# C.2 AIR QUALITY

This section addresses the environmental setting and impacts related to the Proposed Project. Specifically, Sections C.2.1 provides a description of the environmental baseline and regulatory settings, followed by an environmental impacts analysis of the Proposed Project in Section C.2.2. Impact analysis for the alternatives is provided in subsequent sections.

## C.2.1 ENVIRONMENTAL BASELINE AND REGULATORY SETTING

### C.2.1.1 Environmental Setting

### Climate and Meteorology

The study area lies within the South Coast Air Basin (SCAB) (see Figure C.2-1), which is characterized as a Mediterranean climate with mild winters, when most rainfall occurs, and warm, dry summers. The regional climate is dominated by a strong and persistent high pressure system that frequently lies off the Pacific coast (generally know as the *Pacific High*). The Pacific High shifts northward or southward in response to seasonal changes or the presence of cyclonic storms. Besides the influence from the Pacific High, other important meteorological characteristics influencing air quality in the study area are the persistent temperature inversions, predominance of onshore winds, mountain ridge and valley topography, and prevalent sunlight.

***Temperature and Precipitation***. As described in Table C.2-1, average summer high and low temperatures (July) in the Long Beach area are 83° F and 62° F, while in the Colton area the average summer high and low temperatures are 95° F and 62° F, respectively. Average winter high and low temperatures (January) in Long Beach area are 65° F and 43° F, while in the Colton area the average winter high and low temperatures are 65° F and 43° F, respectively. Rainfall averages approximately 12 inches per year in Long Beach, and approximately 14 inches in the Colton area. Most of the annual rainfall occurs between November and April, with minor precipitation during summer months.

***Winds.*** Wind patterns in the project vicinity display a unidirectional on-shore flow from the southwest that is strongest during the summer, with a weaker off-shore return flow; return flow is strongest in the winter nights when the land is colder than the ocean. Local topography in the project area may modify these wind patterns to an extent, but the day-night difference is still very noticeable. The on-shore winds that sweep across the region average from seven to nine (miles per hour) mph with stronger winds occurring during the summer. The off-shore flow is often calm or drifts slowly southwesterly at two to six mph, with winter nights showing the strongest effects.

**Figure C.2-1** South Coast Air Basin

**(To Download this figure please see List of Figures on the table of contents)**

**Table C.2-1 Monthly Temperatures and Precipitation**

| Month | Long Beach Area | | | Colton Area | | |
|---|---|---|---|---|---|---|
| | Temperature (°F) | | Precipitation (Inches) | Temperature (°F) | | Precipitation (Inches) |
| | Maximum | Minimum | | Maximum | Minimum | |
| January | 65 | 43 | 2.44 | 65 | 43 | 4.5 |
| February | 66 | 45 | 2.75 | 68 | 44 | 1.84 |
| March | 68 | 47 | 1.78 | 70 | 45 | 2.01 |
| April | 71 | 51 | 1.06 | 74 | 48 | 1.39 |
| May | 74 | 54 | 0.22 | 80 | 52 | 0.44 |
| June | 77 | 58 | 0.05 | 87 | 55 | 0.07 |
| July | 83 | 62 | 0.00 | 95 | 62 | 0.01 |
| August | 84 | 63 | 0.03 | 93 | 60 | 0.03 |
| September | 83 | 60 | 0.16 | 93 | 60 | 0.07 |
| October | 78 | 56 | 0.40 | 82 | 54 | 0.36 |
| November | 73 | 48 | 0.99 | 74 | 48 | 1.30 |
| December | 67 | 45 | 2.36 | 68 | 45 | 1.96 |

Source: SCAQMD, A Climatological Air Profile - South Coast Air Basin, 1981

### Existing Air Quality

***Criteria Pollutants***. The quality of the surface air (air quality) is evaluated by measuring ambient concentrations of pollutants that are known to have deleterious effects. The degree of air quality degradation is then compared to the current National and California Ambient Air Quality Standards (NAAQS and CAAQS). Because of unique meteorological problems in the State, and because of differences of opinion by medical panels established by the California Air Resources Board (CARB) and the EPA, there is considerable diversity between State and federal standards currently in effect in California. In general, the CAAQS are more stringent than the corresponding NAAQS. Those standards currently in effect in California are shown in Table C.2-2.

Air quality standards are designed to protect those people most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. Table C.2-3 provides a summary of the health effects from the major criteria air pollutants. It should be noted that healthy adults can tolerate occasional exposure to air pollutant concentrations above these minimum standards before adverse effects are observed.

***Attainment Status.*** A summary of the air quality status of the SCAB, relative to meeting the National and State AAQS is provided in Table C.2-4. Non-attainment is a term used to indicate violations of the standard. As listed in Table C.2-4, air quality in the SCAB is non-attainment of the NAAQS and CAAQS for ozone ($O_3$), carbon monoxide (CO), and fine particulate matter ($PM_{10}$). With regard to $NO_2$, the USEPA and CARB are currently in the process of changing the attainment status of the SCAB for $NO_2$; from non-attainment to attainment.

**Table C.2-2 National and California Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standards[1] | National Standards[2] | |
|---|---|---|---|---|
| | | | Primary[3,4] | Secondary[3,5] |
| Ozone ($O_3$) | 8-hour[6]<br>1-hour | NS<br>0.09 ppm (180 μg/m$^3$) | 0.08 (160 μg/m$^3$)<br>0.12ppm (235 μg/m$^3$) | NS<br>0.12 ppm (235 μg/m$^3$) |
| Carbon Monoxide (CO) | 8-hour<br>1-hour | 9.0 ppm (10 mg/m$^3$)<br>20.0 ppm (23 mg/m) | 9.0 ppm (10 mg/m$^3$)<br>35 ppm (40 mg/m$^3$) | NS<br>NS |
| Nitrogen Dioxide ($NO_2$) | Annual Avg.<br>1-hour | NS<br>0.25 ppm (470 μg/m$^3$) | 0.053 ppm (100 μg/m$^3$)<br>NS | 0.053 ppm (100 μg/m$^3$)<br>NS |
| Sulfur Dioxide ($SO_2$) | Annual Avg.<br>24-hour<br>3-hour<br>1-hour | NS<br>0.05 ppm[7] (131 μg/m$^3$)<br>NS<br>0.25 ppm (655 μg/m$^3$) | 80 μg/m$^3$ (0.03 ppm)<br>365 μg/m$^3$ (0.14 ppm)<br>NS<br>NS | NS<br>NS<br>1300 μg/m$^3$ (0.5 ppm)<br>NS |
| Suspended Particulate Matter ($PM_{10}$) | Ann.Geo.Mean<br>Ann.Arith.Mean<br>24-hour | 30 μg/m$^3$<br>NS<br>50 μg/m$^3$ | NS<br>50 μg/m$^3$<br>150 μg/m$^3$ | NS<br>50 μg/m$^3$<br>150 μg/m$^3$ |
| Suspended Particulate Matter ($PM_{2.5}$)[8] | 24-hour<br>Annual | NS<br>NS | 65 μg/m$^3$<br>15 μg/m$^3$ | NS<br>NS |
| Sulfates ($SO_4$) | 24-hour | 25 μg/m$^3$ | NS | NS |
| Lead (Pb) | 30-day Avg.<br>Calendar Qtr. | 1.5 μg/m$^3$<br>NS | NS<br>1.5 μg/m$^3$ | NS<br>1.5 μg/m$^3$ |
| Hydrogen Sulfide ($H_2S$) | 1-hour | 0.03 ppm (42 μg/m$^3$) | NS | NS |
| Vinyl Chloride | 24-hour | 0.010 ppm (26 μg/m$^3$) | NS | NS |
| Visibility Reducing Particles | 1 Observation | Insufficient amount to reduce the prevailing visibility[9] to less than 10 miles when the relative humidity is less than 70% (CA only) | NS | NS |

Notes: NS = no standard; ppm = parts per million; μg/m$^3$ = microgram per cubic meter; mg/m$^3$ = milligrams per cubic meter

1. California standards for $O_3$, CO, $SO_2$ (l-hour), $NO_2$, and $PM_{10}$ are values that are not to be exceeded. $SO_4$, Pb, $H_2S$, Vinyl Chloride, and visibility-reducing particles standards are not to be equaled or exceeded.
2. National Standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The $O_3$ Standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon reference temperature of 25°C and a reference pressure of 760 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the U.S. EPA.
5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by US EPA.
6. The Interim Implementation Policy will define how and when states must achieve the new standards will be proposed by the end of 1997 and finalized by the end of 1998.
7. At locations where the state standards for ozone and/or $PM_{10}$ are violated. National standards apply elsewhere.
8. The Interim Implementation Policy will define how and when states must achieve the new standards will be proposed by the end of 1997 and finalized end of 1998. USEPA extended the implementation for the $PM_{2.5}$ standards. The agency committed to complete another full review of the health science, and allow 5 years to build a monitoring network, before any areas are designated nonattainment for $PM_{2.5}$ Following designations (in 2002-2005), areas would have another 3 years to develop attainment plans (by 2005-2008), with attainment by 2014-2017.
9. Prevailing visibility is defined as the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

**Table C.2-3 Summary of Health Effects of the Major Criteria Pollutants**

| Air Pollutant | Adverse Effects |
|---|---|
| Ozone | • Eye irritation<br>• Respiratory function impairment<br>• Aggravation of respiratory and cardiovascular diseases |
| Carbon Monoxide | • Impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin<br>• Aggravation of cardiovascular disease<br>• Impairment of central nervous system function<br>• Fatigue, headache, confusion, dizziness<br>• Death at high levels of exposure<br>• Aggravation of some heart diseases (angina) |
| Nitrogen Dioxide | • Risk of acute and chronic respiratory disease |
| Suspended Particulates | • Increased risk of chronic respiratory disease<br>• Reduced lung function<br>• With $SO_2$, may produce acute illness<br>• Particulate matter 10 microns or less in size ($PM_{10}$) may lodge in and/or irritate the lungs |

Source: SCAQMD, CEQA Air Quality Handbook, 1993

**Table C.2-4 Attainment Status of South Coast Air Basin**

| Air Basin | $O_3$ | | CO | | $NO_2$ | | $SO_2$ | | $PM_{10}$ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | State | Federal | State | Federal | State | Federal | State | Federal | State | Federal |
| South Coast | N | Extreme Non-Attainment | N | N | T | T | A | A | N | Serious Non-Attainment |

Notes: A = Attainment of Standards; N = Non-Attainment; T = Non-Attainment (Transitional)
Source: Personal communication with Shoreh Cohanim at South Coast Air Quality Management District, June 17, 1997.

Indications of criteria pollutant levels near the project area can be obtained by reviewing recent data collected at nearby SCAQMD monitoring stations (shown on Figure C.2-1). Three monitoring stations near the study area were selected to provide a general profile of the air quality within the study area. Table C.2-5 provides the monitoring data from 1993 to 1995 for the North Long Beach, Diamond Bar, and Fontana monitoring stations. In addition, the maximum concentration for $PM_{10}$, $O_3$, and $NO_2$ are also rendered as a bar chart in Figures C.2-2 and C.2-3. The number of days between 1993 and 1995 exceeding air quality standards are graphed in Figure C.2-4.

As described in Table C.2-5 and the figures C.2-2 through C.2-4 concentrations for ozone increase uniformly with distance from the coast, as does the number of days above the air quality standard. Ambient $NO_2$ levels at all three monitoring stations were below the CAAQS. Furthermore, the $PM_{10}$ concentrations in the North Long Beach exceeded the CAAQS (24-hour) of 50 micrograms per cubic meter (50 $ug/m^3$) approximately 11 to 12 times a year during the three year period. It should be noted that no exceedances of the NAAQS were recorded during the three year period. The Fontana monitoring station recorded approximately 34 to 38 exceedances of the CAAQS a year during the subject period. With regard to the NAAQS, two exceedances of the NAAQS were recorded during 1995. Monitoring was not conducted for $PM_{10}$ at the Diamond Bar station location between 1993 and 1995.

**Table C.2-5 Air Quality Summary**

| Standards | North Long Beach 1993 | North Long Beach 1994 | North Long Beach 1995 | North Long Beach 1996 | Diamond Bar 1993 | Diamond Bar 1994 | Diamond Bar 1995 | Diamond Bar 1996 | Fontana 1993 | Fontana 1994 | Fontana 1995 | Fontana 1996 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OZONE (1-Hour) STANDARD** | | | | | | | | | | | | |
| Maximum Concentration (ppm) | 0.14 | 0.16 | 0.11 | 0.11[c] | NM | 0.23[c] | 0.18 | 0.18[c] | 0.25 | 0.25 | 0.22 | 0.22 |
| Days >CAAQS (0.09 ppm) | 15 | 6 | 3 | 5 | NM | 76 | 65 | 7 | 134 | 129 | 99 | 80 |
| Days > NAAQS (0.12 ppm) | 1 | 1 | 0 | 0 | NM | 25 | 23 | 2 | 65 | 91 | 57 | 38 |
| **$NO_2$ (1-Hour) STANDARD** [a] | | | | | | | | | | | | |
| Maximum Concentration (ppm) | .20 | .20 | 0.21 | 0.18[c] | NM | 0.18[c] | 0.21 | 0.18[c] | 0.16 | 0.18 | 0.17 | 0.16 |
| Days > CAAQS (0.25 ppm) | 0 | 0 | 0 | 0 | NM | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **$PM_{10}$ (24-Hour) STANDARD** [b] | | | | | | | | | | | | |
| Maximum Concentration ($ug/m^3$) | 86 | 97 | 146 | 113 | NM | NM | NM | NM | 143 | 133 | 178 | 130 |
| Days > CAAQS (50 $ug/m^3$) | 12/55 | 11/60 | 11/59 | 7/48 | NM | NM | NM | NM | 34/60 | 38/60 | 35/61 | 35/61 |
| Days > NAAQS (150 $ug/m^3$) | 0 | 0 | 0 | 0 | NM | NM | NM | NM | 0 | 0 | 2 | 0 |
| **CO (8-Hour) STANDARD** | | | | | | | | | | | | |
| Maximum Concentration (ppm) | 6.9 | 9.1 | 6.7 | 6.9[c] | NM | 4.0[c] | 5.7 | 4.3 | NM | NM | NM | NM |
| Days > CAAQS (9.0 ppm) | 0 | 1 | 0 | 0 | NM | 0 | 0 | 0 | NM | NM | NM | NM |
| Days > NAAQS (9.0 ppm) | 0 | 1 | 0 | 0 | NM | 0 | 0 | 0 | NM | NM | NM | NM |

Source: CARB, *Summary of 1993 through 1996*  $ug/m^3$=grams per cubic meter; NA=not available
[a] No Federal (1-hour) $NO_2$ standard.
[b] "Days" for $PM_{10}$ are given as accedences/number of annual measurements.
[c] Data presented are valid, but incomplete in that an insufficient number of valid data points were collected to meet the EPA and/or the CARB criteria for representativeness.

***Toxic Air Contaminants.*** Toxic air contaminants (TACs), which are a component of hazardous air pollutants (HAPs), are air pollutants that are known or suspected to cause cancer, genetic mutations, birth defects, or other serious illnesses in people. TACs come from three basic source types: industrial facilities, internal combustion engines (stationary and mobile), and small "area sources" (such as solvent use). Generally, TACs behave in the atmosphere as other pollutants. Some of the TACs are Volatile Organic Compounds (VOCs) and could contribute to the ozone problems. The concentrations of both inert and toxic pollutants are therefore determined by the level of emissions at the source and the meteorological conditions encountered as these pollutants are transported away from the source. TACs are not regulated by the AAQS, but by Title III of the Clean Air Act Amendments of 1990.

The general level of emissions of some of the air toxics in the SCAB were monitored by SCAQMD as part of the Magnitude of Ambient Air Toxics impacts Existing Sources (MATES) study (SCAQMD, 1987). SCAQMD identified the approximate level of 20 pollutants by their sources of emissions (i.e., point, area, and mobile sources) in the air basin. The total annual amount of these emissions in tons are shown in Table C.2-6.

Even with all these data, background air toxic concentrations cannot easily be evaluated and established because of: (1) current knowledge is developing on the interaction between pollutants in the environment with respect to human health; (2) databases on emissions and model-predicted health effects of air toxics

**Figure C.2-2 Maximum Ozone $NO_2$ Concentrates**

**Figure C.2-3 Maximum $PM_{10}$ Concentrates**

**Figure C.2-4 Percent Days Over CAAQS**

**Table C.2-6 Total Annual Emissions of Toxic Air Pollutants in the South Coast Air Basin (tons/year)**

| Pollutants | Sources of Emissions | | | |
|---|---|---|---|---|
| | Point | Area | Mobile | Total |
| Arsenic | 0.05 | - | - | 0.05 |
| Benzene | 118 | 7,870 | 6,910 | 14,898 |
| Beryllium | 0.04 | - | - | 0.04 |
| Cadmium | 1.12 | - | 6.91 | 8.03 |
| Carbon Tetrachloride | 3.20 | - | - | 3.20 |
| Chloroform | - | - | 0.0006 | 0.0006 |
| Chromium | 16.00 | - | 13.20 | 29.20 |
| Ethylene Dibromide | 1.09 | - | 12.00 | 13.10 |
| Ethylene Dichloride | 3.53 | - | 42.70 | 46.20 |
| Lead | 14.50 | - | 2,030 | 2,045 |
| Mercury | 0.13 | - | - | 0.13 |
| Methyl Bromide | 24.40 | - | - | 24.40 |
| Methylene Chloride | 4,780 | 10,200 | - | 14,980 |
| Nickel | 5.40 | - | 2.44 | 7.84 |
| Perchloroethylene | 3,970 | 8,850 | - | 12,820 |
| Toluene | 714 | 276 | 14,200 | 15,190 |
| 1,1,1-Trichloroethane | 8,590 | 6,150 | - | 14,740 |
| Trichloroethylene | 9.52 | 546 | - | 556 |
| Vinyl Chloride | 1.37 | - | - | 1.37 |
| Xylenes | 230 | 185 | 8,950 | 9,365 |

Source: The Magnitude of Ambient Air Toxics Impacts from Existing Sources in the South Coast Air Basin, SCAQMD, 1987.

are relatively recent and are based on large stationary sources; (3) existing databases are generally inconsistent, and some are overly conservative and used as a screening tool rather than predictive models of realistic risks; and (4) no comprehensive monitoring program and risk evaluation has been established that covers approximately 200 substances that are regulated as toxic pollutants.

### C.2.1.2 Applicable Laws, Regulations, and Standards

#### Federal Regulations

- The Federal Clean Air Act of 1970 directs the attainment and maintenance of National Ambient Air Quality Standards (NAAQS). The 1990 Amendments to this Act determine attainment and maintenance of NAAQS (Title I), motor vehicles and fuel reformulation (Title II), hazardous air pollutants (Title III), acid deposition (Title IV), operating permits (Titles V), stratospheric ozone protection (Title VI), and enforcement (Title VII).
- The U.S. Environmental Protection Agency (EPA) implements New Source Review (NSR) and Prevention of Significant Deterioration (PSD). PSD applies to major sources with annual emissions exceeding either 100 or 250 tons per year (TPY) depending on the source, or that cause or contribute adverse impacts to any Federally classified Class I area.

- The EPA implements the NAAQS and determines attainment of Federal air quality standards on a short- and long-term basis.

### State Regulations and Laws

- The California Air Resources Board (ARB) has established the California Ambient Air Quality Standards (CAAQS) and determines attainment status for criteria air pollutants.

- The California Clean Air Act (CCAA) went into effect on January 1, 1989, and was amended in 1992. The CCAA mandates achieving the health-based CAAQS at the earliest practicable date.

- The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) requires an inventory of air toxics emissions from individual existing facilities, an assessment of health risk, and notification of potential significant health risk when found to be present.

- The Calderon Bill (SB 1731) alters the 1987 "Hot Spots" Act (AB 2588). The bill sets forth changes in the following four areas: provides guidelines to identify a more realistic health risk, requires high risk facilities to submit an air toxic emission reduction plan, holds air districts accountable for ensuring that the plans will achieve their objectives, and high risk facilities will be required to achieve their planned emission reduction.

- The new Tanner Bill (AB 2728). This bill amends the existing Tanner Bill (AB 1807) by setting forth provisions to implement the Federal program for hazardous air pollutants.

- Toxic Emission Near Schools (AB 3205). This bill requires new or modified sources of air contaminants located within 1,000 ft. from the outer boundary of a school to give public notice to the parents of school children before an air pollution permit is granted.

- Section 21151.4 of the California Environmental Quality Act discusses Hazardous Air Pollutant releases within one-fourth mile of a school site.

### SCAQMD Rules and Regulations

Emissions that would result from the Proposed Project are subject to the rules and regulations of the South Coast Air Quality Management District (SCAQMD). Rules and regulations of this agency are designed to achieve defined air quality standards that are protective of public health. To that purpose, they limit the emissions and the permissible impacts of emissions from projects, and specify emission controls and control technologies for each type of emitting source in order to ultimately achieve the air quality standards. The following discussion outlines various SCAQMD rules and regulations that could be applicable to the proposed project.

- *Rule 403 - Fugitive Dust.* Requirements that minimize emission of fugitive dust for any active operation, open storage pile, or disturbed area.

- *Regulation II*. SCAQMD Regulation II contains a series of rules specifying requirements for permits to construct and operate stationary equipment capable of emitting air contaminants, including air emissions control equipment.

- *Regulation IV.* Regulation IV defines the allowable concentration and emission levels for pollutants, as well as inspection and maintenance requirements for hydrocarbon emissions sources. Rules bearing upon the proposed project include Rule 463, Organic Liquid Storage.

- *Regulation XI*. Regulation XI contains a series of rules governing emissions from specific sources. Those bearing upon the proposed project include: Rule 1113, Architectural Coatings; Rule 1146.1, Emissions from Small Boilers and Process Heaters; Rule 1149, Storage Tank Degassing; Rule 1166, volatile organic compounds (VOC) Emissions from Soil Decontamination; and Rule 1173, Fugitive VOC Emissions.

- *New Source Review (Regulation XIII)*. Regulation XIII requires that all new and modified stationary emissions sources must use best available control technology (BACT) to control emissions of all affected pollutants. In addition, if there is a net emission increase of any size, emission offsets will be required to counteract the effects of emissions growth. These offsets must be achieved through contemporaneous or third party emissions reduction. Some credit remains available in the form of "banked" emissions.

## C.2.2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Short-term construction impacts and long-term operational impacts would result from the Proposed Project. In this section, the potential incremental impacts associated with the construction and operation of the Proposed Project are analyzed.

### C.2.2.1 Significance Criteria

Section 15002 of the California Environmental Quality Act has established guidelines for determining the significance of air quality and other environmental impacts (*CEQA Guidelines, 1992*). Each air quality management/control district establishes its own significance criteria based on the specific conditions in its jurisdiction. The SCAQMD has established guidelines and thresholds to determine potentially significant adverse environmental impacts (SCAQMD, 1993). The following significance criteria are based on these sources

***General Significance Criteria***

- Construction emissions are considered significant whenever they would result in a direct violation of an air quality standard.

- Project would cause a new violation of an ambient air quality standard (State or Federal), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations (based on Appendix G of CEQA).

- Any aspect of a project not consistent with the local Air Quality Attainment Plan (AQAP) is considered significant (CEQA, Appendix. G, 1992).

- A potential to emit toxic or hazardous air pollutants is considered significant, if the California Air Pollution Control Officers Association (CAPCOA) criterion of a ten-in-one million probability of someone in the community contracting cancer over a lifetime (70-year) exposure to a pollutant source is met. Or the impact would be significant if a toxic pollutant would have a hazard index of 1.0 or greater for either acute or chronic non-cancer exposure at the nearest exposed individual (CAPCOA, 1992).[1]

- Project could result in a population increase which would be in excess of that projected in the Air Quality Management Plan (AQMP).

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[1] Hazard index is defined as the ratio of estimated exposure at a receptor to a pre-determined acceptable exposure level for a particular toxic chemical species that would be emitted.

- The project would cause objectionable odors offsite.

- Project would have hazardous materials onsite and could result in an accidental release of air toxics emissions or acutely hazardous materials posing a threat to public health or safety.

- Project could involve burning of hazardous, medical, or municipal waste as waste-to-energy facilities.

- Exceeding any Federal or air agency Prevention of Significant Deterioration (PSD) increment threshold or causing or contributing adverse impacts to any Federally classified Class I Area would be considered a significant impact.

- A project which might reasonably be anticipated to emit hazardous or acutely hazardous air emissions, or which would handle acutely hazardous material within one-fourth of a mile of a school would be considered a significant impact.

- A project that would cause long-term detrimental effects to the surrounding biological resources from construction or operational emissions, would be considered significant.

### *SCAQMD's Specific Significance Criteria*

- Project could be occupied by sensitive receptors within a quarter mile of an existing facility that emits air toxics identified in SCAQMD Rule 1401, or near CO hot spots.

- SCAQMD thresholds of significance for construction emissions as listed in Table C.2-7 below (i.e., if a proposed project emits pollutants higher than these levels during the construction, its impact on the air quality is considered to be significant) (SCAQMD, 1993):

**Table C.2-7 SCAQMD Threshold of Significance for Construction Emission**

| Pollutant | lbs/day | tons/qtr |
|---|---|---|
| Nitrogen Oxides ($NO_x$) | 100 | 2.50 |
| Volatile Organic Compounds (VOC) | 75 | 2.50 |
| Sulfur Oxides ($SO_X$) | 150 | 6.75 |
| Particulates ($PM_{10}$) | 150 | 6.75 |
| Carbon Monoxide (CO) | 550 | 24.75 |

Source: SCAQMD, CEQA Air Quality Handbook, 1993

- Project located in the SCAB has operational emissions in a nonattainment air basin exceeding any of the thresholds as shown in Table C.2-8:

**Table C.2-8 SCAQMD Thresholds of Significance for Operational Emissions**

| Pollutant | (lbs/day) Weekly Averaged Except $PM_{10}$ |
|---|---|
| Nitrogen Oxides ($NO_x$) | 55 |
| Volatile Organic Compounds (VOC) | 55 |
| Sulfur Oxides ($SO_X$) | 150 |
| Particulates ($PM_{10}$) | 150 |
| Carbon Monoxide (CO) | 550 or exceed CA 1-hour or 8-hour CO standards |

Source: SCAQMD, CEQA Air Quality Handbook, 1993

## C.2.2.2 Applicant Proposed Measures

Table C.2-9 contains measures that have been developed by SFPP to reduce the potential air quality impacts from the proposed project (SFPP, 1997). Because the measures are non-specific, or contain phrases that are non-committing, the implementation of these measures was not included within the air quality calculations and subsequent impact analysis. However, it should be noted that specific mitigation measures have been developed in this EIR to reduce emission levels from the proposed project. These detailed measures are presented in the following sections.

**Table C.2-9 Applicant Proposed Measures for Air Quality**

| # | Committed Measures |
|---|---|
| 1 | Use low emission on-site mobile construction equipment, where feasible. |
| 2 | Maintain equipment in tune, per manufacturer's specifications. |
| 3 | Use catalytic converters on gasoline powered equipment. |
| 4 | Retard diesel engine injection timing by four degrees, where feasible. |
| 5 | Use reformulated, low emission diesel fuel, where feasible. |
| 6 | Substitute electric and gasoline powered equipment for diesel powered equipment where feasible. |
| 7 | Where applicable, do not leave equipment idling for prolonged periods. |
| 8 | Curtail (cease or reduce) construction during periods of high ambient pollutant concentrations (stage 2 smog alerts). |
| 9 | Water the site and the equipment in the morning and evening. |
| 10 | Schedule activities to minimize the amount of exposed excavated soil during and after the end of work periods. |
| 11 | Dispose of surplus excavated material in accordance with local ordinances, and use sound engineering practices. |
| 12 | Sweep streets on a daily basis if silt is carried over to adjacent public thoroughfares or occurs as a result of hauling. |
| 13 | Suspend dirt handling operations during high winds in accordance with Rule 403 requirements. |
| 14 | Maintain a minimum 12-inch freeboard ratio on haul trucks. |
| 15 | Cover payloads on haul trucks using tarps or other suitable means. |

Notes: Woodward Clyde, SFPP PEA, 1997.

### C.2.2.3 Construction Emissions

#### C.2.2.3.1 *Pipeline Construction Emissions*

Collectively the construction activities and equipment used in installing a segment of pipeline is referred to as a "spread." Construction equipment would include machinery such as trenchers, welding machines, X-ray trucks, tracked side booms, bulldozers, and other support vehicles (refer to Section B.4 for a description of the construction methodology). SFPP has estimated that construction progress would vary from approximately 300 feet per day to 500 feet per day depending upon on factors such as traffic levels on the roadway easement or in the vicinity of the work area, and density of buried utility lines. However, recent pipeline construction in urban Los Angeles has proceeded at a slower pace, less than 200 feet per day. As described in Section B.4.1.1, construction of the proposed 13-mile SFPP pipeline could occur over a six-to-twelve month period.

Pipeline construction emissions can be distinguished as *onsite* and *offsite*. Onsite air pollutant emissions during construction would principally consist of exhaust emissions from mobile heavy duty diesel and gasoline-powered construction equipment, as well as fugitive particulate matter (dust) from material handling. Offsite exhaust emissions would result from the commuting of workers to staging areas, transporting workers from staging areas to work sites, from trucks hauling pipe and other materials to the construction spread, dump trucks hauling away dirt displaced by the pipe, and trucks hauling away shattered asphalt and delivering fresh asphalt to the construction sites.

***Onsite Pipeline Construction Emissions.*** The calculation of onsite construction emissions begins with an analysis of construction study plans and scheduling. SFPP provided construction scheduling data in the PEA (SFPP, 1997) that were subsequently updated and incorporated in Part B of this document. The computational methodology consists of two basic steps: first determining the total number of equivalent operating days for each piece of equipment (see Table B.4-3), and applying the appropriate emission factors to compute the associated emissions when the piece would be operating. Second, from these equipment emissions data, and based on operating assumptions for each piece of equipment, total emissions are compiled. Refer to Appendix D for the detailed assumptions used in the air quality analysis.

The emissions from onsite construction activities were calculated using emission factors from the U.S. Environmental Protection Agency's (USEPA) AP-42 emission factors for construction equipment (USEPA, 1994). Emissions were computed by multiplying the emission factors for each equipment type by its fuel consumption rate, the number of pieces, the construction hours per day, and equivalent number of "days". Emissions from all equipment types were then summed to obtain total emissions. The calculated daily and quarterly onsite emissions for pipeline construction are listed in Tables C.2-10 and C.2-11, respectively.

**Table C.2-10 Maximum Daily Pipeline Construction Emissions (in lbs)**

| Source | VOC | $NO_X$ | $SO_X$ | CO | $PM_{10}$ |
|---|---|---|---|---|---|
| Onsite Emissions | 32.1 | 339.0 | 32.5 | 233.4 | 22.5 |
| Offsite Emissions | 6.1 | 12.1 | 1.0 | 73.5 | 1.7 |
| Fugitive Dust Emissions | | | | | 101.2 |
| TOTALS: | 38.2 | 351.1 | 33.5 | 306.9 | 125.4 |

**Table C.2-11 Quarterly Pipeline Construction Emissions (tons)**

| Source | VOC | $NO_X$ | $SO_X$ | CO | $PM_{10}$ |
|---|---|---|---|---|---|
| Onsite Emissions | 0.8 | 8.3 | 0.8 | 8.2 | 0.5 |
| Offsite Emissions | 0.2 | 0.3 | <0.1 | 1.9 | <0.1 |
| Fugitive Dust Emissions | | | | | 2.4 |
| TOTALS: | 1.0 | 8.6 | 0.9 | 10.1 | 3.0 |

With regard to fugitive particulate emissions, particulates less than ten microns in diameter ($PM_{10}$) were quantified using $PM_{10}$ estimating procedures from the SCAQMD's CEQA Handbook. The procedures included equations to quantify emissions from dirt piling or material handling, and emissions from truck travel on paved roads. Refer to Appendix D for the detailed assumptions used in the calculations.

***Offsite Pipeline Construction Emissions.*** It was assumed that most of the 95 laborers would be meeting at a staging area and would go to the construction site in work trucks and pick-up trucks. Welders would arrive at the construction site in their own welding trucks. Truck trips would also be required to haul pipe and other materials to the construction sites. Appendix D provides data on these requirements. Dump trucks would remove the dirt displaced by the pipe, as well as broken asphalt. Other trucks would return with fresh asphalt during the finishing stage at the moving construction site. The emission factors used to quantify emissions from offsite source were selected from the California Air Resources Board's EMFAC7EP. Tables C.2-10 and C.2-11 summarize the daily and quarterly project onsite and offsite construction emissions.

### C.2.2.3.2 *Station Modification Emissions*

As described in Section B.3-2, SFPP plans to modify four facilities as a part of the proposed expansion project. All terminal-related modifications would occur within the boundaries and easements of the existing facilities, or within a railroad ROW adjacent to the station. Construction crews would operate on a six days per week schedule for a period of two- to six-months. Approximately 110 workers would be employed for station construction during the peak construction period. It is assumed that the construction workers would commute to each job site, since there are four different station locations. Equipment anticipated for completing the station modifications is listed in Appendix D.

The methodology used to develop construction equipment profiles and usage data was also employed to estimate requirements for construction of the station modifications. In the calculations, it was assumed that construction would occur at two sites (i.e., Norwalk and Industry Stations) concurrently. Data and calculations for these emission estimates are provided in Appendix D. Tables C.2-12 and C.2-13 lists the onsite and offsite emission estimates for the construction of the station modifications.

**Table C.2-12 Maximum Daily Construction Emissions from Station Modifications (lbs)**

| Source | VOC | $NO_X$ | $SO_X$ | CO | $PM_{10}$ |
|---|---|---|---|---|---|
| Onsite Emissions | 17.6 | 182.7 | 17.1 | 138.4 | 12.1 |
| Offsite Emissions | 4.9 | 8.8 | 0.8 | 61.4 | 1.4 |
| Fugitive Dust Emissions | | | | | 57.4 |
| TOTALS: | 22.5 | 191.5 | 17.9 | 199.8 | 70.9 |

**Table C.2-13 Quarterly Construction Emissions from Station Modifications (tons)**

| Source | VOC | $NO_X$ | $SO_X$ | CO | $PM_{10}$ |
|---|---|---|---|---|---|
| Onsite Emissions | 0.3 | 3.1 | 0.3 | 3.9 | 0.2 |
| Offsite Emissions | 0.1 | 0.3 | <0.1 | 1.8 | <0.1 |
| Fugitive Dust Emissions | | | | | <0.1 |
| TOTAL | 0.4 | 3.4 | 0.4 | 5.7 | 0.4 |

### C.2.2.4 Impacts and Mitigation Measures for Construction

*Impact Assessment*

SCAQMD guidelines identify a daily and a quarterly threshold for construction activities (see Tables C.2-7 and C.2-8). As listed in Table C.2-14, the estimated maximum daily emissions associated with construction of the pipeline and the concurrent modifications of two stations would greatly exceed the SCAQMD's significance thresholds for NOx (100 lbs/day) and $PM_{10}$ (150 lbs/day), a potentially significant impact (Class I or II). In addition, the estimated quarterly emissions also exceeds the significance threshold for NOx (see Table C.2-15), also a potentially significant impact (**Class I** or **II**). Both the NOx and $PM_{10}$ emissions could be reduced through the implementation of Mitigation Measures A-1 through A-19 below.

**Table C.2-14 Total Maximum Daily Construction Emissions (lbs)**

| Source | VOC | $NO_X$ | $SO_X$ | CO | $PM_{10}$ |
|---|---|---|---|---|---|
| Pipeline Construction | 38.2 | 351.1 | 33.5 | 306.9 | 125.4 |
| Station Construction | 22.5 | 191.5 | 17.9 | 199.8 | 70.9 |
| TOTAL Emissions | 60.7 | 542.6 | 51.4 | 506.7 | 196.3 |
| SCAQMD Emission Threshold | 75 | 100 | 150 | 550 | 150 |
| **Exceedance of the SCAQMD Thresholds?** | **NO** | **YES** | **NO** | **NO** | **YES** |

**Table C.2-15 Total Maximum Quarterly Construction Emissions (tons)**

| Source | VOC | $NO_X$ | $SO_X$ | CO | $PM_{10}$ |
|---|---|---|---|---|---|
| Pipeline Construction | 1.0 | 8.6 | 0.9 | 10.1 | 3.0 |
| Station Construction | 0.4 | 3.4 | 0.4 | 5.7 | 0.4 |
| TOTAL Emissions | 1.4 | 12.0 | 1.3 | 15.8 | 3.4 |
| SCAQMD Emission Threshold | 2.5 | 2.5 | 6.75 | 24.75 | 6.75 |
| **Exceedance of the SCAQMD Thresholds?** | **NO** | **YES** | **NO** | **NO** | **NO** |

### C.2.2.5 Mitigation Measures for Construction

The following measures would reduce emissions and the potential for exceeding an air quality standard during construction of the pipeline and station modifications.

***Mitigation Measures to Reduce $NO_X$ and $PM_{10}$***

**Impact:** Construction activities result in exceedance of significance thresholds for $NO_X$ and $PM_{10}$ **(Class I or II)**.

**A-1** Construction activities within stations that require the use of diesel- or gasoline-powered equipment or that produce fugitive dust may not occur at more than one station at a time during pipeline construction.

***Mitigation Measures to Reduce Fugitive ($PM_{10}$) Emissions***

**A-2** Apply water sprays to all disturbed active construction areas a minimum of two times per day, except when weather conditions warrant a reduction in water application (SCAQMD, 1993). Additionally, dust control shall be adequate to keep fugitive dust from being transmitted outside of the ROW or property boundaries. Increase dust control watering when wind speeds exceed 15 miles per hour for a sustained period of greater than 10 minutes, as measured by an anemometer. The amount of additional watering would depend upon soil moisture content at the time: but no airborne dust should be visible. Cease excavation and grading work when sustained wind speeds exceed 25 mph. SFPP shall document in a written log, the date and time of each watering, and the location(s) watered (by milepost), and the log shall be maintained at the construction site.

**A-3** Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.

**A-4** Trucked soil loads shall be covered using a tarp or other suitable means during transit (SCAQMD, 1993).

**A-5** Maintain a minimum 12-inch freeboard ratio on haul trucks (SCAQMD, 1993).

**A-6** Wash streets at the end of each work day if visible soil material is carried onto adjacent public paved roads (SCAQMD, 1993).

**A-7** For construction in station facilities and for staging areas, install a 50-foot (minimum) gravel pad at egress points onto the site from the main road.

**A-8** Traffic speeds on all unpaved roads is to be reduced to 15 mph or less; restrict speed to 5 mph or less within 100 feet of the entrance to a paved road (SCAQMD, 1993). SFPP shall ensure that all project personnel (including contractors, subcontractors, and service company representatives) sign a statement acknowledging their awareness of the unpaved road speed limit restriction. The signed statement shall specify that 15 mph is the maximum speed limit on any unpaved road, and 5 mph is the maximum speed limit within 100 feet of an entrance to a paved road.

**A-9** Dispose of surplus excavated material in accordance with local ordinances. Maintain receipts for disposal of all materials at the construction site.

***Mitigation Measures to Reduce Nox (and other emissions)***

**A-10** Construction equipment shall be maintained in tune, per manufacturing specifications. SFPP/contractor shall provide a maintenance schedule for all vehicles and equipment. SFPP/contractor shall provide a certification from a third-party certified mechanic stating the timing of all internal combustion construction equipment engines have been properly maintained. SFPP/contractor shall recertify each piece of construction equipment/vehicle based on the maintenance schedule.

**A-11** SFPP/contractor shall use catalytic converters on all gasoline equipment (except for small [2-cylinder] generator engines). If this measure is not implemented, emissions from gasoline equipment shall be offset by other means (e.g., Emission Reduction Credits). SFPP/contractor shall provide a certification from a third-party certified mechanic stating that a catalytic converter is installed on each applicable vehicle and gasoline-fueled equipment.

**A-12** Retard diesel engine injection timing by two degrees before top center on all construction equipment that was manufactured before 1996, and which does not have an existing IC engine warranty with the manufacturer. SFPP/contractor shall provide a certification from a third-party certified mechanic prior to start of construction, stating the timing of all diesel-powered construction equipment engines have been retarded two degrees Before Top Center.

**A-13** Substitute electric powered equipment for diesel and gasoline powered equipment, where feasible. SFPP shall submit an analysis showing available electric equipment and demonstrate their feasibility for this project.

**A-14** Cease construction during periods of high ambient pollutant concentrations (i.e., Stage 2 smog alerts) near the construction area (SCAQMD, 1993). SFPP/contractor shall call (800) CUT-SMOG for daily ozone forecasts. The Applicant shall document in a written log the ozone forecast on a daily basis.

**A-15** Use high pressure injectors on all diesel engines that were manufactured before 1996, and which do not have existing IC engine warranties with the manufacturer. SFPP/contractor shall provide documentation of warranty and manufacture date or a certification from a third-party certified mechanic stating that all diesel construction equipment engines are utilizing high pressure fuel injectors.

**A-16** Schedule all material deliveries to the construction spread outside of peak traffic hours, and minimize other truck trips during peak traffic hours, or as approved by local jurisdictions. Material deliveries may be made to the staging area(s), if in accordance with other mitigation measures.

**A-17** Use only solar powered traffic signs (no gasoline-powered generators shall be used) except for night construction.

**A-18** Configure construction parking to minimize traffic interference (SCAQMD, 1993); coordinate with implementation of Mitigation Measures T-10, T-11, and 11a.

**A-19** Prohibit all vehicles from idling in excess of 10 minutes. SFPP shall ensure that project personnel operating vehicles (including contractors, subcontractors, and service company representatives) sign a statement acknowledging their awareness of idling restrictions. Signs shall be posted in plain view within the construction spread area stating that vehicles shall not idle more than 10 minutes and must be shut off prior to the 10 minute limitation. This measure does not apply to equipment performing construction operations (i.e., side-boom tractor holding or lowering pipe into trench).

***Residual Construction Impacts***

Through the implementation of Mitigation Measures A-1 through A-19, total $PM_{10}$ and NOx emissions from construction would be reduced substantially. Specifically, Mitigation Measure A-1 would spread the construction emissions over a longer period of time by prohibiting concurrent construction of the pipeline and any station. Approximately 190 pounds a day (lbs/day) of NOx and 70 lbs/day of $PM_{10}$ emissions would be reduced from the maximum daily construction emission estimates (as shown in Table C.2-14 in the row entitled "Station Construction") if station construction did not coincide with pipeline construction. In addition, since the initial emissions estimates (resulting in 190 lbs/day of NOx and 70 lbs/day of $PM_{10}$) assumed that two stations would be constructed at the same time. These emissions would further be reduced because only one station would be modified at a time. Table C.2-16 shows residual daily construction emissions, essentially representing maximum pipeline emissions only after implementation of Mitigation Measures A-1 through A-19.

Table C.2-15a presents approximate emission reduction efficiencies for Mitigation Measures A-1 through A-19.

Mitigation Measures A-2 through A-9 would reduce the fugitive emissions by approximately 50 percent (SCAQMD, 1993; USEPA, 1994). The implementation of these measures would reduce the fugitive $PM_{10}$ emissions (from material handling and rubble hauling) to approximately 75 lbs/day. As described in Table C.2-16, the reduction in fugitive $PM_{10}$ emissions would reduce the overall $PM_{10}$ construction emissions to a level that is less than the significance threshold, and thus, would result in a **Class II** impact.

The implementation of Mitigation Measures A-10 through A-19 would further reduce the NOx emission during construction. Mitigation Measures A-12 and A-15, in combination, would reduce NOx emissions by approximately 20%. These reductions are described in a paper entitled "Noncatalytic NOX Control of Stationary Diesel Engines" by Don Koeberlein of the California Air Resources Board (approximately 1991). Tables C.2-16 and C.2-17 provide the residual NOx emission levels for the maximum daily and quarterly emission periods. As shown in the subject tables, the residual NOx emission levels would still be above the SCAQMD's daily and quarterly thresholds of significance, representing a short-term significant, unmitigable **(Class I)** air quality impact.

**Table C.2-15a Approximate Emission Reduction Efficiency**

| MM # | $NO_x$ Reduction | $PM_{10}$ Reduction |
|---|---|---|
| A-1 | Would reduce the daily and quarterly emissions from concurrent construction of station and pipeline; however SCAQMD threshold is still exceeded. Mitigation measure could spread out the emissions over a slightly longer construction period. | Would reduce the daily emissions from concurrent construction of stations and pipeline to below SCAQMD threshold. Mitigation measure could spread out the emissions over a slightly longer construction period |
| A-2 | --- | 45-85% |
| A-3 | --- | 30-65% |
| A-4 | --- | 7-14% |
| A-5 | --- | |
| A-6 | --- | 25-60% |
| A-7 | --- | 92.5% |
| A-8 | --- | 40-70% |
| A-9 | NQ | NQ |
| A-10 | NQ | NQ |
| A-11 | Properly maintained catalytic converters would be highly effective in reducing non-particulate emissions from gasoline powered equipment | --- |
| A-12 & A-15 | 20% | --- |
| A-13 | 100% per piece of construction equipment | 100% per piece of construction equipment |
| A-14 | NQ - Would eliminate the potential to exacerbate high ozone concentration during a Stage 2 smog alert | --- |
| A-16 | NQ | NQ |

| MM # | $NO_x$ Reduction | $PM_{10}$ Reduction |
|---|---|---|
| A-17 | 100% per piece of construction equipment | 100% per piece of construction equipment |
| A-18 | NQ - Would help to reduce traffic congestion and subsequent emissions from vehicles | NQ - Would help to reduce traffic congestion and subsequent emissions from vehicles |
| A-19 | NQ - Would help to reduce emissions from trucks idling for a lengthy period of time | NQ - Would help to reduce emissions from trucks idling for a lengthy period of time |

NQ = Non-quantifiable

**Table C.2-16 Residual Maximum Daily Construction Emissions (lbs)**

| Source | $NO_X$ | $PM_{10}$ |
|---|---|---|
| Onsite Emissions | 363.1 | 34.6 |
| Offsite Emissions | 16.1 | 3.1 |
| Fugitive Dust Emissions | | 67.0 |
| TOTAL Emissions | 379.2 | 104.7 |
| SCAQMD Emission Threshold | 100 | 150 |
| **Residual Impact Level** | **116.6** | **0.0** |

**Table C.2-17 Residual Quarterly Construction Emissions (tons)**

| Source | $NO_X$ |
|---|---|
| Onsite Emissions | 5.0 |
| Offsite Emissions | 0.3 |
| TOTAL Emissions | 5.3 |
| SCAQMD Emission Threshold | 2.5 |
| **Residual Impact Level** | **2.7** |

### C.2.2.6 Impacts of Pipeline Operations

***Onsite Operational Emissions.*** The proposed 13-mile pipeline would operate in the same manner as the existing SFPP pipelines. Primarily, onsite operational emissions associated with this project would be limited to emissions from storage tanks at the Watson Station, which would be used when necessary to store petroleum products. There would also be a potential for the valves and flanges along the proposed pipeline to release a small amount of emissions.

Three storage tanks (Tanks 2, 5 and 7) at the Watson Station are currently used to store diesel fuel. As part of the Proposed Project they would be modified to handle more volatile types of petroleum product (e.g., gasoline and jet fuel). Emissions from these tanks and associated equipment would consist of volatile organic compounds (VOCs) and other compounds, including benzene, toluene, xylenes and hexane. The project would result in an increase of 4.6% in total VOC emissions (from 78,495 pounds annually currently to 82,171 pounds annually with the proposed project) at the Watson Facility. The net increase in VOCs of 3,676 pounds per year is equivalent to an average daily emissions of approximately 10 pounds per day. This level of emissions is below the SCAQMD suggested significance threshold criteria of 55 pounds per day.

***Offsite Operational Emissions.*** In accordance with 49 CFR Part 195 (Pipeline Safety Regulations - Hazardous Liquids), the 13-mile pipeline route would be visually inspected at least every 14 days by line rider patrol. However, SFPP plans to inspect the route twice each week, so inspection of the proposed project would result in SFPP personnel traveling an additional 7,500 miles per year, resulting in a small incremental increase or emissions. Table C.2-18 shows the annual emissions associated with visual inspection of the 13-mile pipeline.

**Table C.2-18 Daily Operational Emissions (lbs)**

| Source | VOC | $NO_X$ | $SO_X$ | CO | $PM_{10}$ |
|---|---|---|---|---|---|
| Storage Tanks | 10.0 | | | | |
| Inspection and Maintenance | <0.1 | <0.1 | <0.1 | 0.6 | <0.1 |
| Powerplant Emissions* | 0.8 | 94.4 | 9.8 | 16.4 | 3.3 |
| TOTAL Emissions | 10.9 | 94.5 | 9.9 | 17.0 | 3.4 |
| SCAQMD Emission Threshold | 55 | 55 | 150 | 550 | 150 |
| **Exceedance of the SCAQMD Thresholds?** | **NO** | **YES** | **NO** | **NO** | **NO** |

*May be generated in several locations or outside the SCAB.

No additional operational positions to SFPP's existing staff would be required as a result of the Proposed Project. Therefore, there would be no additional emissions generated from workers commuting.

***Powerplant Emissions*** are another form of offsite project emissions. Generation of electrical power for the two - 2000 hp electric pumps at the Watson Station, and two - 1750 hp electric pumps at Industry Station would result in emissions at utility power plants. Table C.2-18 provides the estimated average daily emissions per day as a result of consumption of electricity from local power plants. It should be noted that the required power for this project would be provided principally by a network of power plants located throughout the state.

***Impacts of Operational Emissions***

Table C.2-18 summarizes the operational emissions associated with the proposed project demonstrating that they would be limited for most of the criteria pollutants. However, the NOx emissions (primarily resulting from power generation) would exceed the SCAQMD's significance emissions threshold. Almost all of the emissions associated with the exceedance would result from the generation of electricity for use by the four electric pumps (i.e., 2-2,000hp in Carson and 2-1750hp in Industry). It should noted that the electrical power emissions would not occur at a single location, and may be provided by generators outside the SCAB under the electric restructuring program underway in California. Therefore, the emissions from the powerplants, as well as the other operational emissions associated with the proposed project, would be adverse, but not significant **(Class III).**

***Accidents***

Pipeline accidents are discussed in detail in Section C.11, System Safety and Risk of Upset. An accident that would release hydrocarbons could have significant adverse impacts in many areas, including public health and air quality. With regard to public health, ingestion of gasoline or inhalation of gasoline vapor at airborne concentrations exceeding 1,000 parts per million (ppm) may cause signs and symptoms of central nervous system depression, such as headache, dizziness, loss of appetite, weakness and loss of coordination. Vapor concentrations exceeding 5,000 ppm may cause loss of consciousness or a coma.

During an accident, the refined petroleum products (e.g. gasoline) released would evaporate leading to potentially high concentrations of gasoline vapors, which may cause some short-term health effects. As shown in Section C.11, the probability of this accident to occur over the 50 year lifetime of the project at any particular location is 1.2 in 1,000 (i.e., once in 41,650 years), and one in every 294 years over the entire 13 mile length of the pipeline. Based on the low probability of occurrence, the impacts are considered adverse, but not significant **(Class III)**. (However, it should be noted that if the accident occurred, the health impacts would be significant.)

With regard to air quality, the released hydrocarbons may contribute to ozone formation in the atmosphere for a short period of time. Based on the low probability of occurrence, the impacts are considered adverse, but not significant **(Class III)**.

It should be noted that while many safety measures can reduce the size and likelihood of a pipeline accident, it is not possible to eliminate the risk of an accident. Nevertheless, the mitigation measures that would enhance safety by either prevention of accidents or rapid and effective spill response would also reduce the potential for significant air quality impacts (see Section C.11 for System Safety Mitigation Measures).

***Air Toxics***

Air toxic hydrocarbon compounds (e.g., Benzene, Toluene, Xylene) would be released from the operation of the proposed project. The air toxic evaluation of the proposed project is based on the information provided in the Applicant's PEA (SFPP, 1997). As described in Section 3.7 of the PEA, it is estimated that the proposed project would resulted in a 4.6 percent increase in toxics emissions at the Watson facility (from 8,787 pounds annually in the existing case to 9,198 pounds annually with the Proposed Project). It should be noted that a majority of the emissions that would be released would come from the storage tanks at the Watson Station. Table C.2-19 provides the projected emissions increase for the toxic emissions.
A health risk assessment (HRA) was conducted to evaluate the potential chronic health risks associated with the incremental increase in air toxic emissions near the Watson Station. Exposure over a long period to toxic hydrocarbon compounds (70 years is considered for carcinogenic effects) is normally required to produce significant health effects. The evaluation of significant health effects is usually determined by identifying the Maximum Individual Cancer Risk (MICR).

**Table C.2-19 Incremental Increase in Air Toxic Emissions (lbs/yr)**

| Constituent | Existing Baseline | With Proposed Project | Increase |
|---|---|---|---|
| Benzene | 622 | 651 | 29 |
| Toluene | 936 | 979 | 43 |
| Xylene | 350 | 366 | 16 |
| Hexane | 1,171 | 1,226 | 55 |
| 2,2,4 Trimethylpentane | 586 | 513 | 27 |
| Ethyl Benzene | 78 | 82 | 4 |
| MTBE | 5,044 | 5,280 | 236 |
| Total Constituents | 8,787 | 9,198 | 411 |
| VOCs | 78,495 | 82,171 | 3,676 |

The MICR was calculated using two different calculation methodologies; the South Coast Air Quality Management District (SCAQMD) methodology as detailed in “Risk Assessment Procedures for Rules 1401 and 212,” and the utilization of SCREEN3 computer model. The HRA results indicated that the Maximum Individual Cancer Risk from the Proposed Project would be below the threshold of significance of one in one million. Thus, the increase in toxic emissions at the Watson facility would be adverse but less than significant **(Class III)**.

### C.2.2.7 Secondary Impacts of Project Operations

As described in Section B.3.3, the implementation of the proposed project would result in increased product shipment from Colton through the CalNev Pipeline and SFPP’s Phoenix-West Line, as well as an increase in the amount of product to the Inland Empire via tanker trucks. Two types of impacts could occur as secondary effects of the increased product distribution: (1) increased size/frequency of accidents, and (2) emissions from normal operation of trucks.

Based on the information in Section C.11 (System Safety), the increase in product through the lines would increase the spill size in the event of a pipeline spill, thus impacting a larger area, which could exacerbate existing ozone exceedances within the South Coast Air Basin. Truck accidents could also increase as a result of the greater number of truck trips. The impacts of an accident would range from significant to adverse depending on the meteorological conditions.

Operation of the proposed pipeline would result in an increase of approximately 250 additional tanker truck trips. It is estimated that 80 percent of the additional trucks would be transporting product to destinations within the Riverside/San Bernardino Area. The other 20 percent of the truck trips would be to more distant locations within California, such as Palm Springs, Escondido, etc. The tanker trips would be staggered throughout the day and would consist mainly of trucks from independent companies servicing the Inland Empire. The addition of 250 tanker trucks per day would result in a substantial increase in emission levels, primarily from the emissions generated during the additional miles traveled each day.

**Indirect Emissions from Trucking**

The approximate total daily emissions from the estimated 250 additional truck trips (assuming an average 30 mile one-way trip) are presented in Table C.2-19a.

**Table C.2-19a Indirect Impacts: Truck Emissions**

| | NOx | CO | VOC* | SOx | $PM_{10}$ |
|---|---|---|---|---|---|
| Total Emissions (lbs/day) | 175 | 325 | 740 | 0 | 25 |

* Includes both loading and unloading

Emissions from trucks include primarily $NO_X$, $SO_X$, and CO. VOC emissions would also result from trucks vapors being displaced during the transferring of the product. However, a majority of these emissions would be recovered through a vapor recovery system. Overall, emission levels resulting from increased trucking could significantly impact the air quality conditions in the region. However, it should be noted that SFPP does not operate the trucks and has no direct control over the operation.

### C.2.2.8 Cumulative Impacts

***Cumulative Construction Impacts***

Future and proposed single-site and linear projects in close proximity to construction of the Proposed Project could have cumulative air quality impacts on adjacent receptors. A list of cumulative projects in proximity to the Proposed Project is presented in Table B.10-1 in Part B. The pollutants from most of these projects would have an impact only if cumulative projects and the proposed project construction were to occur in close proximity at the same time. Of note are transportation linear projects (roads, etc.) near the proposed project route. Transportation improvement projects usually involve extensive grading/trenching operations and leave soil disturbed for considerable periods of time. The 24-hour fine particulate ($PM_{10}$) and $NO_2$ CAAQS are the air quality standard of highest concern for these scenarios.

Two projects have been identified that could further exacerbate the projected short term air quality impacts if they were constructed at the same time. These projects are listed in Table C.2-20. Among them are the Alameda Corridor Project, consisting of a below-grade rail system, and elevated mass transit. This project is under construction and is estimated to be completed in 1999. In the City of Long Beach, the proposed project would pass under the Railroad Overpass Project (near Cherry and South Street); this project is under construction and is nearing completion.

**Table C.2-20 Cumulative Projects with Potential Air Quality Impacts**

| Project | Location |
|---|---|
| Alameda Corridor | Along Alameda Street in Rancho Dominguez and Carson |
| Railroad Overpass | South Street, East of Cherry in the City of Long Beach |

These cumulative projects could further exacerbate the potential short-term **Class I** $NO_X$ impacts and **Class II** $PM_{10}$ impacts estimated for the proposed pipeline construction.

***Cumulative Impacts During Pipeline Operation***

Cumulative impacts during the operation of the Proposed Project are not expected since small amounts of emissions would be generated along most of the Proposed Project corridor. The impacts to air quality may be adverse, but less than significant **(Class III)**.

### C.2.2.9 Unavoidable Significant Impacts

Unavoidable short-term significant air quality impacts during construction are summarized in Tables C.2-16 and C.2-17. In the limited vicinity of the proposed project, there would be an exceedance of the three month SCAQMD construction threshold for $NO_X$. The 19 mitigation measures presented herein reduce these emissions to the maximum extent feasible. However, the impacts remain significant.

## C.2.3 SANTA FE ALTERNATIVE SEGMENT

The Santa Fe Alternative is a 0.6-mile alternative in the Rancho Dominguez area of Los Angeles County at the western end of the proposed pipeline. As described in Section B.8.1, this alternative would replace the Laurel Park portion of the proposed route. In comparison to the proposed project, this alternative would have slightly lower emission levels as a result of its slightly shorter distance. However, the impacts during construction would still be significant. Mitigation Measures A-1 through A-19 should be applied to construction of this alternative segment as well as to the remainder of the proposed route. With regard to operations, emission levels during the operation of the Santa Fe Alternative would be the same as the Proposed Project.

## C.2.4 CHERRY ALTERNATIVE SEGMENT

The 1.5 mile long segment would diverge from the proposed route by turning north on Cherry Avenue from South Street, then east on Artesia Boulevard to re-join the proposed route at Artesia and Paramount. This alternative is approximately the same number of miles as the proposed route. In comparison to the proposed project, this alternative would have similar impact levels during the construction and operation of the proposed pipeline. Mitigation Measures A-1 through A-19 should be applied to construction of this alternative segment as well as to the remainder of the proposed route.

## C.2.5 PARAMOUNT ALTERNATIVE SEGMENT

This 2.5 mile long segment would diverge from the Cherry Alternative continuing north on Cherry (Garfield to Alondra Boulevard), where it would turn east, joining the Alondra Alternative at Lakewood Boulevard. This alternative is approximately one mile longer than the equivalent segment of the proposed route. In comparison to the proposed project, this alternative would generate more construction emissions. Mitigation Measures A-1 through A-19 should be applied to construction of this alternative segment as well as to the remainder of the proposed route. Operational emissions would be similar to the proposed route.

### C.2.6 ALONDRA ALTERNATIVE SEGMENT

The Alondra Alternative is an approximately 4-mile route in the central and eastern portions of the proposed pipeline route, through the Cities of Bellflower and Norwalk. It would diverge from the proposed route by turning north from Artesia Boulevard on Lakewood Boulevard, then east on Alondra Boulevard to Norwalk Boulevard, where it would re-join the proposed pipeline route. In comparison to the proposed project, the emissions associated with construction would be slightly higher under this alternative because the construction progress would be a little slower along this route. Mitigation Measures A-1 through A-19 should be applied to construction of this alternative segment as well as to the remainder of the proposed route. With regard to operations, emission levels during the operation of the Santa Fe Alternative would be the same as the Proposed Project.

### C.2.7 BELLFLOWER RAIL ALTERNATIVE SEGMENT

This 4.2-mile segment would diverge from the proposed route by turning north on Lakewood Boulevard for 1.8 miles to the MTA/UP railroad. At this point, the route would turn southeast into the rail ROW, remaining in the rail ROW for 2.4 miles to Artesia Boulevard. This route segment is almost 2 miles longer than the proposed route, but construction would proceed significantly faster in the rail ROW than in urban streets. Even with the longer length, the number of construction days would be equivalent to the proposed route. In comparison to the Proposed Project, this segment would tend to generate a higher level of $PM_{10}$ emissions because the entire construction ROW would be dirt and not asphalt. The NOx, CO, and SOx, emission levels would be similar to Proposed Project. Mitigation Measures A-1 through A-19 should be applied to construction of this alternative segment as well as to the remainder of the proposed route. With regard to operations, emissions levels during the operation of the Bellflower Rail Alternative Segment would be similar to the Proposed Project.

### C.2.8 ARTESIA ALTERNATIVE SEGMENT

This 2-mile segment would diverge from the proposed route by staying on Artesia Boulevard where the proposed route turns north on Studebaker Road. This alternative route would continue east on Artesia Boulevard to Norwalk Boulevard, turning north on Norwalk to the Norwalk Station. There is no difference in length, however, it is assumed that the total construction emissions would be higher under this alternative because the construction progress along Artesia Boulevard would be slower in comparison to the Proposed Project. Mitigation Measures A-1 through A-19 should be applied to construction of this alternative segment as well as to the remainder of the proposed route. With regard to operations, emission levels during the operation of the Artesia Alternative would be the same as the Proposed Project.

### C.2.9 SHOEMAKER ALTERNATIVE SEGMENT

This segment would diverge from the proposed route by turning east on Alondra Boulevard for one mile to Shoemaker Avenue, where it would turn north to the corner of Excelsior Drive. This alternative would increase the length of the proposed pipeline because it would tie back into the existing pipeline nearly a mile to the east of the Norwalk Station (which is the planned tie-in point for the proposed route and the other alternatives). In comparison to the proposed route, this alternative would generate more construction emissions over a longer construction period. Mitigation Measures A-1 through A-19 should be applied to construction of this alternative segment as well as to the remainder of the proposed route. With regard to operations, there would be the same level of operational emissions as what was identified for the proposed route.

### C.2.10 NO PROJECT ALTERNATIVE

If the proposed project is not built and demand grows as predicted by SFPP, petroleum products would have to be provided to the Nevada, Arizona, and Inland Empire markets by other methods (either via other pipelines or trucks). The air quality impacts associated with the transporting the product by trucks would be much higher than the operational emissions associated with the proposed project because ongoing trucking emissions greatly exceed those of a pipeline. In addition, the usage of trucks for transporting the product would increase the potential for accidents and subsequent emission releases from the spills. Overall, in comparison to the proposed project, the No Project Alternative would generate more emissions, and therefore, would have a greater likelihood of impacting the local air quality conditions, resulting in a significant **(Class I)** impact.

### C.2.11 MITIGATION MONITORING PROGRAM

Table C.2-21 on the following page presents the Mitigation Monitoring Program for air quality. These measures would be applicable to construction on the proposed route and all alternative route segments.

**Table C.2-21 Mitigation Monitoring Program**

| Impact | Mitigation Measure | Location | Monitoring Reporting Action | Effectiveness Criteria | Responsible Agency | Timing |
|---|---|---|---|---|---|---|
| Construction activities result in exceedance of significance thresholds of $NO_x$ and $PM_{10}$ (Class I or II) | **A-1** No more than one station modification shall occur at the same time during pipeline construction. | All pipeline and station construction | Review construction plan and schedule; monitor construction activities. | Overall emissions are reduced. | CPUC and the SCAQMD | Before and during construction |
| Construction activities cause $PM_{10}$ (dust) emissions (Class II) | **A-2** Apply water sprays to all disturbed active construction areas. Increase watering when wind speeds exceed 15 mph. Cease excavation and grading work when wind speeds exceed 30 mph. | All pipeline and station construction | Review documentation of the date and time of each watering, and the location(s). | No fugitive dust is visible. | CPUC and the SCAQMD | During construction |
| | **A-3** Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation | All pipeline and station construction | Observe construction activities and document compliance. | No fugitive dust is visible. | CPUC and the SCAQMD | During construction |
| | **A-4** Trucked soil loads shall be covered using a tarp or other suitable means during transport | All pipeline and station construction | Observe to ensure that all trucked soil loads are covered. | No fugitive dust is visible. | CPUC and the SCAQMD | During construction |
| | **A-5** Maintain a minimum 12-inch freeboard ratio on haul trucks. | All pipeline and station construction | Observe trucks and document. | No fugitive dust is visible. | CPUC and the SCAQMD | During construction |
| | **A-6** Wash streets at the end of the day if visible soil material is carried onto adjacent public paved roads. | All pipeline and station construction | Observe construction activities and document compliance. | No fugitive dust is visible. | CPUC and the SCAQMD | During construction |
| | **A-7** For construction in station facilities and for staging areas, install a gravel pad at least 50 feet onto the site from the main road. | All pipeline and station construction | Observe construction activities and document compliance. | No fugitive dust is visible. | CPUC and the SCAQMD | During construction |
| Construction activities cause $PM_{10}$ (dust) emissions (Class II) | **A-8** Traffic speeds on all unpaved roads to be reduced to 15 mph or less; restrict speed to 5 mph or less within 100 feet of the entrance to a paved road. | All pipeline and station construction | Verify that all project personnel sign statement acknowledging their awareness of the unpaved road speed limit restriction.<br><br>Observation for compliance. | Fugitive dust is minimal. | CPUC and the SCAQMD | During construction |
| | **A-9** Dispose of surplus excavated material in accordance with local ordinances. | All pipeline and station construction | Review receipts for disposal of all materials from the construction site. | Fugitive dust is minimal. | CPUC and the SCAQMD | During construction |

| Impact | Mitigation Measure | Location | Monitoring Reporting Action | Effectiveness Criteria | Responsible Agency | Timing |
|---|---|---|---|---|---|---|
| Construction activities result in exceedance of $NO_x$ threshold (Class I) | **A-10** Construction equipment shall be maintained in tune, per manufacturing specifications. | All pipeline and station construction | Review certification from a third-party certified mechanic. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | Prior to construction |
| | **A-11** SFPP/contractor shall use catalytic converters on all gasoline equipment. | All pipeline and station construction | Review certification from a third-party certified mechanic. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | Prior to construction |
| | **A-12** Retard diesel engine injection timing by two degrees before top center on all construction equipment that was manufactured before 1996, and which does not have an existing 1C engine warranty with the manufacturer. | All pipeline and station construction | Review certification from a third-party certified mechanic. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | Prior to construction |
| | **A-13** SFPP shall submit an analysis showing available electric equipment and demonstrate their feasibility for this project. | All pipeline and station construction | Review report. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | Prior to construction |
| Construction activities result in exceedance of $NO_x$ threshold (Class I) | **A-14** Cease construction during periods of high ambient pollutant concentrations (i.e., Stage 2 smog alerts) near the construction area. | All pipeline and station construction | Review documentation of the date and time of each stage 2 smog alert as announced by the SCAQMD, and the period of time that construction is ceased. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | During construction |
| | **A-15** Use high pressure injectors on all diesel engines manufactured before 1996, and which does not have an existing 1C engine warranty with the manufacturer. | All pipeline and station construction | Review certification from a third-party certified mechanic stating that all diesel construction equipment engines are utilizing high pressure fuel injectors. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | Prior to construction |
| | **A-16** Schedule all material deliveries to the construction spread (e.g., pipe) outside peak traffic hours, and minimize other truck trips during peak traffic hours. | All pipeline and station construction | Construction plan and schedule; monitor construction activities. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | Before and during construction |

| Impact | Mitigation Measure | Location | Monitoring Reporting Action | Effectiveness Criteria | Responsible Agency | Timing |
|---|---|---|---|---|---|---|
| Construction activities result in exceedance of $NO_x$ threshold (Class I) | **A-17** Use only solar powered traffic signs (no gasoline-powered generators shall be used). | All pipeline and station construction | Construction Plan review and contractor certification. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | Before and during construction |
| | **A-18** Configure construction parking to minimize traffic interference. | All pipeline and station construction | Construction Plan review and observation. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | Before and during construction |
| | **A-19** Prohibit all vehicles from idling in excess of ten minutes | All pipeline and station construction | Review documentation that project personnel operating vehicles have signed statements acknowledging their awareness of the idling restrictions.<br>Observation. | Engine emissions are reduced, Effectiveness cannot be monitored in the field. | CPUC and the SCAQMD | During construction |

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