include heavy-duty diesel trucks, construction equipment, and passenger vehicles. Certain ROGs may also qualify as TACs.

Types of Emission Sources

The SMAQMD has identified several types of emission sources that need to be considered when evaluating the impacts of a project under CEQA. For many development projects, motor vehicle trips are the principal source of air pollution; projects in this category—such as shopping centers,

[1] In this section, the term NO_2 will be used with respect to the presence of nitrogen dioxide in the atmosphere. The term NO_x will be used to refer to the *emissions* of oxides of nitrogen from stationary and mobile sources, which are primarily in the form of nitric oxide (NO) and, to a less extent, nitrogen dioxide (NO_2).

[2] In this section, the term SO_2 will be used with respect to the presence of sulfur dioxide in the atmosphere. The term SO_x will be used to refer to the *emissions* of sulfur oxides from stationary and mobile sources, which are primarily in the form of SO_2 and, to a less extent, sulfur trioxide (SO_3).

office buildings, arenas, and residential developments—are often referred to as indirect sources. Such indirect sources do not directly emit significant amounts of air pollutants from on-site activities, but they cause emissions from motor vehicles traveling to and from the development over their operating lifetime.

Most development projects also generate what are known as area source emissions. Area source emissions are relatively small quantities of air pollutants when considered individually, but cumulatively may represent significant emissions. Water heaters, fireplaces, lawn maintenance equipment, and application of paints and lacquers are examples of area source emissions.

Certain projects may also directly generate stationary point source emissions from operations. Examples of facilities with point sources include manufacturing plants, quarries, and print shops. Project-related construction emission impacts are also a significant contributor to regional air pollution. On-road and off-road construction vehicles, along with on-site portable equipment, such as generators and air compressors, generate exhaust emissions. Construction vehicles and equipment operation can also cause unacceptable levels of entrained fugitive dust (PM_{10}). Even though they are temporary, in some cases construction emissions may be quantitatively greater on a daily basis than emissions from the operation of the development once it is built.

Ambient Air Quality

The SMAQMD and CARB currently operate air quality monitoring stations throughout the SVAB and Sacramento County. The monitoring station nearest to the wellhead and compressor station sites is the 2221 Stockton Boulevard Street station (located approximately 3.5 miles northwest), with data available through 2007. Recent air quality data collected at this monitoring site are summarized in Table D.2-1.

Table D.2-1
Local Ambient Air Quality Monitoring Data
Stockton Boulevard Monitoring Station

	O_3[a]		PM_{10}		$PM_{2.5}$		CO[b]		NO_2[a]		SO_2[c]	
Year	Days Over 8-Hr State Standard	Max 8-Hr (ppm)	Max 24-Hr (µg/m³)	Annual Average (µg/m³)	Max 24-Hr (µg/m³)	Annual Average (µg/m³)	Max 1-Hr (ppm)	Max 8-Hr (ppm)	Annual Average (ppm)	Max 1-Hr (ppm)	Annual Average (ppm)	Max 24-Hr (ppm)
2003	1	0.091	53	20.8	49	10.8	6.7	4.5	0.017	0.084	0.001	0.003
2004	0	0.075	44	20.9	47	10.5	4.5	3.3	0.017	0.072	0.001	0.003
2005	1	0.087	64	20.7	59	10.4	4.7	4.2	0.016	0.071	0.001	0.003

Table D-.2-1 (Continued)

Year	O_3[a]		PM_{10}		$PM_{2.5}$		CO[b]		NO_2[a]		SO_2[c]	
	Days Over 8-Hr State Standard	Max 8-Hr (ppm)	Max 24-Hr (µg/m³)	Annual Average (µg/m³)	Max 24-Hr (µg/m³)	Annual Average (µg/m³)	Max 1-Hr (ppm)	Max 8-Hr (ppm)	Annual Average (ppm)	Max 1-Hr (ppm)	Annual Average (ppm)	Max 24-Hr (ppm)
2006	3	0.090	56	22.5	45	10.8	4.7	4.2	0.016	0.077	0.001	0.002
2007	1	0.089	56	20.0	53	10.9	3.5	3.2	0.015	0.064	0.001	0.004

Sources: CARB 2008a.
EPA 2008a.
Note: Lead has not been monitored in Sacramento County since 1999 (3535 El Camino and Watt station); when last monitored, levels were less than 1% of the national quarterly average standard.
[a] Data were obtained from the 1309 T Street monitoring station, which is located approximately 5.5 miles northwest of the project site. The 1309 T Street station is the closest monitoring station that monitors for this particular pollutant.
[b] Data were obtained from the 3535 El Camino and Watt monitoring station, which is located approximately 6 miles northeast of the project site. The 3535 El Camino and Watt station is the closest monitoring station that monitored for this pollutant for each of the monitoring years shown above.
[c] Data were obtained from the Del Paso Manor (2701 Avalon Drive) monitoring station, which is located approximately 6.5 miles northeast of the project site. The Del Paso Manor monitoring station is the closest monitoring station that monitors for this particular pollutant.
ppm = parts per million; µg/m³ = micrograms/cubic meter.

D.2.1.3 Sensitive Receptors

The location of a development project is a major factor in determining whether it will result in localized air quality impacts. The potential for adverse air quality impacts increases as the distance between the source of emissions and members of the public decreases. Impacts on sensitive receptors are of particular concern. Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors.

Air quality problems arise when sources of air pollutants and sensitive receptors are located near one another. SMAQMD notes that there are several types of land use conflicts that should be avoided:

- A sensitive receptor close to a congested intersection or roadway with high levels of emissions from motor vehicles. High concentrations of CO, $PM_{2.5}$, or TACs are the most common concerns.
- A sensitive receptor close to a source of TACs or a potential source of accidental releases of hazardous materials.
- A sensitive receptor close to a source of odorous emissions. Although odors generally do not pose a health risk, they can be quite unpleasant and often lead to citizen complaints to the air district and to local governments.
- A sensitive receptor close to a source of high levels of nuisance dust emissions (PM_{10}).

Localized impacts to sensitive receptors generally occur in one of two ways:

- A (new) source of air pollutants is proposed to be located close to existing sensitive receptors. For example, an industrial facility is proposed for a site near a school.
- A (new) sensitive receptor is proposed near an existing source of air pollutants. For example, a residential development is proposed near a wastewater treatment plant.

The closest sensitive receptors to the wellhead site would be along Power Inn Road, with existing residences directly across Power Inn Road within approximately 100 feet of the property boundary. Sensitive receptors near the compressor station site include single-family homes located approximately 2,250 feet west of the compressor station. The compressor station site is surrounded by commercial and light industrial uses to the north, east, and south.

D.2.2 Applicable Regulations, Plans, and Standards

D.2.2.1 Ambient Air Quality Standards

Air quality is analyzed by measuring ambient concentrations of "criteria pollutants,"[3] as shown in Table D.2-1. The U.S. EPA uses seven criteria pollutants (i.e., O_3, PM_{10}, $PM_{2.5}$, NO_2, CO, sulfur dioxide (SO_2), and Pb) as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are known as the National Ambient Air Quality Standards (NAAQS).

Because of unique meteorological conditions in California and differences of opinion by medical panels established by CARB and the U.S. EPA, there are differences between state and federal standards currently in effect in California. In general, the California Ambient Air Quality Standards (CAAQS) are more stringent than the corresponding NAAQS. In addition, the CAAQS also include four other pollutants for which there are no NAAQS: visibility-reducing particles, hydrogen sulfide, vinyl chloride, and sulfates. The standards currently in effect in California are shown in Table D.2-2. To date, ambient air quality standards have not been adopted for air toxics; instead, data are used to estimate potential health risk and to determine the need for control measures to reduce air toxic emissions from specific sources.

[3] "Criteria pollutants" refers to substances for which the California Air Resources Board or the Environmental Protection Agency have established ambient air quality standards.

Table D.2-2
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2]
Ozone (O_3)	1-hour	0.09 ppm	—
	8-hour	0.070 ppm	0.075 ppm
Respirable particulate matter (PM_{10})	24-hour	50 µg/m^3	150 µg/m^3
	Annual mean	20 µg/m^3	—
Fine particulate matter ($PM_{2.5}$)	24-hour	—	35 µg/m^3
	Annual mean	12 µg/m^3	15 µg/m^3
Carbon monoxide (CO)	1-hour	20 ppm	35 ppm
	8-hour	9.0 ppm	9 ppm
Nitrogen dioxide (NO_2)	1-hour	0.18 ppm	—
	Annual mean	0.030 ppm	0.053 ppm
Sulfur dioxide (SO_2)	1-hour	0.25 ppm	—
	24-hour	0.04 ppm	0.14 ppm
	Annual mean	—	0.030 ppm

Note: "—" indicates not applicable.
Source: CARB 2008b.

[1] California standards for O_3, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO2, suspended particulate matter—PM_{10}, and $PM_{2.5}$—and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

The AAQS define clean and healthful air for the general public. Specifically, air quality standards establish the concentration above which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. The amount of pollutants released and the atmosphere's ability to transport and dilute the pollutants affect a given pollutant's concentration in the atmosphere. Factors affecting transport and dilution include terrain, wind, atmospheric stability, and, for photochemical pollutants, sunlight. Sacramento's poor air quality can largely be attributed to emissions, geography, and meteorology.

Air quality of a region is considered to be in attainment of the state standards if the measured ambient air pollutant levels for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles do not exceed the standards, and all other standards are not equaled or exceeded at any time in any consecutive 3-year period. The NAAQS (other than for O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant.

D.2.2.2 Attainment Status

Each air basin is responsible for meeting NAAQS and CAAQS for criteria pollutants and is classified by U.S. EPA and CARB as an attainment or nonattainment area for each pollutant. The U.S. EPA has designated the Sacramento region, as a serious nonattainment area for O_3, with special requirements for the attainment of NAAQS. The Sacramento region was designated as a severe O_3 nonattainment area prior to U.S. EPA's revocation of the 1-hour O_3 standard on June 15, 2005 (EPA 2008b). These requirements include use of reasonably available control technology (RACT), vapor recovery on fuel systems, motor vehicle inspection and maintenance programs, emission offsets, transportation control measures, and other reductions in VOCs and NO_x. CARB has designated the Sacramento region as a nonattainment area for the 8-hour O_3 standard. Although CARB has not yet released area classifications, the Sacramento region was previously classified as serious under the 1-hour O_3 standard.

Sacramento County is also designated nonattainment/moderate for federal 24-hour PM_{10} AAQS and nonattainment for state 24-hour PM_{10} AAQS (EPA 2007; CARB 2007a). Sacramento County is designated as attainment/unclassifiable for the 24-hour and annual federal $PM_{2.5}$ standards. Sacramento County is designated as nonattainment for the state annual $PM_{2.5}$ standard. In addition, Sacramento County is designated as an attainment area for the state SO_2, NO_2, and CO standards. For the federal standards, the Sacramento region of the SVAB is designated as attainment/unclassifiable for CO and NO_2 and unclassifiable for SO_2. The status of the Sacramento County portion of the SVAB with respect to attainment for the NAAQS and CAAQS is summarized in Tables D.2-3 and D.2-4, respectively.

Table D.2-3
National Ambient Air Quality Standards and Status
Sacramento Valley Air Basin (Sacramento County)

Pollutant	Averaging Time	Designation/Classification
Ozone (O_3)	8 hour	Nonattainment/serious
Respirable particulate matter (PM_{10})	24 hour	Nonattainment/moderate
Fine particulate matter ($PM_{2.5}$)	24 hour, annual arithmetic mean	Attainment/unclassifiable
Carbon monoxide (CO)	1 hour, 8 hour	Attainment/unclassifiable
Nitrogen dioxide (NO_2)	Annual arithmetic mean	Attainment/unclassifiable
Sulfur dioxide (SO_2)	24 hour, annual arithmetic mean	Unclassifiable
Lead (Pb)	Calendar quarter	Attainment

Source: EPA 2007.

Table D.2-4
California Ambient Air Quality Standards and Status
Sacramento Valley Air Basin (Sacramento County)

Pollutant	Averaging Time	Designation/Classification
Ozone (O_3)	1 hour, 8 hour	Nonattainment[1]
Respirable particulate matter (PM_{10})	24 hour, annual arithmetic mean	Nonattainment
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	Nonattainment
Carbon monoxide (CO)	1 hour, 8 hour	Attainment
Nitrogen dioxide (NO_2)	1 hour	Attainment
Sulfur dioxide (SO_2)	1 hour, 24 hour	Attainment
Lead (Pb)[2]	30 day average	Attainment
Sulfates (SO_4)	24 hour	Attainment
Hydrogen sulfide (H_2S)	1 hour	Unclassified
Vinyl chloride[2]	24 hour	Unclassified
Visibility-reducing particles	8 hour (10:00 a.m.–6:00 p.m.)	Unclassified

Source: CARB 2007a.
[1] CARB has not issued area classification based on the new state 8-hour standard. The previous classification for the 1-hour O_3 standard was Serious.
[2] CARB has identified Pb, vinyl chloride, and TACs with no threshold level of exposure for adverse health effects determined.

D.2.2.3 Air Quality Plans and Regulations

Air quality in the project vicinity is regulated by several jurisdictions, including the U.S. EPA, CARB, and the SMAQMD (Sacramento County). Each jurisdiction develops rules, regulations, policies, and/or goals to attain the goals or directives imposed upon them through legislation. The federal Clean Air Act (42 U.S.C. §7401), as amended, and the California Clean Air Act of 1988 both require that air quality management plans be formulated demonstrating how the ambient air quality standards will be achieved in nonattainment areas. These laws also provide the basis for the implementing agencies to develop mobile- and stationary-source performance standards.

Local air quality management districts have been given authority by the state to manage stationary-source emissions within their jurisdiction. CARB requires that local air quality management districts develop their own strategies for achieving compliance with the NAAQS and CAAQS, but maintains regulatory authority over these strategies as well as all mobile source emissions throughout the state.

Sacramento Metropolitan Air Quality Management District

The SMAQMD has jurisdiction over most air quality matters in Sacramento County. The SMAQMD is responsible for implementing certain programs and regulations required by the federal Clean Air Act and the California Clean Air Act. In addition, the SMAQMD has prepared plans to attain national and state ambient air quality standards. SMAQMD adopted the Sacramento Regional Clean Air Plan—commonly referred to as the 1994 State Implementation Plan (SIP) for Sacramento—

which identifies a comprehensive regional strategy to reduce emissions to the level required for attainment of the federal standards.

The Sacramento Federal Ozone Nonattainment Area (SFNA) comprises all or portions of five air districts in the southern portion of the Sacramento air basin. Although the Sacramento metropolitan region currently does not meet the federal O_3 standard, it has made significant progress in the reduction of O_3 precursors since 1994 due to regional, state, and federal control measures. The Sacramento area has satisfied the milestone rate-of-progress requirements. Making overall progress towards attainment, the region has exceeded its planned goals for VOC emission reductions and met its NO_x reduction target in 2002 (SMAQMD 2003). The reports, which are available from the SMAQMD, detail the substantial progress already made, and reinforce the need to aggressively pursue the efforts laid out in the 1994 SIP.

The Sacramento Regional Nonattainment Area (SRNA) 8-Hour Ozone Rate-of-Progress Plan (El Dorado County Air Quality Management District et al. 2006) evaluates how existing control strategies and already-approved control measure commitments have provided or will provide the necessary future emission reductions to meet the federal Clean Air Act requirements for reasonable further progress during 1990–1996 and 2002–2008. This document fulfills the federal 8-hour O_3 requirements for the 2002–2008 Rate-of-Progress Plan for the SRNA and updates the emission inventory and sets new motor vehicle emission budgets for transportation conformity purposes.

The SMAQMD enforces rules and regulations within its jurisdiction to manage regional air quality. These rules and regulations and permit requirements apply to most industrial processes (e.g., manufacturing facilities, cement terminals, food processing), many commercial activities (e.g., print shops, drycleaners, gasoline stations), and other miscellaneous activities (including demolition of buildings containing asbestos and aeration of contaminated soils). The following rules and regulations would apply to the Proposed Project.

Rule 201 (General Permitting Requirements): This rule establishes procedures to obtain an Authority to Construct or a Permit to Operate for stationary sources, such as the Proposed Project. It is anticipated that stationary sources associated with the compressor station will require such permits, but the wellhead site will not.

Rule 202 (New Source Review): For new and modified stationary sources subject to permitting requirements (see Rule 201), this rule prescribes the use of best available control technology (BACT) and the provision of emission offsets (i.e., mitigation) for equipment whose emissions exceed specified thresholds. The applicability of these requirements would be determined upon submittal of an application for an Authority to Construct under Rule 201.

Rule 301 (Stationary Source Permit Fees): This rule establishes a fee charged to owners/operators of stationary sources that require an Authority to Construct or Permit to Operate (by Rule 201), a Title V permit, or a deposit or withdrawal of emission reduction credits from the SMAQMD credit bank. The Proposed Project would be subject to these fees, since it will require an Authority to Construct or a Permit to Operate.

Rule 401 (Ringelmann Chart/Opacity): This rule limits the discharge of any pollutants to not exceed 3 minutes within an hour where emissions are as dark or darker in shade as that designated No. 1 on the Ringelmann Chart or of an opacity that would obscure a human observer's view, or a certified calibrated in-stack opacity monitoring system to an equal or greater degree than No. 1 on the Ringelmann Chart.

Rule 402 (Nuisance): In order to protect the public's health and welfare, this rule requires that no emission source shall discharge quantities of air contaminants or other materials that would cause injury, detriment, or annoyance to any considerable number of persons or the public, or would endanger the comfort, repose, health or safety of any such persons of the public, or would cause or have natural tendency to cause injury or damage to businesses or property.

Rule 403 (Fugitive Dust): This rule requires developers to take every reasonable precaution to prevent any emissions of fugitive dust to be airborne beyond the property line where they originated. This rule would apply to the Proposed Project during construction activities (e.g., demolition, grading, construction).

Rule 411 (NO_x from Boilers, Process Heaters, and Steam Generators): This rule sets limits on NO_x and CO exhaust concentrations from boilers and related combustion devices. It applies to units with a rated heat input capacity of 1 million Btu (British thermal units) per hour or greater.

Rule 442 (Architectural Coatings): This rule sets limits on the VOC content contained in architectural coatings. This rule applies to any architectural coating supplied, sold, offered for sale, applied, or manufactured within the SMAQMD. During development of the Proposed Project, any architectural coatings used must comply with standards set in this rule.

Rule 453 (Cutback and Emulsified Asphalt Paving Materials): This rule sets limits on the VOC content contained in emulsified and cutback asphalt paving materials. The rule applies to any emulsified and cutback asphalt material used for paving or maintenance operations within the SMAQMD. In the case that the Proposed Project would require asphalt paving, the asphalt material used must comply with the standards established in this rule.

D.2.2.4 Hazardous Air Pollutants

Federal law defines hazardous air pollutants (HAPs) as noncriteria air pollutants with short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects. Regulation of HAPs under federal regulations is achieved through federal and state controls on individual sources. The 1990 federal Clean Air Act Amendments offer a comprehensive plan for achieving significant reductions in both mobile and stationary source emissions of HAPs. Under the 1990 Clean Air Act Amendments, a total of 189 chemicals or chemical families were designated HAPs because of their adverse human health effects. Title III of the 1990 federal Clean Air Act Amendments amended Section 112 of the Clean Air Act to replace the former program with an entirely new-technology-based program. Under Title III, the U.S. EPA must establish maximum achievable control technology emission standards for all new and existing "major" stationary sources through promulgation of National Emission Standards for Hazardous Air Pollutants (NESHAP). Major stationary sources of HAPs are required to obtain an operating permit from the SMAQMD (SMAQMD Rule 207, Title V—Federal Operating Permit Program) pursuant to Title V of the 1990 Clean Air Act Amendments. A major source is defined as one that emits at least 10 tons per year of any HAP or at least 25 tons per year of all HAPs.

The Oil and Natural Gas Production and Natural Gas Transmission and Storage NESHAP (40 CFR Part 63, Part HHH) could apply to the Proposed Project. This NESHAP was promulgated to control and minimize the emissions of BTEX (benzene, toluene, ethyl benzene, and xylenes) and n-hexane, the primary HAPs associated with oil and natural gas. These pollutants have been demonstrated to cause adverse health effects with short-term and long-term exposures. The NESHAP applies to all owners and operators of any facility that processes, upgrades, or stores hydrocarbon liquids or natural gas. The emissions control standards established by the NESHAP apply to process vents on glycol dehydrators, storage vessels with flash emissions, and equipment leaks located in major source facilities. Facilities subject to the NESHAP are required to implement maximum available control technology (MACT) and achieve specified control efficiencies. The U.S. EPA has set throughput thresholds for facilities transporting, storing, and producing natural gas under which MACT is not required due to its implementation not being cost effective. The NESHAP would apply to the Proposed Project if the actual annual average throughput to the glycol dehydration unit is equal to or greater than 283,000 cubic meters of natural gas per day.

D.2.2.5 Toxic Air Contaminants

California law defines TACs as air pollutants having carcinogenic or other health effects. Assembly Bill (AB) 1807 (the Tanner Bill, passed in 1983) established the State Air Toxics Program and the methods for designating certain chemicals as TACs. A total of 245 substances have been designated TACs under California law; they include the federal HAPs adopted as TACs in accordance with AB

2728 (Statutes 1992, Chapter 1161, Health and Safety Code sections 39655 et. seq). The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; AB 2588 does not regulate air toxics emissions directly. Under AB 2588, sources emitting more than 10 tons per year of any criteria air pollutant must estimate and report their toxic air emissions to the local air districts. Local air districts then prioritize facilities on the basis of emissions, and high-priority facilities are required to submit a health risk assessment and communicate the results to the affected public. Depending on risk levels, emitting facilities are required to implement varying levels of risk reduction measures. The SMAQMD is responsible for implementing AB 2588 in Sacramento County.

The SMAQMD is currently working to control TAC impacts from local hot spots and from ambient background concentrations. The control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources to identify major TAC emissions, and developing measures to reduce TAC emissions.

D.2.2.6 Greenhouse Gas Emissions

Much like criteria pollutants and toxic air contaminants, greenhouse gases (GHGs) are being addressed at the federal, state, and local levels. On April 2, 2007, the U.S. Supreme Court ruled that GHG emissions fit within the Clean Air Act definition of a pollutant, and therefore the U.S. EPA has the authority to promulgate GHG regulations. To date, the U.S. EPA has not proposed any GHG regulations, but Section 1605(b) of the Energy Policy Act of 1992 established the U.S. Voluntary Reporting of Greenhouse Gases Program to encourage such reporting.

The State of California adopted the Global Warming Solutions Act of 2006 (AB 32) on September 27, 2006, which requires sources within the state to reduce carbon emissions to 1990 levels by the year 2020. AB 32 also sets the following milestone dates for CARB to take specific actions:

- June 30, 2007: Identify a list of discrete early action GHG emission reduction measures (first report published April 20, 2007, with additional measures adopted on October 25, 2007).
- January 1, 2008: Establish a statewide GHG emission cap for 2020 that is equivalent to 1990 emissions.
- January 1, 2008: Adopt mandatory reporting rules for significant sources of GHGs.
- January 1, 2009: Adopt a scoping plan that will indicate how GHG emission reductions will be achieved from significant GHG sources through regulations, market-based compliance mechanisms, and other actions, including recommendation of a minimum threshold for GHG emissions, below which sources would be exempt from reduction requirements.

- January 1, 2011: Adopt regulations to achieve maximum technologically feasible and cost-effective GHG emission reductions, including provisions for both market-based and alternative compliance mechanisms.
- January 1, 2012: Regulations adopted prior to January 1, 2010, become effective.

In June 2007, CARB (CARB 2007b) adopted a list of three early action items to limit GHG emissions from specific source categories (e.g., motor vehicle fuels, landfills), which was supplemented with six additional measures in October 2007 (CARB 2007c). On December 6, 2007, CARB (CARB 2007d) approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 million metric tons CO_2 equivalent ($MMTCO_2E$).[4] As part of the GHG emission inventory effort, CARB published an inventory of California emissions in 2004 (the latest year inventoried), as shown in Table D.2-5. In addition, CARB (2007e) adopted regulations in December 2007 with recommended emission factors for calculating and reporting GHG emissions from a variety of sources, primarily industrial combustion; the regulations became effective in December 2008 and will require initial reports in 2009 for emissions in 2008. CARB approved the AB 32 Scoping Plan on December 11, 2008 (CARB 2008c). The scoping plan sets forth the strategy necessary to achieve the adopted emissions target by 2020 and includes programs to reduce transportation-related emissions, increase energy efficiency, increase the use of renewable energy sources, and establish a "cap-and-trade" program. While the scoping plan includes measures for the natural gas sector, no regulations for specific reductions have been established that would apply to the Proposed Project.

Table D.2-5
GHG Sources in California—2004

Source Category	Annual GHG Emissions ($MMTCO_2E$)[1]	Percent of Total (%)	Annual GHG Emissions ($MMTCO_2E$)[2]	Percent of Total (%)
Agriculture	27.9	5.8	27.9	6.6
Commercial Uses	12.8	2.6	12.8	3.0
Electricity Generation	119.8	24.7	58.5	13.8
Forestry (excluding sinks)	0.2	0.0	0.2	0.0
Industrial Uses	96.2	19.9	96.2	22.7
Residential Uses	29.1	6.0	29.1	6.9

[4] The CO_2 equivalent emissions are commonly expressed as metric tons of carbon dioxide equivalent ($MTCO_2E$). The carbon dioxide equivalent for a gas is derived by multiplying the mass of the gas by the associated global warming potential (GWP), such that $MTCO_2E$ = (metric tons of a GHG) x (GWP of the GHG). For example, the GWP for methane is 21. This means that emissions of one metric ton of methane is equivalent to emissions of 21 metric tons of CO_2.

Table D.2-5 (Continued)

Source Category	Annual GHG Emissions ($MMTCO_2E$)[1]	Percent of Total (%)	Annual GHG Emissions ($MMTCO_2E$)[2]	Percent of Total (%)
Transportation	182.4	37.7	182.4	43.1
Other[3]	16.0	3.3	16.0	3.8
Totals	**484.4**	**100.0**	**423.1**	**100.0**

[1] Includes emissions associated with imported electricity, which account for 61.3 $MMTCO_2E$ annually.

[2] Excludes emissions associated with imported electricity.

[3] Unspecified combustion and use of ozone-depleting substances.

Source: CARB 2007d.

The California Climate Action Registry (2008) has already published protocols for voluntary reporting of GHG emissions from a number of sectors of the economy, including natural gas combustion sources. The Climate Action Registry is currently working on developing an entity-level protocol for the natural gas transmission and distribution sector.

SB 97, adopted August 24, 2007, requires the Governor's Office of Planning and Research (OPR) to develop CEQA guidelines "for the mitigation of GHG emissions or the effects of GHG emissions" by July 1, 2009. SB 97 further requires the Resources Agency Secretary to adopt these CEQA guidelines by January 1, 2010. Finally, SB 97 removes GHG emissions as a cause of action under CEQA for specified state-financed infrastructure projects until January 1, 2010. SMAQMD has issued or proposed rules that would regulate GHG emissions or reporting of GHG emissions. On June 19, 2008, the OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less-than-significant level. The advisory did not recommend a specific threshold of significance, either quantitative or qualitative, leaving this to the lead agency's judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable.

D.2.3 Environmental Impacts and Mitigation Measures for the Proposed Project

D.2.3.1 Definition and Use of Significance Thresholds

Two sets of significance thresholds were used to assess the Proposed Project's impacts on air quality. The first set of thresholds, entitled "CEQA Thresholds," follows Appendix G of the CEQA Guidelines. The second set, entitled "Sacramento Metropolitan Air Quality Management District

Thresholds" below, expands upon the Appendix G thresholds and, in some cases, provides more specific quantitative thresholds. Both sets of thresholds are described below.

CEQA Thresholds

In accordance with Appendix G of the CEQA Guidelines, the Proposed Project would have a significant impact to air quality if it would result in any of the following conditions. The evaluation of air quality impacts with respect to these thresholds is discussed in Section D.2.3.3.

- Conflict with or obstruction of implementation of the applicable air quality plan (see Impact A-1).
- Violation of any air quality standard or substantial contribution to an existing or projected air quality violation (see Impact A-2).
- A cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under applicable federal or state ambient air quality standards (including releasing emissions that exceed quantitative thresholds for ozone precursors) (see Impact A-3).
- Exposure of sensitive receptors to substantial pollutant concentrations (see Impact A-4).
- Creation of objectionable odors affecting a substantial number of people (see Impact A-5).

Sacramento Metropolitan Air Quality Management District Thresholds

In addition to the general CEQA Guidelines thresholds listed above, the SMAQMD has adopted its own significance thresholds.

Air Quality Thresholds for Ozone, PM_{10}, CO, SO_2, and NO_2

In addition to the above thresholds of significance, the SMAQMD has adopted thresholds of significance for particular pollutants. To evaluate whether a project would result in a substantial contribution to an existing air quality violation of the NAAQS (see Table D.2-3) or CAAQS (see Table D.2-4) for ozone, which is a nonattainment pollutant, the SMAQMD considers a project to have a significant impact if the project's construction or operational emissions would exceed the thresholds shown in Table D.2-6. These emission-based thresholds for ozone precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse ozone impacts to occur) because ozone itself is not emitted directly (see discussion of ozone in Section D.2.1.2) and the effects of an individual project's emissions of ozone precursors (ROG and NO_x) on ozone levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table D.2-6
SMAQMD CEQA Air Quality Significance Thresholds

Pollutant	Construction (pounds per day)	Operation (pounds per day)
Reactive organic gases (ROG)	—[1]	65
Nitrogen oxides (NO_x)	85	65

Note: "—" indicates not applicable.
Source: SMAQMD 2004.
[1] The SMAQMD has not adopted an ROG threshold for construction emissions because most of the ROG emissions are generated during application of architectural coatings, which are regulated under SMAQMD rules. In addition, ROG emissions from construction equipment tend to be relatively low.

For PM_{10}, CO, SO_2, and NO_2, the SMAQMD uses the CAAQS, which is more stringent than the NAAQS for these pollutants, as the significance threshold; whereby, if the project's emissions would cause an exceedance or contribute substantially to an exceedance of the CAAQS, then the project's impact would be considered significant. A substantial contribution is defined as "making measurably worse, which is 5% or more of an existing exceedance of an ambient air quality standard" (SMAQMD 2004).

Additional Air Quality Thresholds

The SMAQMD has also established the following other thresholds of significance:

- Air Quality Plan Consistency: The project conflicts with or obstructs implementation of the applicable air quality plan (see Impact A-1).
- Odors: The project results in excessive nuisance odors, as defined under the California Code of Regulations, Health & Safety Code Section 41700, Air Quality Public Nuisance (see Impact A-5).
- Toxic Air Contaminants: The project results in construction or operational emissions of TACs that cause a lifetime cancer risk greater than 10 in one million (one in one million if BACT is not applied) or ground-level concentrations of noncarcinogenic TACs with a Hazard Index greater than one (see Impact A-4).
- Sensitive Receptors: The project results in a land use that creates emissions that conflict with sensitive receptors, such as schools, elderly housing, or hospitals or clinics (see Impacts A-4 and A-5).
- District Rules and Regulations: The project is not in compliance with all applicable District, state, and federal air quality rules and regulations (see Impact A-6).
- Conformity: The project does not comply with U.S. EPA general and transportation conformity regulations (see Impact A-7).

Finally, the SMAQMD has also determined that development projects are considered cumulatively significant if:

- The project requires a change in the existing land use designation (i.e., general plan amendment, rezone) that increases ROG and NO_x emissions compared to the previously approved land use (see Impact A-3); or
- Projected emissions (ROG, NO_x) or emission concentrations (criteria pollutants) of a project are greater than the emissions anticipated for the site if developed under the existing land use designation (see Impact A-3); and
- Project CO emissions, if combined with CO emissions from other nearby projects, result in a "hotspot" that violates a CAAQS (see Impact A-3).

Global Climate Change Levels of Significance

An evolving air quality issue is the impact of a project's GHG emissions on global climate. To date, no state or local air quality agencies have established numerical or qualitative thresholds for assessing this issue. While AB 32 created a framework for the reduction of GHGs in California, the act did not address the role of CEQA in achieving the goals of the act. As noted earlier, in August 2007, the Governor signed SB 97 into law, which requires the OPR to prepare CEQA Guidelines for the mitigation of GHG emissions or the effects of GHG emissions. The Resources Agency must certify and adopt the guidelines by January 1, 2010. While the project's estimated GHG will be quantified, there currently is no numerical significance threshold for this issue. Thus, the project's contribution to global climate change impacts will be assessed qualitatively. To assess the impact of the Proposed Project with respect to global climate change, the project will be evaluated by the following criterion:

- Project would impede or conflict with the emissions reduction targets and strategies prescribed in or developed to implement AB 32 (see Impact A-8).

D.2.3.2 Applicant Proposed Measures

Table D.2-7 shows the applicant proposed measures (APMs) proposed by SNGS, LLC to reduce air quality impacts associated with project construction.

Table D.2-7
Applicant Proposed Measures[1] for Air Quality

APM No.	Description
3	(a) The Proposed Project shall provide a plan for approval by the lead agency and the SMAQMD demonstrating that the heavy-duty (>50 horsepower (hp)) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, would achieve a project-wide fleet-average 20% NO_x reduction and 45% particulate reduction compared to the most recent CARB fleet average at time of construction. The SMAQMD shall make the final decision on the emission control technologies to be used by the project construction equipment; however, acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. (b) The project applicant and/or contractor shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment equal to or greater than 50 hp that shall be used an aggregate of 40 or more hours during any phase of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project applicant and/or contractor shall provide SMAQMD with the anticipated construction timeline, including start date and name and phone number of the project manager and on-site foreman. (c) The project applicant and/or contractor shall ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.0) shall be repaired immediately and SMAQMD shall be notified within 48 hours of identification of noncompliant equipment. A visual survey of all in-operation equipment shall be made at least weekly by contractor personnel certified to perform opacity readings, and a monthly summary of the visual survey results shall be submitted to the SMAQMD throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. (d) The project applicant shall pay into the SMAQMD's construction mitigation fund to offset construction-generated emissions of NO_x that exceed SMAQMD's daily emission threshold of 85 pounds/day. The project applicant shall coordinate with the SMAQMD for payment of fees into the Heavy-Duty Low-Emission Vehicle Program designed to reduce construction-related emissions within the region. Fees shall be paid based upon the current SMAQMD Fee of $14,300/ton of NO_x emissions generated. This fee shall be paid prior to issuance of building permits. Detailed construction information for the Proposed Project is not yet available. However, based upon the preliminary URBEMIS emissions modeling, the expected payment for remaining construction-related construction NO_x emissions over the significance threshold would be $7,513. Fees may be paid on a per-acre basis, in which case the average fee would be approximately $356/acre. If the projected construction equipment or phases change, the applicant shall coordinate with the SMAQMD to determine if the mitigation fee needs to be recalculated. (e) SNGS, LLC will limit idling time of construction equipment to 5 minutes or less, when feasible. (f) The following applicable measures would be implemented as part of the Proposed Project to minimize dust emissions and to be consistent with SMAQMD Level One guidelines for reducing construction impacts to a less-than-significant level: • Water all active construction areas at least twice daily • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard. (g) SNGS, LLC would provide the CPUC with a copy of its final Authority to Construct/Permit to Operate permit from the SMAQMD.

Table D.2-7 (Continued)

APM No.	Description
	(h) Aboveground piping would be maintained to minimize leakage of odorized gas. SNGS, LLC would provide incident, quarterly, and annual reports to the CPUC in accordance with CPUC Rule 112-E, Subpart B. (i) SNGS, LLC would use electric drill rigs and electric compressors to avoid the emissions that would otherwise result from the use of combustion engines for these equipment elements. (j) SNGS, LLC will comply with CARB's Vehicle Climate Change Standards to the extent that new passenger vehicle and light trucks are purchased by the project's operators and staff starting in the 2009 model year. (k) SNGS, LLC will comply with the Energy Commission's California energy standards or energy efficient lighting requirements for this project.

1 Applicant Proposed Measure (APM)—As part of project design and in order to avoid certain environmental impacts, the applicant has included design features (i.e., APMs) in the project design. APMs are considered part of the project design, but project approval is contingent upon adherence to all aspects of the Proposed Project as described in this document, including project description, APMs, and mitigation measures proposed by the California Public Utilities Commission (CPUC).

D.2.3.3 Air Quality Impact Analysis

Impact A-1: Would the Project Conflict with or Obstruct Implementation of the Applicable Air Quality Plan?

For air quality planning purposes, the SMAQMD creates emissions inventories based on existing and foreseeable future land uses within its jurisdiction. If a new project would be inconsistent with the planned land use designation that was considered in the development of an air quality plan, the proposed project could conflict with and could potentially obstruct implementation of the applicable air quality plan. The most recent plan adopted by the SMAQMD is the 2006 8-Hour Ozone Rate-of-Progress (ROP) Plan (El Dorado County Air Quality Management District et al. 2006). Generally, a project's conformance with a local general plan that was taken into account in the preparation of an air quality plan would demonstrate that the project would not conflict with or obstruct implementation of the air quality plan.

Implementation of the Proposed Project would be consistent with the existing land use designation, which is M-2 (Heavy Industrial). The Proposed Project, as discussed in Impact A-3, would result in lower operational emissions than if the 5-acre compressor site were built out with other industrial uses consistent with the M-2 designation. Because the Proposed Project would have less trip generation and would result in lower emission rates than allowed under the current designation, the Proposed Project would remain consistent with the intent of the designated land use for the site and would not conflict with the applicable air quality management plan. Additional documentation comparing the Proposed Project's emissions and potential emissions associated with the existing land use is found under Impact A-3.

While the construction emissions in Sacramento County would be greater than the SMAQMD significance threshold for NO_x and would be potentially significant, construction emissions are

generally accounted for in the air quality plans for the Sacramento region and considered short-term. Regional emissions from construction equipment are estimated using CARB's OFFROAD emission inventory model, which accounts for the estimated overall level of construction equipment activity. The estimated emissions for construction and mining equipment in the 2006 ROP were 14.43 tons of NO_x per day in 2008 (the closest year to that for construction of the Proposed Project). The Proposed Project would contribute an estimated 0.09 tons of NO_x per day. While the Proposed Project would not be specifically accounted for in the regional emissions inventory, its construction emissions are well within the estimated emissions for the construction equipment category. Furthermore, regional measures for reducing off-road emissions include the use of financial incentives to accelerate voluntary retirement or retrofit of older, high-emitting equipment, resulting in reduced off-road emissions. These measures would be partially funded by Mitigation Measure A-2, which is proposed to reduce this construction impact to less than significant, as discussed in Impact A-2.

For the reasons discussed above, the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan, and this impact would be less than significant (Class III).

Impact A-2: Would the Project Violate an Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation?

Table D.2-4 shows that the Sacramento region is in nonattainment with respect to the CAAQS for ozone, PM_{10}, and $PM_{2.5.}$ Moreover, Table D.2-3 shows that the Sacramento region is in nonattainment with the NAAQS for ozone and $PM_{10.}$ Therefore, to determine whether the Proposed Project would exceed this threshold of significance, the assessment below describes whether the project would result in a significant impact with respect to ozone, $PM_{10,}$ and $PM_{2.5}$.

For various reasons explained below, a surrogate set of emission-based thresholds, recommended by the SMAQMD, were used in lieu of the CAAQS and NAAQS for ozone to determine whether the pollutants emitted from the project would create a significant impact.

The Sacramento region is either in attainment or unclassified under the CAAQS or NAAQS for other pollutants (CO, SO_2, and NO_2). Thus, if any of these pollutants are emitted from the proposed project to the extent that they cause or contribute to violations of either the CAAQS or NAAQS, there would be a significant impact. Specifically, the assessment below discusses whether the construction of the Proposed Project would emit CO and SO_x to an extent that would result in a violation of the CAAQS or NAAQS for CO and SO_2. Then, the assessment also discusses whether the operation of the Proposed Project stationary sources would emit $NO_{x,}$ CO, SO_x, or PM_{10} to an extent that would result in a violation of the CAAQS or NAAQS for NO_2, CO, SO_2, or PM_{10}.

Construction of the Proposed Project would result in emissions during well drilling, pipeline installation, and construction of the compressor station. Construction would involve bulldozers,

scrapers, excavators, and other heavy construction equipment as dump trucks and water trucks. In addition, up to 200 workers would be involved in the construction phase. SNGS, LLC estimated the emissions from off-road construction equipment using emission rates generated using the URBEMIS2007, version 9.2, land use and air emissions estimation model (Jones & Stokes 2007). Similarly, emissions associated with worker trips were also estimated using URBEMIS2007.

Application of Emission-Based and Screening Thresholds to Ozone

To assess whether the project would exceed the significance threshold with respect to O_3, the emissions associated with construction (NO_x) and operation (ROG and NO_x) of the Proposed Project were compared to the SMAQMD emission-based thresholds of significance. Because O_3 is not emitted from a project's emission sources and the impact on ambient O_3 concentrations due to an individual project's emissions cannot be determined directly (O_3 is a regional air pollutant dependent on the overall NO_x and ROG emissions in the region), the SMAQMD emission-based thresholds for NO_x and ROG (ozone precursors) are used as the primary indicator of a project's potential to contribute substantially to existing violations of the O_3 ambient air quality standards. Projects, such as this one, with emissions less than the SMAQMD emission-based thresholds for O_3 precursors (ROG and NO_x) would not be expected to contribute substantially to existing violations of the O_3 ambient air quality standards.

NO_x Emissions Associated with Construction.

The maximum daily construction emissions for the Proposed Project are shown and compared to the SMAQMD significance thresholds for NO_x in Table D.2-8. Please also refer to Table D.2-6 for significance thresholds. Additional information regarding the emission calculations are found in Appendix B of the Proponent's Environmental Assessment (PEA) Addendum (SNGS, LLC 2007b).

Table D.2-8
Maximum Daily Construction Emissions Sacramento County (Pounds per Day)

Source	ROG	NO_x	CO	SO_x	PM_{10} [1]
Construction	22.79	183.67	111.78	0.00	65.55
SMAQMD threshold	—	85	—	—	—
Exceed threshold?	—	YES	—	—	—

Note: "—" indicates that the SMAQMD has not adopted an emission-based significance threshold for this pollutant.
Source: SNGS, LLC 2007b.
[1] PM_{10} emissions were calculated assuming a maximum of 5 acres of disturbed land and implementation of Level One mitigation measures for fugitive dust.

As shown in Table D.2-8, the maximum construction-related NO_x emissions would exceed the SMAQMD significance threshold. Therefore, the construction of the Proposed Project would result in significant air quality impacts. Implementation of Mitigation Measure A-2 would reduce this impact to less than significant (Class II).

Application of Screening Thresholds to PM_{10}

In addition, Sacramento County is designated as nonattainment areas for the NAAQS and CAAQS for PM_{10} and $PM_{2.5}$ and as a nonattainment area for the NAAQS for PM_{10}. The SMAQMD provides a surrogate for determining if the project creates significant PM_{10} emissions during both operation and construction.

PM_{10} Emissions Associated with Construction.

The SMAQMD Guide to Air Quality Assessment in Sacramento County (SMAQMD guide) states that potential PM_{10} impacts during construction should be evaluated using an air quality dispersion model (SMAQMD 2004). However, for relatively small, well-controlled construction operations, the SMAQMD guide includes a screening method for assessing the potential for the construction of a project to cause or contribute to an exceedance of the PM_{10} standards, which is discussed below.

The SMAQMD has established a screening approach to determine if particulate matter emissions from construction projects have the potential to cause or contribute to violations of the CAAQS. Construction projects with a maximum actively disturbed area at any given time equal to or less than 15 acres may implement mitigation measures specified in Table B.1 (Particulate Matter Screening Levels for Construction Projects) in the SMAQMD guide (SMAQMD 2004). Provided that a project of a given acreage implements the required mitigation measures, the project would be considered to have a less-than-significant impact on ambient air quality. The Proposed Project would not disturb an area greater than 5 acres per day. Because no mitigation measures are required in Table B.1 of the SMAQMD guide for an actively disturbed area of 5 acres or less, the Proposed Project would be considered to have a less-than-significant impact on PM_{10} ambient air quality without further mitigation. Nonetheless, SNGS, LLC has committed under APM 3 to implementing the measures listed as Level One (for projects with an actively disturbed area between 5.1 and 8 acres) in Table B.1 of the SMAQMD guide, specifically:

- Water exposed soil twice daily
- Maintain 2 feet of freeboard space on haul trucks.

Using this screening approach, the Proposed Project would have a less-than-significant impact on ambient PM10 concentrations (Class III).

Application of Emission-Based and Screening Thresholds to $PM_{2.5}$.

Sacramento County is a nonattainment area with respect to the CAAQS for $PM_{2.5}$. However, no significance thresholds for either construction or operation have been adopted for $PM_{2.5}$.

Application of Emission-Based Screening Thresholds for Other CAAQS and NAAQS.

CO and SO_x Emissions Associated with Construction

The potential construction-related impacts on CO and SO_2 ambient concentrations are associated with CO and SO_x emissions from worker vehicles, construction equipment, and material delivery trucks. High ambient CO concentrations, referred to as CO "hot spots," are associated with congested roadways and intersections. During construction, up to 200 workers per day would come from throughout the Sacramento area and would not be expected to add substantially to congestion on local roads. Similarly, construction of the Proposed Project would involve up to 20 truck trips per day (SNGS, LLC 2007a). Again, these trips would not add substantially to congestion on local roads. Moreover, traffic mitigation measures (see Section D.12) would minimize the potential for congestion during construction. In light of low background CO concentrations relative to the CAAQS and NAAQS (see Table D.2-1), construction of the Proposed Project would not cause violations of the CO standards (Class III).

Diesel equipment and trucks in California are required to use ultra-low-sulfur diesel fuel (15 parts per million sulfur content). Furthermore, existing SO_2 ambient concentrations in Sacramento County are well below the NAAQS and CAAQS. Therefore, ambient air quality impacts for CO and SO_2 during construction are expected to be less than significant (Class III).

NO_x, CO, SO_x, and PM_{10} Emissions Associated with Operation

To evaluate the potential for an industrial project's operational emissions to cause or contribute substantially to violations of the CAAQS or NAAQS for NO_2, CO, or PM_{10} (both NO_2 and CO are attainment pollutants), Table 5.1 of the SMAQMD guide includes screening-level hourly emission rates (SMAQMD 2004) for industrial projects. If a project's emissions are below these thresholds, the ambient air quality impacts for these pollutants would be presumed to be less than significant. These thresholds apply only to emissions from stationary sources associated with operation of an industrial project.

Table D.2-9 compares the Proposed Project's hourly emissions from stationary sources, based on a 24-hour-per-day operation to the SMAQMD screening thresholds.

Table D.2-9
Operational Emissions from Stationary Sources (Pounds per Hour)

Source	NO_x[1]	CO	PM_{10}
Stationary sources	0.05	0.20	0.001
SMAQMD threshold	0.31	17.1	1.9
Exceed threshold?	NO	NO	NO

Source: SMAQMD 2004.

[1] Stationary sources emit NO_x, a mixture of nitric oxide (NO) and nitrogen dioxide (NO_2). A source with emissions less than the NO_x threshold would not cause a violation of the NO_2 CAAQS and NAAQS.

As shown in Table D.2-9, the operational emissions associated with the Proposed Project's stationary sources would be less than the SMAQMD screening level significance thresholds for NO_x, CO, and PM_{10}. Therefore, the Proposed Project's operational impacts on ambient air quality for NO_2, CO, and PM_{10} would be less than significant (Class III).

The SMAQMD guide further states that if an industrial source does not combust sulfur-containing fuel (i.e., fuel with more than 50 ppm sulfur content), it may also be considered less than significant for ambient air quality impacts on SO_2 levels without further analysis (SMAQMD 2004). The Proposed Project would be served with natural gas, which contains less than 50 ppm sulfur. Accordingly, SO_2 impacts would be less than significant (Class III).

Mitigation Measure for Impact A-2: Potential to Violate an Air Quality Standard or Substantial Contribution to an Existing or Projected Air Quality Violation

A-2 **Emissions Related to Project Construction.** SNGS, LLC has committed to implementing APM 3(d) (as described in Table D.2-7) to reduce the Proposed Project's construction emissions to a less-than-significant level. The SMAQMD has established a construction emissions mitigation fee, which is to be used to fund repowering and retrofit projects for older construction equipment and similar emission reduction programs. The current fee is $16,000 per ton of NO_x emissions in excess of the 85-pound-per-day significance threshold. The mitigation fee has been calculated for the Proposed Project (see Section 3.3 of the PEA Addendum (SNGS, LLC 2007b)). The fee is based on excess emissions that were estimated to occur only during weeks 16 and 17 of the construction schedule. The total mitigation fee for the Proposed Project is $8,827 ($8,407 NO_x mitigation fee plus a $420 administrative fee).[5] This fee has been recalculated based on the current SMAQMD fee and included as a mitigation measure with payment of the construction emissions mitigation fee to the SMAQMD.

5 Since the Addendum to the PEA was prepared, the SMAQMD increased the NOX mitigation fee from $14,300 to $16,000. Also, the Addendum to the PEA did not include the administrative fee of 5%.

Impact A-3: Cumulatively Considerable Net Increase of a Criteria Pollutant for Which the Region is in Nonattainment Under Applicable Federal or State Ambient Air Quality Standards (Including Releasing Emissions that Exceed Quantitative Thresholds for Ozone Precursors)

As indicated in the thresholds of significance, a project in the SMAQMD would be considered to have significant cumulative air quality impacts if:

- The project requires a change in the existing land use designation (i.e., general plan amendment, rezone), and projected emissions (ROG, NO_x, or PM_{10}) of a proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation.
- Projected emissions (ROG and NO_x) or emission concentrations (criteria pollutants) of a proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation.

Using the second of these criteria (because the Proposed Project would not require a general plan amendment), the potential emissions of the Proposed Project have been compared to the emissions resulting from development under the current zoning. The compressor station would be constructed on a 5-acre site that is zoned M-2 (Heavy Industrial). To assess the emissions that could occur under the current zoning, a development scenario was assumed that the project area would be developed as an industrial park. The building square footage for a potential industrial development was estimated using average floor area ratios (FAR) of 0.25 and 0.50 so as not to overstate the potential emissions under the current zoning. The URBEMIS2007 model was run with these scenarios for the year 2009 (i.e., the assumed full project build-out year), and the results are presented in Table D.2-10. The URBEMIS output files for these scenarios are found in Appendix A to this EIR.

Table D.2-10
Estimated Operational Emissions under Current Zoning (Pounds per Day)

Source	ROG	NO_x	CO	SO_X	PM_{10}
Floor Area Ratio = 0.25					
Area sources	0.51	0.80	2.27	0.00	0.00
Mobile sources	4.52	6.30	51.68	0.04	5.72
Total	*5.03*	*7.10*	*53.95*	*0.04*	*5.72*
Floor Area Ratio = 0.50					
Area sources	0.83	0.80	2.27	0.00	0.00
Mobile sources	9.05	12.61	103.35	0.07	11.44
Total	*9.88*	*13.41*	*105.62*	*0.07*	*11.44*

Note: Emissions shown are the higher of the summer or winter emissions for each pollutant.
Source: Data from Appendix A.

The emissions associated with development under the current zoning are compared with the emissions associated with the Proposed Project in Table D.2-11. As indicated in Table D.2-11, the ROG and NO_x emissions associated with the Proposed Project would be less than those under the current zoning. Thus, the Proposed Project would have less-than-significant cumulative impacts (Class III) on air quality as measured under this criterion.

Table D.2-11
Comparison of Operational Emissions under Current Zoning and with the Proposed Project (Pounds per Day)

Source	ROG	NO_x	CO	SO_x	PM_{10}
Proposed Project	1.03	1.27	5.72	0.10	0.14
Current zoning (FAR=0.25)	5.03	7.10	53.95	0.04	5.72
Current zoning (FAR=0.50)	9.88	13.41	105.62	0.07	11.44

Notes:
1. Emissions shown are the higher of the summer or winter emissions for each pollutant.
2. Potential emissions of all five pollutants are shown for disclosure purposes. However, per the SMAQMD guide, only ROG and NO_x emissions are compared for purposes of evaluating significant cumulative impacts.

Source: Data from Appendix A.

As discussed under Impact A-2, the construction and operational emissions associated with the Proposed Project, after mitigation, would not exceed the recommended thresholds of significance. Because the SVAB is in nonattainment for the state and federal O_3 and PM_{10} standards, a project that creates individually significant air quality impacts would also be considered to create cumulatively significant air quality impacts. However, the Proposed Project, with application of the mitigation measure for NO_x construction emissions, would have less-than-significant impacts individually, as discussed under Impact A-3. When evaluated together with the other criteria discussed above, the Proposed Project would have less-than-significant cumulative impacts (Class III).

Impact A-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations

The PEA Addendum included a health risk screening assessment (HRSA) of the TAC emissions associated with operation of the compressor station (SNGS, LLC 2007b). Specifically, the HRSA evaluated the emissions of TAC emissions associated with the glycol dehydration unit, which is the only routine source of TAC emissions at the compressor station. The TACs of concern include benzene, toluene, ethyl benzene, xylene, and n-hexane. The assessment evaluated the potential health impacts due to the emissions of these TACs at the point of maximum impact, maximally impacted off-site workers, maximally impacted off-site residential receptors, and two sensitive receptors—Still Water's Academy and Elder Creek Elementary School. The results of the HRSA are shown in Table D.2-12. Additional details regarding the HRSA are found in Appendix A to this EIR.

Table D.2-12
Results of Health Risk Screening Analysis of Project TAC Emissions

Receptor	Cancer Risk (in one million)	Chronic Hazard Index	Acute Hazard Index
Point of maximum impact (PMI)[1]	13	0.008	0.014
Maximally exposed individual – worker (MEIW)	2	0.0017	0.013
Maximally exposed individual – resident (MEIR)	6	0.0035	0.0059
Still Water's Academy	0.2	0.0031	0.0052
Elder Creek Elementary	0.2	0.0031	0.0052
SMAQMD significance threshold	10	1	1

Source: Environ 2008.
[1] The point of maximum impact reflects residential assumptions; however, there are no residences at this location. The results for the Maximally Exposed Individual – Residential reflect the potential exposures at an actual residence.

As shown in Table D.2-12, the health effects due to TAC emissions from operation of the project would be less than the SMAQMD thresholds.[6] Therefore, the impacts would be less than significant (Class III).

Impact A-5: Creation of Objectionable Odors Affecting a Substantial Number of People

As noted in the discussion of Impact A-4, TACs would be emitted as a result of the operation of the compressor station, specifically associated with operation of the glycol reboiler. These TACs also can produce odors. The results from the HRSA were converted from 1-hour concentrations to 5-minute concentrations and the resultant values were compared to the odor thresholds for benzene, toluene, ethyl benzene, xylene, and n-hexane. Maximum hourly concentrations from the HRSA model were converted to short-term concentrations for a 5-minute averaging period because odors become apparent over a much shorter period than 1 hour. The conversion is based on an equation in the Workbook of Atmospheric Dispersion Estimates (Turner 1970) whereby the modeled concentrations determined for one averaging period can be converted to concentrations for a shorter averaging period. Using the following equation, the 1-hour average ground level concentrations determined for the HRSA were converted to 5-minute average concentrations:

$$C_{new} = C_{old} (T_{new}/T_{old})^{-q}$$

[6] There are no state or national thresholds that would apply to the Proposed Project for CEQA purposes. Health effects are evaluated with respect to SMAQMD thresholds for cancer risk and noncancer hazard index.

where:

C_{new} = concentration for new averaging period (5 minutes)
C_{old} = concentration for original averaging period (1 hour = 60 minutes)
T_{new} = new time period (5 minutes)
T_{old} = original time period (1 hour = 60 minutes)
q = decay factor = 0.2.

Table D.2-13 shows the concentrations of chemicals associated with the proposed operations that could have the potential to create an odor that may be perceived. Because odor sensitivity varies among individuals, using these thresholds provides a forecast of whether objectionable levels of these chemicals might be observed by the general public. The resultant concentrations are also shown in Table D.2-13**,** along with the associated odor thresholds. As indicated in Table D.2-13, none of the chemical concentrations would exceed the odor thresholds at any of the receptors. Additional details regarding the odor analysis are found in Appendix A to this EIR.

Table D.2-13
Odor Analysis

Chemical	Odor Threshold (ppm)	Modeled Concentration (ppm)				
		PMI	MEIW	MEIR	Still Waters	Elder Creek
Benzene	1.5	0.009	0.009	0.004	0.004	0.004
Ethyl benzene	2.9	0.008	0.007	0.003	0.003	0.003
Toluene	2.3	0.007	0.006	0.003	0.003	0.003
Xylene	1.1	0.007	0.006	0.003	0.003	0.003
Hexane	130	0.083	0.078	0.035	0.031	0.031

Source: Data from Appendix A; EPA 2007.
Notes:
PMI – Point of maximum impact
MEIW – Maximally exposed individual - worker
MEIR – Maximally exposed individual – resident.

An odorant (methyl mercaptan) would be added to the natural gas at the compressor station before injecting it into the storage field. Under normal circumstances, aboveground piping would be maintained to minimize leakage of odorized gas. The compressor station's valves, flanges, and other piping components would be monitored for leaks by operations personnel as part of the day-to-day operation of the facility. SNGS, LLC would provide incident, quarterly and annual reports to the CPUC in accordance with CPUC Rule 112-E, Subpart B. It should also be noted that the SMAQMD, as a potential control measure listed in the 2006 SRNA 8-Hour Ozone Rate-of-Progress Plan (El Dorado County Air Quality Management District et al. 2006), has proposed Rule 461 to regulate fugitive emissions from equipment leaks in valves, pumps, compressors, pressure relief devices,

flanges, and threaded connections at gas wells and associated transmission systems. The proposed control measure would establish inspection and repair requirements for leaking components. Therefore, odor impacts due to leakage of natural gas would be less than significant (Class III).

Impact A-6: Compliance with Applicable District, State, and Federal Air Quality Rules and Regulations

The applicable SMAQMD rules, which incorporate many state and federal air quality rules, are listed in Section D.2.2.3. Based on the heat input rating for the glycol reboiler, SNGS, LLC would have to obtain an "Authority to Construct and Permit to Operate" from the SMAQMD. The SMAQMD does not require permits for devices associated with storage and transmission of natural gas. Based on the proposed configuration of the compressor station, the glycol reboiler is the only stationary source likely to require a permit. The SMAQMD cannot issue the authority to construct unless the applicant demonstrates that compliance with all applicable rules will be achieved. Such rules include Rule 202 (New Source Review), Rule 411 (NO_x from Boilers, Process Heaters, and Steam Generators), and the Oil and Natural Gas Production and Natural Gas Transmission and Storage NESHAP (40 CFR 63, Part HHH), if applicable (refer to Section D.2.2.3 for full description of these rules). Furthermore, after completing construction, SNGS, LLC must demonstrate compliance with the conditions of the authority to construct before the SMAQMD can issue a permit to operate. In the absence of evidence to the contrary, it is anticipated that SNGS, LLC would demonstrate compliance with all applicable rules and regulations and would continue to maintain compliance during the operation of the Proposed Project. Thus, this impact is less than significant (Class III).

Impact A-7: Compliance with EPA General and Transportation Conformity Regulations

The EPA general and transportation conformity regulations are generally intended to avoid approval or funding of projects by federal agencies that would conflict with state and local air quality plans to meet the NAAQS.

The EPA general conformity regulations apply to:

> [A] department, agency or instrumentality of the Federal Government … [that] support[s] in any way or provide[s] financial assistance for, license[s] or permit[s], or approve[s] any activity, [where]
>
> [t]he total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a federal action would equal or exceed any of the rates [specified in the regulations] (EPA 1993).

The transportation conformity regulations apply to:

(1) The adoption, acceptance, approval or support of transportation plans and transportation plan amendments developed pursuant to 23 CFR part 450 or 49 CFR part 613 by an MPO [metropolitan planning organization] or DOT [federal Department of Transportation];

(2) The adoption, acceptance, approval or support of TIPs [transportation improvement program] and TIP amendments developed pursuant to 23 CFR part 450 or 49 CFR part 613 by an MPO or DOT; and

(3) The approval, funding, or implementation of FHWA/FTA [Federal Highway Administration/Federal Transit Administration] projects (EPA 1997b).

The Proposed Project does not involve an action by a federal agency with respect to transportation plans. Therefore, the transportation conformity regulations would not apply. The Proposed Project may require the issuance of a Section 404 permit from the U.S. Army Corps of Engineers (ACOE) as discussed in Section D.3, Biological Resources. ACOE, as the applicable federal agency, would have the responsibility to comply with the general conformity regulations. A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a federal nonattainment or maintenance area would equal or exceed specified annual emission rates, referred to as "de minimis" thresholds. For this project, the conformity determination would be based solely on the direct emissions (i.e., due to construction related to the ACOE action) because the ACOE would not maintain continued control over the operation of the Proposed Project.

For ozone precursors (NO_x and ROG) and PM_{10}, the de minimis thresholds depend on the severity of the nonattainment classification. For other pollutants, the threshold is set at 100 tons per year. Based on current designation of the Sacramento metropolitan region as a serious ozone nonattainment area, the de minimis thresholds for NO_x and ROG are each 50 tons per year. Sacramento County is currently designated as a moderate PM_{10} nonattainment area. Thus, the de minimis threshold for PM_{10} is 100 tons per year. Lastly, the Sacramento urbanized area is a CO maintenance area, for which the de minimis threshold is 100 tons per year. Sacramento County is in attainment or unclassifiable for the remaining NAAQS.

SNGS, LLC estimated the total annual unmitigated construction emissions for the Proposed Project, which would include the activity subject to the ACOE action (SNGS 2007b). Although the ACOE action would only apply to a portion of the Proposed Project, these emissions can be used conservatively to determine whether the applicable emissions would be less than the de minimis thresholds. The total annual construction emissions and the de minimis thresholds are shown in Table D.2-14.

Table D.2-14
Annual Construction Emissions (Tons per Year)

Source	ROG	NO_x	CO	PM_{10} [1]
Construction	0.72	5.25	8.21	5.20
De minimis threshold	50	50	100	100
Exceeds threshold?	NO	NO	NO	NO

Source: SNGS, LLC 2007b.

[1] SNGS, LLC estimated the annual PM_{10} emissions from construction equipment and vehicles, but not from fugitive dust. The annual emissions from construction equipment and vehicles were estimated to be 0.22 tons per year. The daily PM_{10} emissions from fugitive dust were estimated to be a maximum of 56.55 pounds per day. Assuming a construction schedule of 22 work days per month for 8 months, the equivalent annual PM_{10} emissions would be 4.98 tons per year. Adding the annual emissions from construction equipment and vehicles, the total annual PM_{10} emissions would be 5.20 tons per year. This would be a very conservative estimate since fugitive dust generating activities would not occur every day of the construction period at the same level.

As shown in Table D.2-14, the construction emissions would be less than the de minimis thresholds. Thus, a general conformity determination by the ACOE would not be required, and this impact would be considered less than significant (Class III).

Impact A-8: Potential to Impede or Conflict with the Emissions Reduction Targets and Strategies Prescribed in or Developed to Implement AB 32

The primary source of GHGs in California is fossil fuel combustion (CARB 2007b). The primary GHG associated with fuel combustion is CO_2, with lesser amounts of methane and nitrous oxide. Accordingly, the Proposed Project would result in direct emissions of GHGs due to fuel combustion in motor vehicles and mobile construction equipment associated with the project, thereby contributing to the global GHG inventory. Building and motor-vehicle air conditioning systems may use hydrofluorocarbons (and hydrochlorofluorocarbons and chlorofluorocarbons to the extent that they have not been completely phased out at later dates), which may result in emissions through leaks. The other primary GHGs (perfluorocarbons and sulfur hexafluoride) are associated with specific industrial sources and are not expected to be associated with the Proposed Project.

GHG emissions associated with the Proposed Project would result from heavy construction equipment, material supply trucks, and workers' motor vehicles during the construction phase. SNGS, LLC estimated the CO_2 emissions associated with construction equipment, material supply trucks, and worker vehicles using URBEMIS2007 (SNGS, LLC 2007b). The GHG emissions from heavy construction equipment and diesel material delivery trucks would be CO_2, with minor amounts of methane and nitrous oxide; for purposes of this analysis all of the GHG emissions are assumed to be CO_2. The CO_2 emissions associated with construction workers' vehicles were multiplied by a factor based on the assumption that CO_2E represents 95% of the CO_2 emissions associated with passenger vehicles (EPA 2005). It should be noted that electric drill rigs would be used in lieu of diesel- or gas-powered drill rigs for the eight wells at the wellhead site. Use of electric drill rigs were estimated to reduce the GHG emissions by approximately 46 tons (42 metric tons)

compared to gas-powered drill rigs (SNGS, LLC 2007b). The total estimated GHG emissions generated by the construction of the Proposed Project would be approximately 1,000 tons (907 metric tons) CO_2E for the entire construction period.

The compressor station would use electric-powered compressors, which would not emit GHGs directly. However, some of the electrical generation sources associated with the provided electricity would generate GHG emissions. By agreement with the Sacramento Municipal Utility District (SMUD), 50% of the electricity would come from alternative sources with the remainder primarily generated from natural gas. Most of the renewable energy would be from hydroelectric sources with some wind, solar, and geothermal. SMUD's renewable energy sources also include co-generation from landfills or other sources, which produce GHG emissions. SNGS, LLC estimates that the electric-powered compressors would use 6,222,000 kilowatt-hours per year, primarily for injection of natural gas into the storage reservoir. Based on SMUD's 2007 GHG emissions (714 pounds CO_2E per megawatt-hour), the GHG emissions associated with this electric usage would be 2,221 tons (2,015 metric tons) CO_2E per year[7]. By comparison, the use of equivalent compressors powered by natural gas-fired engines would have generated an estimated 3,707 tons (3,363 metric tons) CO_2E per year, or a difference of 1,486 tons (1,348 metric tons) per year.

The glycol reboiler would be fueled with natural gas. The emissions, based on a maximum heat input rating of 3.0 million Btu per hour and 3,075 operating hours (Environ 2008), would generate approximately 541 tons (491 metric tons) CO_2E per year. Additional calculations for the electric-powered compressors, engine-powered compressors, and the glycol reboiler are included in Appendix A to this EIR.

The PEA did not assess the GHG emissions associated with motor vehicles driven by the operators of the compressor station. The URBEMIS2007 model was run to estimate the CO_2 emissions associated with workers' motor vehicles using the same assumptions and approach discussed under Impact A-2 above. The CO_2 emissions associated with workers' vehicles were then multiplied by a factor based on the assumption that CO_2 represents 95% of the CO_2E emissions associated with passenger vehicles (EPA 2005). The workers' vehicle trips would generate approximately 11 tons (10 metric tons) of CO_2E per year. The URBEMIS output files for the worker trips are found in Appendix A to this EIR.

Based on the above analysis, the operation of the Proposed Project would generate approximately 2,773 tons (2,516 metric tons) CO_2E per year, as shown in Table D.2-15.

[7] The Proposed Project's actual GHG emissions from electrical generation, based on a 50% contribution from alternative sources, would be lower than this amount because the contribution from renewable energy sources in SMUD's current mix of energy sources is on the order of only 20% (SMUD 2008).

Table D.2-15
Estimated GHG Emissions

Source	Annual Emissions	
	Tons per year	Metric tons per year
Construction	1,000	907
Operation		
Compressors (Electrical Generation)	2,221	2,015
Glycol Reboilers	541	491
Worker Vehicle Trips	11	10
Total	2,773	2,516

Source: SNGS, LLC 2007b; Data from Appendix A.

While the Proposed Project would result in emissions of GHGs, no adopted guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally the case that an individual project of this size is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. Thus, GHG impacts from a project are recognized as exclusively cumulative impacts; there are no noncumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). Accordingly, further discussion of the project's GHG emissions and their impact on global climate are addressed in Section F.4, Cumulative Impacts.

D.2.4 Project Alternatives

D.2.4.1 Gas Field Alternatives

Freeport Gas Field

Environmental Setting

The Freeport Gas Field alternative site is located in a suburban fringe area and is partially located under the Sacramento regional wastewater treatment plant. The area is surrounded on the north, west, and south by the City of Elk Grove. The actual reservoir area contains few residences and little population. This alternative would require the construction of approximately 1 mile of 16-inch pipeline.

Environmental Impacts and Mitigation Measures

The implementation of this alternative would generally result in similar air quality impacts as with the Proposed Project on a daily basis. The NO_x emissions during construction were found to be significant, and mitigation measures were proposed. This alternative would require 1 mile of pipeline construction, compared to the Proposed Project with approximately 2.3 miles of pipeline

construction. Thus, the construction-related air emissions would occur for a shorter period of time. Accordingly, the mitigation fee to offset the NO_x emissions in excess of the SMAQMD threshold of 85 pounds per day would be lower, but the NO_x emissions could still be mitigated through this fee to a less-than-significant level (Class II). Potential PM_{10} impacts during construction would also be less than significant provided that fugitive dust control measures would be implemented as they would for the Proposed Project (Class III). Accordingly, the construction emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS with mitigation (Impact A-2, Class II (for NO_x)). If this alternative would trigger the need to obtain federal permits (e.g., Section 404 permit from the ACOE), the annual construction emissions would likely be much less than the de minimis thresholds, a general conformity analysis would not be required, and this impact would be less than significant (Impact A-7, Class III).

It is assumed that the compressor station would be located in areas zoned industrial or agricultural. Thus, this alternative would not conflict with the applicable air quality plan as the proposed use under this alternative would not result in higher ROG and/or NO_x emissions than that associated with development under the current zoning (Impact A-1, Class III). Stationary and mobile source air emissions associated with operation of the compressor station would be the same as those associated with the Proposed Project. These emissions would be less than significant for this alternative. Accordingly, the emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS (Impact A-2, Class III). Similarly, the emissions of toxic or odorous compounds from the glycol dehydration unit at the compressor station would be the same as those for the Proposed Project. However, depending on the location of the compressor station and proximity or residences and workplaces, this alternative could have lower impacts than those for the Proposed Project due to potentially farther distances to residential, workplace, and sensitive receptors. Because these impacts for the Proposed Project were less than significant, they would also be for this alternative (Impacts A-4 and A-5, Class III). As with the Proposed Project, it would be expected that operation of this alternative would comply with applicable SMAQMD, state and federal air quality rules and regulations, and this impact would be less than significant (Impact A-6, Class III).

Comparison to the Proposed Project

As with the Proposed Project, implementation of this alternative with mitigation would not result in significant impacts to air quality.

Snodgrass Slough Gas Field

Environmental Setting

The Snodgrass Slough Gas Field alternative site is a former gas field that is located in a primarily agricultural area. The nearest population center is Walnut Grove, 4 miles to the south. The area does

not have nearby sensitive receptors. This alternative would require construction of approximately 5 miles of 16-inch pipeline and horizontal directional drilling (HDD) across Snodgrass Slough, I-5, and the Union Pacific Railroad (UPRR) tracks.

Environmental Impacts and Mitigation Measures

With several exceptions shown below, the implementation of this alternative would generally result in similar air quality impacts as with the Proposed Project on a daily basis. The NO_x emissions during construction were found to be significant, and mitigation measures were proposed. This alternative would require 5 miles of pipeline construction, compared to the Proposed Project with approximately 2.3 miles of pipeline construction. Thus, the construction-related air emissions would occur for a longer period of time. Accordingly, the mitigation fee to offset the NO_x emissions in excess of the SMAQMD threshold of 85 pounds per day could be higher, but the NO_x emissions could still be mitigated through this fee to a less-than-significant level (Class II). Potential PM_{10} impacts during construction would also be less than significant provided that fugitive dust control measures would be implemented as they would for the Proposed Project (Class III). Accordingly, the construction emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS with mitigation (Impact A-2, Class II (for NO_x)). If this alternative would trigger the need to obtain federal permits (e.g., Section 404 permit from the ACOE), the annual construction emissions would likely be much less than the de minimis thresholds, a general conformity analysis would not be required, and this impact would be less than significant (Impact A-7, Class III).

It is assumed that the compressor station would be located in areas zoned agricultural. Thus, this alternative would not conflict with the applicable air quality plan as the proposed use under this alternative would not result in higher ROG and/or NO_x emissions than associated with development under the current zoning (Impact A-1, Class III). Stationary- and mobile-source air emissions associated with operation of the compressor station would be the same as those associated with the Proposed Project. These emissions would be less than significant for this alternative (Impact A-2, Class III). Accordingly, the emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS (Impact A-2, Class III). Similarly, the emissions of toxic or odorous compounds from the glycol dehydration unit at the compressor station would be the same as those for the Proposed Project. However, depending on the location of the compressor station and proximity or residences and workplaces, this alternative could have lower impacts than those for the Proposed Project due to potentially farther distances to residential, workplace, and sensitive receptors. Because these impacts for the Proposed Project were less than significant, they would also be for this alternative (Impacts A-4 and A-5, Class III). As with the Proposed Project, it would be expected that operation of this alternative would comply with applicable SMAQMD, state and federal air quality rules and regulations, and this impact would be less than significant (Impact A-6, Class III).

Comparison to the Proposed Project

As with the Proposed Project, implementation of this alternative with mitigation would not result in significant impacts to air quality.

Thornton Gas Field

Environmental Setting

With several exceptions shown below, the Thornton Gas Field alternative site is located in a primarily agricultural area. The nearest population center is Thornton, approximately 1 mile to the south. The Cosumnes River Preserve is located to the north of the site. The area does not have permanent sensitive receptors. This alternative would require the construction of approximately 7 miles of 16-inch pipeline.

Environmental Impacts and Mitigation Measures

The implementation of this alternative would generally result in similar air quality impacts as with the Proposed Project on a daily basis. The NO_x emissions during construction were found to be significant, and mitigation measures were proposed. This alternative would require 7 miles of pipeline construction, compared to the Proposed Project with approximately 2.3 miles of pipeline construction. Thus, the construction-related air emissions would occur for a longer period of time. Accordingly, the mitigation fee to offset the NO_x emissions in excess of the SMAQMD threshold of 85 pounds per day could be higher, but the NO_x emissions could still be mitigated through this fee to a less-than-significant level (Class II). Potential PM_{10} impacts during construction would also be less than significant provided that fugitive dust control measures would be implemented as they would for the Proposed Project (Class III). Accordingly, the construction emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS with mitigation (Impact A-2, Class II (for NO_x)). If this alternative would trigger the need to obtain federal permits (e.g., Section 404 permit from the ACOE), the annual construction emissions would likely be much less than the de minimis thresholds, a general conformity analysis would not be required, and this impact would be less than significant (Impact A-7, Class III).

It is assumed that the compressor station would be located in areas zoned agriculture. Thus, this alternative would not conflict with the applicable air quality plan as the proposed use under this alternative would not result in higher ROG and/or NO_x emissions than that associated with development under the current zoning (Impact A-1, Class III). Stationary and mobile source air emissions associated with compressor station would be the same as those associated with the Proposed Project. These emissions would be less than significant for this alternative (Impact A-2, Class II). Accordingly, the emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS (Impact A-2, Class III). Similarly, the emissions of toxic or odorous compounds from the glycol dehydration unit at the compressor station

would be the same as those for the Proposed Project. However, depending on the location of the compressor station and proximity or residences and workplaces, this alternative could have lower impacts than those for the Proposed Project due to potentially farther distances to residential, workplace, and sensitive receptors. Because these impacts for the Proposed Project were less than significant, they would also be for this alternative (Impacts A-4 and A-5, Class III). As with the Proposed Project, it would be expected that operation of this alternative would comply with applicable SMAQMD, state and federal air quality rules and regulations, and this impact would be less than significant (Impact A-6, Class III).

Comparison to the Proposed Project

As with the Proposed Project, implementation of this alternative with mitigation would not result in significant impacts to air quality.

D.2.4.2 Project Design Alternatives

Section D.2.1 describes the air quality setting along the project alignments. Because SNGS, LLC's pipeline design alternatives would occur in the same air quality basin and are in the same vicinity as the Proposed Project, the existing air quality conditions would be the same for all three of the gas pipeline route alternatives, as described in this section.

Alternative Wellhead Site to Compressor Station Pipeline Route 1

Environmental Setting

This route would be approximately 7,800 feet long. This alternative would be approximately 450 feet longer than the Proposed Project.

Environmental Impacts and Mitigation Measures

Daily air emissions associated with this alternative would be similar to those associated with the Proposed Project. However, because the pipeline route is 450 feet longer, the construction emissions would occur for more days than the Proposed Project. Accordingly, the mitigation fee to offset the NO_x emissions in excess of the SMAQMD threshold of 85 pounds per day could be higher, but the NO_x emissions could still be mitigated through this fee to a less-than-significant level (Class II). Potential PM_{10} impacts during construction would also be less than significant provided that fugitive dust control measures would be implemented as they would for the Proposed Project (Class III). Accordingly, the construction emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS with mitigation (Impact A-2, Class II (for NO_x)). If this alternative would trigger the need to obtain federal permits (e.g., Section 404 permit from the ACOE), the annual construction emissions would likely be much less than the de

minimis thresholds, a general conformity analysis would not be required, and this impact would be less than significant (Impact A-7, Class III).

All air quality impacts resulting from operation of the Proposed Project with this alternative pipeline routing, including stationary and mobile source emissions associated with the compressor station, would be the same as those described for the Proposed Project. Thus, air quality impacts with respect to all significance thresholds would be less than significant (Class III).

Comparison to the Proposed Project

As with the Proposed Project, implementation of this alternative with mitigation would not result in significant impacts to air quality.

Alternative Wellhead Site to Compressor Station Pipeline Route 2

Environmental Setting

This alignment would be approximately 7,700 feet long. This alternative would be approximately 350 feet longer than the Proposed Project.

Environmental Impacts and Mitigation Measures

Daily air emissions associated with this alternative would be similar to those associated with the Proposed Project. However, because the pipeline route is 350 feet longer, the construction emissions would occur for more days than with the Proposed Project. Accordingly, the mitigation fee to offset the NO_x emissions in excess of the SMAQMD threshold of 85 pounds per day could be higher, but the NO_x emissions could still be mitigated through this fee to a less-than-significant level (Class II). Potential PM_{10} impacts during construction would also be less than significant provided that fugitive dust control measures would be implemented as they would for the Proposed Project (Class III). Accordingly, the construction emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS with mitigation (Impact A-2, Class II (for NO_x)). If this alternative would trigger the need to obtain federal permits (e.g., Section 404 permit from the ACOE), the annual construction emissions would likely be much less than the de minimis thresholds, a general conformity analysis would not be required, and this impact would be less than significant (Impact A-7, Class III).

All air quality impacts resulting from operation of the Proposed Project with this alternative pipeline routing, including stationary and mobile source emissions associated with the compressor station, would be the same as those described for the Proposed Project. Thus, air quality impacts with respect to all significance thresholds would be less than significant (Class III).

Comparison to the Proposed Project

As with the Proposed Project, implementation of this alternative with mitigation would not result in significant impacts to air quality.

Alternative Wellhead Site to Compressor Station Pipeline Route 3

Environmental Setting

This alternative would be approximately 7,100 feet long. This alternative would be approximately 250 feet shorter in length as compared to the Proposed Project.

Environmental Impacts and Mitigation Measures

Daily air emissions associated with this alternative would be similar to those associated with the Proposed Project. However, because the pipeline route is 250 feet shorter, the construction emissions would occur for fewer days than the Proposed Project. Accordingly, the mitigation fee to offset the NO_x emissions in excess of the SMAQMD threshold of 85 pounds per day could be lower, and the NO_x emissions could still be mitigated through this fee to a less-than-significant level (Class II). Potential PM_{10} impacts during construction would also be less than significant provided that fugitive dust control measures would be implemented as they would for the Proposed Project (Class III). Accordingly, the construction emissions associated with this alternative would not cause or contribute substantially to violations of the CAAQS or NAAQS with mitigation (Impact A-2, Class II (for NO_x)). If this alternative would trigger the need to obtain federal permits (e.g., Section 404 permit from the ACOE), the annual construction emissions would likely be much less than the de minimis thresholds, a general conformity analysis would not be required, and this impact would be less than significant (Impact A-7, Class III).

All air quality impacts resulting from operation of the Proposed Project with this alternative pipeline routing, including stationary and mobile source emissions associated with the compressor station, would be the same as those described for the Proposed Project. Thus, air quality impacts with respect to all significance thresholds would be less than significant (Class III).

Comparison to the Proposed Project

As with the Proposed Project, implementation of this alternative with mitigation would not result in significant impacts to air quality.

D.2.4.3 Environmental Impacts of the No Project Alternative

Implementation of the No Project Alternative would result in the SNGS Facility and associated pipelines not being constructed. There would be no direct air quality impacts associated with the construction or operation of facilities. However, a shortage of natural gas being supplied to SMUD's

gas-fired powerplants could result in the purchase of electricity from other electrical power sources that could create GHG emissions elsewhere.

D.2.5 Mitigation Monitoring, Compliance, and Reporting

Table G-1 describes the mitigation monitoring, compliance, and reporting program for air quality.

D.2.6 References

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