composition. Higher concentrations of more complex hydrocarbons usually result in higher heating values. Combustion of natural gas with elevated higher heating values results in increased combustion temperature and, possibly, increased $NO_x$ emissions. Combustion of natural gas with uncharacteristically higher heating values could increase stationary source $NO_x$ emissions by greater than 20 percent according to testing conducted by the SCAQMD on two pieces of non-residential natural gas fired equipment (SCAQMD 2003).

Historically, natural gas in the South Coast Air Basin has an average energy content of about 1,020 Btu/dscf and a Wobbe number of about 1,332 (SCAQMD 2005). These values are less than the energy content and Wobbe number limits under existing SoCalGas Rule 30.

Several factors relating to the natural gas to be delivered by the Applicant are not known at this time: (1) the precise heat content of the natural gas to be imported, other than it will meet the then existing standards, as described above, for such imports; (2) the sector of SoCalGas's market to which the gas will be diverted, e.g., there is no known, dedicated end user or designated sector for the supply; (3) the character of the natural gas with which the gas received from the Applicant may be blended within the SoCalGas distribution system and the resultant heat content of such blend; and (4) whether the gas will be consumed within the South Coast Air Basin. While the potential exists for changes in $NO_x$ emissions due to the burning of natural gas with higher heating values than that acceptable to the SCAQMD, i.e., 1,360 on the Wobbe index, it would be speculative, based on the above factors, to determine that such would be the case and to subsequently attempt to quantify any related changes in emission levels within the South Coast Air Basin. Further, even if such calculations were feasible at this time, the mitigation of such increased emissions is beyond the jurisdiction of the California State Lands Commission (CSLC).

### 4.6.3 Significance Criteria

For the purposes of this document, impacts on air quality are considered significant if the Project:

- Results in a cumulatively considerable net increase of any criteria pollutant for which the region is in nonattainment under an applicable Federal or State ambient air quality standard, including releasing emissions that exceed quantitative thresholds for ozone precursors (a summary of significance thresholds established by the VCAPCD and the SCAQMD is presented in Table 4.6-16);
- Violates any air quality standard or contributes substantially to an existing or projected air quality violation;
- Exposes sensitive receptors to substantial pollutant concentrations;
- Creates objectionable odors affecting a substantial number of people; or

- Conflicts with or obstructs implementation of an applicable Federal, State, or local air quality plan.

**Table 4.6-16 Significance Thresholds for Emissions in Ventura County and Los Angeles County**

| Pollutant | Ventura County[a] | | Los Angeles County[b] | |
|---|---|---|---|---|
| | Significant Thresholds for Operational Emissions | Mitigation Thresholds for Construction Emissions | Significant Thresholds for Daily Construction Emissions | Significant Thresholds for Quarterly (3-Month) Construction Emissions |
| CO | n/a | n/a | 550 lbs/day | 24.75 tons/quarter |
| Lead[c] | n/a | n/a | 3 lbs/day | n/a |
| $NO_x$ | 25 lbs/day | 25 lbs/day | 100 lbs/day | 2.5 tons/quarter |
| $PM_{10}$ | n/a | n/a | 150 lbs/day | 6.75 tons/quarter |
| ROC | 25 lbs/day | 25 lbs/day | 75 lbs/day | 2.5 tons/quarter |
| $SO_2$[c] | n/a | n/a | 150 lbs/day | 6.75 tons/quarter |

*Sources:* VCAPCD 2003; SCAQMD 1993.
*Key:* n/a = not applicable.
*Notes:*
[a]All parts of Ventura County outside of Ojai Planning Area.
[b]Parts of Los Angeles County within the South Coast Air Basin.
[c]Pollutant is designated as attainment in the South Coast Air Basin.

### 4.6.4 Impact Analysis and Mitigation

Applicant-proposed measures (AM) and agency-recommended mitigation measures (MM) are defined in Section 4.1.5, "Applicant Measures and Mitigation Measures."

The emission of $CO_2$ and methane from the Project would not exceed any of the air quality significance criteria identified in Section 4.6.3. Potential increases in the ambient concentrations of these gases are not expected to have any appreciable impact on human health or the environment. Therefore, a discussion of $CO_2$ and methane emissions from the Project, as related to global warming, is provided in Section 4.20, "Cumulative Impacts Analysis."

**Impact AIR-1: Net Emission Increases of Criteria Pollutants from Construction Activities in Designated Nonattainment Areas**

***Project construction activities in Ventura and Los Angeles Counties would generate emissions that exceed quantitative thresholds for ozone precursors, $NO_x$ and ROCs, and CO (Class I).***

Ventura County (excluding the Channel Islands) and Los Angeles County within the South Coast Air Basin are designated as Federal and State ozone nonattainment areas. Project construction activities in these counties would generate emissions of ozone precursors, $NO_x$ and ROCs at levels that would exceed VCAPCD mitigation thresholds and SCAQMD significance thresholds (see Table 4.6-17). As discussed in Section

4.6.2, $NO_x$ emissions from Project-related construction activities in Los Angeles County would also exceed applicability thresholds to be subject to the General Conformity Rule. As a result, the Applicant has indicated that it would fully offset annual $NO_x$ emissions generated from Project-related construction activities in Los Angeles County. However, emission offsets for General Conformity Rule determination would be on an annual basis and, thus, daily net increases of $NO_x$ emissions would not necessarily be reduced to a level below significance thresholds.

**Table 4.6-17 Comparison of CO, $NO_x$, and ROC Construction Emissions with Significance Thresholds**

| County | Emission Source/Threshold | Daily Emissions (pounds/day) | | | Quarterly Emissions (tons/quarter) | | |
|---|---|---|---|---|---|---|---|
| | | CO | $NO_x$ | ROCs | CO | $NO_x$ | ROCs |
| Ventura[a] | Offshore pipeline installation | n/a | 5,726 | 830 | n/a | n/a | n/a |
| | Shore crossing construction | n/a | 1,323 | 191 | n/a | n/a | n/a |
| | Worker commuting | n/a | 7 | 4 | n/a | n/a | n/a |
| | Subtotal[b] | n/a | 7,056 | 1,025 | n/a | n/a | n/a |
| | Onshore pipeline installation | | | | | | |
| | Trenching | n/a | 276 | 43 | n/a | n/a | n/a |
| | Pipelaying | n/a | 237 | 60 | n/a | n/a | n/a |
| | Boring | n/a | 368 | 53 | n/a | n/a | n/a |
| | Worker commuting | n/a | 4 | 2 | n/a | n/a | n/a |
| | Subtotal | n/a | 885 | 158 | n/a | n/a | n/a |
| | ***VCAPCD threshold for mitigation*** | ***n/a*** | ***25*** | ***25*** | ***n/a*** | ***n/a*** | ***n/a*** |
| Los Angeles | Onshore pipeline installation | | | | | | |
| | Trenching | 413 | 276 | 43 | 6.2 | 4.1 | 0.65 |
| | Pipelaying | 1,123 | 237 | 60 | 14.3 | 2.9 | 0.75 |
| | HDD | 1,060 | 865 | 125 | 7.9 | 6.5 | 0.95 |
| | Worker commuting | 51 | 4 | 2 | 3.1 | 0.2 | 0.1 |
| | Subtotal | 2,647 | 1,382 | 230 | 31.5 | 13.7 | 2.5 |
| | ***SCAQMD significance threshold*** | ***550*** | ***100*** | ***75*** | ***24.75*** | ***2.5*** | ***2.5*** |

*Sources:* VCAPCD 2003; SCAQMD 1993.

*Key:* n/a = not applicable.

*Notes:*

[a]Onshore pipeline installation scheduled to occur prior to offshore pipeline installation and shore crossing construction.

[b]Offshore pipeline installation and shore crossing construction may occur concurrently in Ventura County.

Los Angeles County within the South Coast Air Basin is designated as a CO nonattainment area. Project-related construction activities in Los Angeles County would generate CO emissions that exceed SCAQMD significance thresholds (see Table 4.6-17). There are no mitigation thresholds for CO in Ventura County for construction activities because the County is in compliance with the CO ambient air quality standards.

Since $NO_x$ and ROCs emissions in Ventura County and $NO_x$, ROCs, and CO emissions in Los Angeles County exceed local significance thresholds, these Project-related construction emissions would be classified as a Class I impact.

Mitigation Measure for Impact AIR-1: Net Emission Increases of Criteria Pollutants from Construction Activities in Designated Nonattainment Areas

**MM AIR-1a.** **Construction Emissions Reduction Plan.** The Applicant shall prepare a Construction Emissions Reduction Plan and work with the VCAPCD and the SCAQMD to implement specific measures contained in the plan. The plan shall outline specific measures to reduce or eliminate potential impacts associated with construction-related emissions of criteria air pollutants and toxic air contaminants. At a minimum, the plan shall include the following commitments:

- Reduce emissions of diesel particulate matter and other air pollutants by using particle traps and other technological or operational methods;
- Ensure diesel-powered construction equipment is properly tuned and maintained and shut off when not in direct use;
- Prohibit engine tampering to increase horsepower;
- Locate engines, motors, and equipment as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals);
- Require low sulfur diesel fuel (<15 ppm by weight);
- Reduce construction-related trips of workers and equipment, including trucks;
- Require that leased and new vehicles and equipment be less than 10 years old and operate using "clean energy," e.g., a minimum of 75 percent of the equipment's total horsepower;
- Use engine types such as electric, liquefied gas, hydrogen fuel cells, and/or alternative diesel formulations; and
- To the extent possible, use equipment fitted with engines compliant with USEPA Tier 2, 3, or 4 standards for off-road engines.

Pursuant to the General Conformity Rule, the Applicant proposes to fully offset annual $NO_x$ emissions generated from construction activities in Los Angeles County. In addition, implementation of the Construction Emissions Reduction Plan would lead to the use of construction equipment that emits less $NO_x$, ROCs, and CO than the construction equipment currently proposed for use. It is not anticipated that these measures would reduce the daily level of $NO_x$, ROCs, and CO emissions from

construction activities to less than the applicable VCAPCD and SCAQMD significance thresholds.

Even though CO emissions from Project-related construction in Los Angeles County would exceed SCAQMD emission significance thresholds, a screening-level dispersion modeling analysis suggests the maximum ambient CO impacts caused by these emissions that occur in proximity to construction activities would be less than applicable NAAQS and State Air Quality Standards. Similarly, the screening analysis indicates that CO ambient impacts caused by Project-related construction in Ventura County would also be less than applicable NAAQS and State Air Quality Standards. The screening-level analysis, performed with the USEPA's SCREEN3 model, is summarized in Appendix G5.

However, since Project-related emissions exceed VCAPCD and SCAQMD significance thresholds, this impact would remain a Class I impact.

**Impact AIR-2: Violations of Ambient Air Quality Standards Caused by Particulate Emissions from Onshore Construction Activities**

***Onshore Project construction activities would generate $PM_{10}$ and $PM_{2.5}$ emissions that could cause or contribute to existing or projected violations of NAAQS and/or State Ambient Air Quality Standards (Class I).***

Los Angeles County within the South Coast Air Basin is designated as a State and Federal nonattainment area for $PM_{10}$ and $PM_{2.5}$. Ventura County is also designated as a State nonattainment area for $PM_{10}$ and $PM_{2.5}$. During onshore construction activities, $PM_{10}$ and $PM_{2.5}$ emissions would be produced from internal combustion engines used in vehicles and equipment and fugitive dust generated by the operation of trucks and earth moving equipment. The $PM_{10}$ emissions from onshore construction in Los Angeles County would be greater than SCAQMD significance thresholds (see Table 4.6-18). The SCAQMD has not established significance thresholds for $PM_{2.5}$. The VCAPCD has not established mitigation thresholds for $PM_{10}$ or $PM_{2.5}$ emissions from construction activities in Ventura County.

**Table 4.6-18 Comparison of $PM_{10}$ and $PM_{2.5}$ Construction Emissions to SCAQMD Significance Thresholds**

| Emission Source/Threshold | $PM_{10}$ Daily Emissions (lb/day) | $PM_{10}$ Quarterly Emissions (tons/quarter) |
|---|---|---|
| Onshore pipeline installation | | |
| Trenching | 31 | 0.47 |
| Pipelaying | 146 | 2.0 |
| HDD | 94 | 0.7 |
| Worker commuting | 0.9 | 0.05 |
| Subtotal | 272 | 3.2 |
| ***SCAQMD significance threshold*** | ***150*** | ***6.75*** |

*Source:* SCAQMD 1993.

A screening-level dispersion modeling analysis of construction activities suggests that potential increases in ambient $PM_{10}$ and $PM_{2.5}$ concentrations caused by construction emissions could contribute to exceedances of NAAQS and/or State Ambient Air Quality Standards. The analysis further indicates that ambient $PM_{10}$ and $PM_{2.5}$ impacts are primarily due to fugitive dust emissions, with the highest impacts occurring in close proximity to the construction areas. Modeling was performed using the USEPA SCREEN3 model. The emissions used in the screening-level impact analysis incorporate Applicant-proposed methods for fugitive dust control. A summary of the screening analysis is presented in Appendix G5.

Since Project-related construction emissions have the potential to cause ambient particulate concentrations to exceed NAAQS or State Ambient Air Quality Standards, this impact is classified as a Class I impact.

In order to reduce fugitive dust emissions, the applicant has incorporated the following measures into the Project:

**AM AIR-2a.** **Fugitive Dust Controls.** The Applicant or its designated representative would provide for the following control measures:

- Excavation and moist spoils would be watered down;
- Spoil piles that remain more than a few weeks would be covered with tarps;
- Water trucks would be used for dust suppression; and
- Disturbed areas not covered with surface structures, such as buildings and pavements, would be stabilized following construction activities. This stabilization may involve planting these areas with suitable vegetation to minimize future on-site soil loss and off-site sedimentation.

<u>Mitigation Measures for Impact AIR-2: Violations of Ambient Air Quality Standards Caused by Particulate Emissions from Onshore Construction Activities</u>

**MM AIR-2b.** **Construction Fugitive Dust Plan**. The Applicant or its designated representative shall be required to develop, and submit to the VCAPCD and the SCAQMD for approval, a Construction Fugitive Dust Control Plan prior to the commencement of construction activities. The plan shall outline the steps to be taken to minimize fugitive dust generated by construction activities by:

- Describing each active operation(s) that may result in the generation of fugitive dust;
- Identifying all sources of fugitive dust, e.g., earth moving, storage piles, vehicular traffic; and

- Describing the control measures to be applied to each of the sources of dust emissions identified above. The descriptions shall be sufficiently detailed to demonstrate that the best available control measure(s) required by the SCAQMD and the VCAQMD for linear projects will be used and/or installed during all periods of active operations.

At a minimum, the control measures specified in the Construction Emissions Reduction Plan shall conform with all applicable requirements of SCAQMD Rule 403 and with the fugitive dust mitigation measures described in section 7.4.1 of the Ventura County Air Quality Assessment Guidelines (2003).

Due to potential exceedances of applicable air quality standards, this plan shall also identify specific methodologies for taking "real-time" measurements of $PM_{10}$ and $PM_{2.5}$ ambient concentrations at locations along the boundary of the proposed construction areas. The plan shall include a description of "action levels" for these measurements and the corresponding steps to be taken, e.g., increase watering to reduce ambient particulate concentrations. The specified monitoring methodologies included in this plan must meet the approval of the VCAPCD and the SCAQMD.

The Applicant or its designated representative shall obtain prior approval from the SCAQMD or the VCAPCD prior to any deviations from fugitive dust control measures specified in the Construction Fugitive Dust Plan. A justification statement used to explain the technical or safety reason(s) that preclude the use of required fugitive dust control measure(s) shall be submitted to the appropriate agency for review.

**MM AIR-1a.** **Construction Emissions Reduction Plan** would apply to this impact.

Implementation of the Construction Emissions Reduction Plan (MM AIR-1a) would lead to the use of equipment engines and control equipment that would emit less $PM_{10}$ and $PM_{2.5}$. Measures required under the Construction Fugitive Dust Plan (MM AIR-2b) would serve to limit the generation of fugitive dust caused by construction activities. In addition, the Applicant would be required to monitor ambient concentrations of $PM_{10}$ and $PM_{2.5}$ during construction activities and take appropriate actions to avoid violations of ambient air quality standards. Despite these mitigation measures, the potential for onshore construction activities to cause an exceedance of applicable ambient air quality standards would remain a Class I impact.

**Impact AIR-3: Violations of Ambient Air Quality Standards, Exposure of the Public to Substantial Pollutant Concentrations, and/or Creation of Objectionable Odors Caused by an Accidental LNG Spill or Pipeline Rupture**

***Although rare, an LNG spill from the FSRU or a pipeline rupture would result in a natural gas release and/or a fire that could cause temporary increases in ambient air concentrations of criteria pollutants in excess of air quality standards, expose sensitive receptors and the general public to substantial concentrations of toxic air contaminants, and/or create objectionable odors (Class I).***

The accident scenarios evaluated in Section 4.2, "Public Safety: Hazards and Risk Analysis," and the Independent Risk Assessment (Appendix C1) include release and ignition of natural gas formed by evaporation of LNG spilled from the FSRU and from a rupture of the natural gas transmission pipelines. A release of natural gas would also result in release of odorants, i.e., mercaptans, which have been added to the gas for detection purposes. Complete combustion of natural gas would theoretically produce only $CO_2$, water, and heat. However, even under controlled conditions, e.g., in a flare, generator, or furnace, natural gas combustion typically is not complete. The products of incomplete combustion of natural gas include criteria pollutants, ozone precursors, and toxic air contaminants.

A fire resulting from an LNG spill at the FSRU could result in a pool fire. Under this condition, it is unlikely that the fuel/air mix throughout the evaporating cloud would always be maintained at ideal levels to support complete combustion. The center of a large pool fire may often be fuel-rich (oxygen-deficient), which would result in the formation of soot. These minute solid carbon particles can increase the flame radiation (the amount of radiated heat), which can in turn increase the burning rate. In the hottest portions of the fire, secondary combustion of the soot is possible, which would reduce the amount of smoke produced by the fire. However, particulates can also be carried to cooler portions of the fire at the outer edges of the plume, transported upward to mix with relatively cooler air, or carried to regions of the plume where the fuel/air mix is too lean to burn.

The maximum increases in ambient pollutant concentrations due to the natural gas fire would occur in proximity to the LNG spill. During the fire, ambient air pollutant concentrations in the areas adjacent to the spill site (including nearby traffic lanes) could potentially exceed short-term, i.e., 1-hour to 24-hour, NAAQS and State Ambient Air Quality Standards over the duration of the fire. Air pollutant impacts could also be transported to onshore areas. However, given the distance to shore from a potential fire, it is unlikely that sensitive receptors, i.e., schools, day care centers, hospitals, retirement homes, convalescence facilities, and residences, would be exposed to substantial pollutant concentrations.

Pipeline accidents rarely, but do, occur. During an accidental rupture of the natural gas transmission line, natural gas would escape to the atmosphere or ignite, causing a fire. Under this scenario, the maximum increases in ambient pollutant concentrations would occur close to the pipeline rupture. A large leak of un-ignited natural gas would cause

objectionable odors at locations downwind of the pipeline. During a fire, air pollutant concentrations could potentially exceed short-term, i.e., 1-hour to 24-hour, NAAQS and State Ambient Air Quality Standards in nearby areas. Depending on the size and location of the rupture, a fire or natural gas leak would also expose the public (including sensitive receptors) to substantial pollutant concentrations.

The Applicant has proposed the following measures to reduce the risk of an LNG spill or pipeline rupture (see Section 4.2, "Public Safety: Hazards and Risk Analysis," and Section 4.12, "Hazardous Materials," for details):

**AM PS-3a.** **More Stringent Pipeline Design** would apply to this impact (see Section 4.2, "Public Safety: Hazards and Risk Analysis").

**AM PS-4a.** **Class 3 Pipeline Design Criteria** would apply to this impact (see Section 4.2, "Public Safety: Hazards and Risk Analysis").

<u>Mitigation Measures for Impact AIR-3: Violations of Ambient Air Quality Standards, Exposure of the Public to Substantial Pollutant Concentrations, and/or Creation of Objectionable Odors Caused by an Accidental LNG Spill or Pipeline Rupture</u>

**MM PS-3c.** **Areas Subject to Accelerated Corrosion, Cathodic Protection System** would apply to this impact (see Section 4.2, "Public Safety: Hazards and Risk Analysis").

**MM PS-4c.** **Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls** would apply to this impact (see Section 4.2, "Public Safety: Hazards and Risk Analysis").

**MM PS-4d.** **Treat Shore Crossing as Pipeline HCA** would apply to this impact (see Section 4.2, "Public Safety: Hazards and Risk Analysis").

**MM PS-4e.** **Automatic Monitoring for Flammable Gas** would apply to this impact (see Section 4.2, "Public Safety: Hazards and Risk Analysis").

**MM PS-4f.** **Emergency Communication and Warnings** would apply to this impact (see Section 4.2, "Public Safety: Hazards and Risk Analysis").

**MM PS-5a.** **Treat Manufactured Home Residential Community as a High Consequence Area** would apply to this impact (see Section 4.2, "Public Safety: Hazards and Risk Analysis").

Applicant measures AM PS-3a and AM PS-4a and mitigation measure MM PS-3c would reduce the likelihood of leaks of natural gas that could result in pipeline accidents. MM PS-4c would limit the affected area from a potential pipeline accident. MM PS-4e would improve the detection of natural gas leaks. MMs PS-4d and PS-5a would improve the

integrity of the pipeline where people would be located. MM PS-4f would improve the effectiveness of emergency response to an accident if it were to occur. However, this impact would exceed air quality significance criteria after application of these mitigation measures and would therefore remain a Class I impact.

**Impact AIR-4: Emissions of Ozone Precursors from the FSRU**

***Emissions of $NO_x$ and ROC generated from FSRU equipment could contribute to ambient ozone impacts in the areas located downwind of the Project (Class II).***

FSRU equipment would generate emissions of ozone precursors, $NO_x$ and ROCs. The CARB states a concern that "these emissions [from offshore activities] can reach the California coastline and add to the air pollution burden of downwind regions, e.g., South Coast Air Basin . . ." (Simeroth 2005). As discussed in Section 4.6.2, the USEPA has proposed to permit the FSRU in the same manner as sources on the Channel Islands, which are a Federal attainment area for ozone. The USEPA has indicated that it would propose to issue an Authority to Construct permit for the FSRU in accordance with VCAPCD Rule 10, and based on an analysis of the Deepwater Port Act and VCAPCD rules, the USEPA concluded that VCAPCD Rule 26 would not apply to the FSRU; therefore, emission offsets would not be required for Project sources constructed in the area where the FSRU is proposed to be sited (Zimpfer 2005a). The USEPA has further stated that the FSRU would not trigger the requirements of Prevention of Significant Deterioration (PSD) because potential emissions are less than PSD major source thresholds.

To minimize air quality impacts, the Applicant incorporated the following measure into the proposed Project:

**AM AIR-4a.** **Emission Reduction Programs.** As part of air permit-to-construct application procedures, the Applicant has committed to the USEPA, the CARB, and local air districts to identify a suitable emission reduction program (in addition to reductions inherent to the Project) that would reduce annual emissions of $NO_x$ by an amount up to the FSRU's annual $NO_x$ emissions.

As proposed, a $NO_x$ emission reduction program (AM AIR-4a) would likely be as effective in mitigating ambient ozone concentrations in onshore air basins as would corresponding emission reductions occurring at the FSRU. Thus, this measure would provide for emission reductions that reduce impacts to below significance criteria.

**Impact AIR-5: Emissions of Ozone Precursors from Project Vessels Operating in California Coastal Waters**

***Emissions of $NO_x$ and ROC generated from LNG carriers, tugboats, and the crew/supply boat operating in California Coastal Waters could contribute to ambient ozone impacts in the areas located downwind of the Project (Class I).***

LNG carriers, tugboats, and the crew/supply boat would generate emissions of ozone precursors, $NO_x$, and ROCs, during operation in California Coastal Waters. California Coastal Waters extend varying distances from the California coast and are defined by the CARB as "the boundary within which emissions that are released are transported onshore" (Simeroth 2005). The CARB further states that it "has jurisdiction within California Coastal Waters as discussed in the documents "Report to the California Legislature on Air Pollutant Emissions from Marine Vessels, June 1984, Volume 7, Appendix H and Appendix J." According to the CARB's definition, pollutant emissions released over these waters are likely to be ducted under or within the inversion layer to the California coast and inland under prevailing summertime airflow conditions.

Total annual $NO_x$ and ROC emissions from Project vessels operating in California Coastal Waters would be 164.1 and 22.9 tons per year, respectively. Of these totals, annual $NO_x$ and ROC emissions within Ventura County waters would be 1.1 and 22.9 tons per year, respectively. All other vessel emissions would occur outside the boundary of any California county, i.e., in Federal waters.

The greatest level of Project vessel operation in Ventura County waters would occur on days when both a tugboat and a crew/supply boat make transits between the FSRU and Port Hueneme. Under this situation, the daily $NO_x$ and ROC emissions from Project vessels would be 33 and 4.5 pounds per day, respectively. Thus, daily $NO_x$ emissions could exceed the significance threshold of 25 pounds per day established by the VCAPCD.

As discussed under Impact AIR-4, the CARB is concerned about impacts downwind of emissions from all offshore Project activities. Thus, the CARB has stated, "...For the purposes of the Project, CARB staff believes it is appropriate to mitigate emissions within 24 NM of the California mainland coastline. We believe this will address the majority of emissions from the Project and maximize the potential on-shore benefits...Although the CARB has not established relevant significance criteria, these emissions clearly exceed the significance thresholds of 55 pounds per day for $NO_x$ emissions that the SCAQMD, the district most affected, has established" (Simeroth 2005).

To minimize emissions and subsequent air quality impacts, the Applicant incorporated the following measures into the proposed Project:

**AM AIR-5a.** **Natural Gas Only on Project Vessels.** The Applicant has proposed to use natural gas as the primary fuel in the main and auxiliary engines on the LNG carriers, tug supply boats, and crew boat whenever these vessels are berthed at the FSRU or operating within 25 miles of the coast of California. A small amount of California diesel would be used simultaneously as a pilot fuel in LNG carrier, tugboat and crew/supply boat engines resulting in a fuel mixture with a natural gas to diesel ratio of approximately 99:1.

**AM AIR-5b.** **Reduced Vessel Traffic Between the FSRU and Port Hueneme.** The Applicant has proposed to reduce, by more than half, the number of weekly and annual transits made by the crew boat/supply boat to and from Port Hueneme and the FSRU from the original estimates in the October 2004 Draft EIS/EIR.

Mitigation Measure for Impact AIR-5: Emissions of Ozone Precursors from Project Vessels Operating in California Coastal Waters

**MM AIR-5c.** **Consultation with CARB to Identify Emission Reduction Opportunities.** The Applicant shall continue to consult with the CARB in an effort to identify and implement additional emission reduction opportunities in Ventura County and/or the South Coast Air Basin, such as unfunded Carl Moyer projects, that would mitigate emissions generated from Project vessels operating in Federal waters.

The Applicant would reduce Project $NO_x$ and ROC emissions through the use of natural gas in the engines of Project vessels instead of the more typical heavy oil (AM AIR-5a) and reductions to vessel traffic (AM AIR-5b). As stated above, total annual $NO_x$ and ROC emissions from Project vessels operating in California Coastal Waters would be 164.1 and 22.9 tons per year, respectively. Currently, no mitigation is identified for these emissions.

However, the issue of emission reductions to mitigate emissions from Project vessels operating in Federal waters/California Coastal Waters is not yet resolved between the Applicant and the CARB. The Applicant does not propose to mitigate vessel emissions beyond those achieved through the use of natural gas and reduced vessel traffic, and it is the position of the CARB that total Project vessel emissions should be mitigated to the extent feasible and reasonable. Pending resolution between CARB and the Applicant regarding CARB's California Coastal Waters policy and whether emission reductions are necessary under such policy (MM AIR-5c), the status of this impact from the Project, as presently proposed, cannot be determined at this time. Due to the uncertainty associated with any potential resolution, the emissions from Project vessels operating in California Coastal Waters are tentatively presumed, within the meaning of CARB's position (Simeroth 2005), to result in a considerable net increase of ozone precursors, thus resulting in a Class I impact.

**Impact AIR-6: Emissions of Ozone Precursors from Project Construction Activities in Federal Waters**

***Project construction activities in Federal waters would generate emissions of $NO_x$ and ROCs that could contribute to ambient ozone impacts in the areas located downwind of the Project (Class III).***

Project construction activities in Federal waters would generate emissions of ozone precursors, $NO_x$ and ROCs. Federal waters are unclassified with respect to NAAQS;

thus, significance thresholds set forth by the VCAPCD and the SCAQMD are not applicable in the determination of the significance of these emissions. In order to assess the significance of potential impacts, construction emissions that would be generated in Federal waters were compared with emission forecasts developed by the VCAPCD and the SCAQMD for offshore and onshore sources located in Ventura County and the South Coast Air Basin, respectively (see Table 4.6-19).

**Table 4.6-19 Comparison of Construction Emissions in Federal Waters to Region-Wide Emission Forecasts**

| Emission Source | Daily Emissions (tons per day) | |
|---|---|---|
| | $NO_x$ | ROCs |
| Project construction emissions – mooring/FSRU installation | 2.2 | 0.3 |
| Project construction emissions – offshore pipeline installation | 2.9 | 0.4 |
| Emission forecasts for offshore emissions for Ventura County and the South Coast Air Basin (Outer Continental Shelf, tideland shipping, ships, and commercial boats) | 69.1 | 6.1 |
| Emission forecasts for onshore and offshore emissions for Ventura County and the South Coast Air Basin (all sources) | 831.8 | 673.6 |

*Sources:* VCAPCD 1995; SCAQMD 2003.

This comparison suggests that Project construction emissions in Federal waters would represent a moderate fraction of anticipated regional offshore emissions but only a small fraction of overall regional emissions. These emissions would occur for only a relatively short duration, i.e., 24 days for mooring installation and 35 days for offshore pipelaying, and are not expected to occur during May through October, which is the period of historical high ozone concentrations for the region. Given the level of these emissions and the relatively short duration of construction, Project construction in Federal waters would not result in a cumulatively considerable net increase of ozone precursors, and thus, would not be expected to contribute substantially to existing ambient ground-level ozone impacts.

<u>Mitigation Measure for Impact AIR-6: Emissions of Ozone Precursors from Project Construction Activities in Federal Waters</u>

**MM AIR-1a.** **Construction Emissions Reduction Plan** would apply to this impact.

The implementation of the Construction Emissions Reduction Plan (AM AIR-1a) would provide a further lessening of potential adverse impacts already considered not to exceed any significance criteria.

**Impact AIR-7: Temporary Ambient Air Quality Impacts Caused by Air Pollutant Emissions from Onshore and Offshore Construction Activities**

***Air pollutants emitted during onshore and offshore Project construction activities would cause temporary increases in ambient pollutant concentrations (Class III).***

Project construction activities would generate emissions of criteria pollutants and air toxic contaminants. This impact discussion relates to all air pollutant emissions from construction except for emissions of ozone precursors ($NO_x$ and ROC), CO, $PM_{10}$, and $PM_{2.5}$ generated from construction activities in Ventura and Los Angeles Counties (see Impacts AIR-1 and AIR-2) and emissions of ozone precursors ($NO_x$ and ROC) generated from construction activities in Federal waters (see Impact AIR-6).

A screening-level impact analysis of $SO_2$ emissions from onshore construction activities suggests that potential increases to ambient pollutant concentrations caused by these emissions would neither violate any air quality standards nor contribute substantially to existing or projected air quality violations. Further, $SO_2$ emissions from construction in Los Angeles County are well below SCAQMD significance thresholds (the VCAPCD has not established $SO_2$ mitigation thresholds). The screening-level analysis was performed with SCREEN3. A summary of this screening-level analysis is provided in Appendix G5.

A screening-level analysis of air toxic emissions from onshore diesel construction equipment suggests that potential increases to the ambient concentrations of these pollutants would not expose sensitive receptors to substantial pollutant concentrations. Further, emissions of lead (a listed air toxic) from construction in Los Angeles County are well below SCAQMD significance thresholds for lead. (The VCAPCD has not established mitigation thresholds for lead.) The CARB's Hotspots Analysis and Reporting Program (HARP) model, used to estimate the impacts caused by air toxic emissions from onshore construction activities, predicted total acute and chronic cancer risks that were then compared with an acute hazard index and chronic risk criteria. A summary of the HARP analysis is provided in Appendix G6.

A screening-level impact analysis of criteria pollutants emitted from offshore construction activities suggests that potential increases in ambient pollutant concentrations caused by these emissions would neither violate any air quality standards nor contribute substantially to existing or projected air quality violations. A screening-level analysis of air toxic emission impacts on ambient air quality from offshore construction activities was not conducted. However, given the distance from offshore construction activities to the nearest onshore receptors, potential increases in the ambient concentrations of air toxics emitted from offshore construction activities would not be likely to result in an adverse impact to sensitive receptors or the general public onshore. Therefore, air pollutants emitted during onshore and offshore Project construction activities would be a Class III impact.

Mitigation Measures for Impact AIR-7: Temporary Ambient Air Quality Impacts Caused by Air Pollutant Emissions from Onshore and Offshore Construction Activities

**MM AIR-1a.** **Construction Emissions Reduction Plan** would apply to this impact.

Implementation of the Construction Emissions Reduction Plan would lead to the use of equipment engines and control equipment that would emit fewer air pollutants. Thus, this mitigation measure would provide a further lessening of potential adverse impacts that would not exceed any significance criteria.

**Impact AIR-8: Ambient Air Quality Impacts Caused by Air Pollutant Emissions from the FSRU and Project Vessels**

***Air pollutants emitted from FSRU equipment and Project vessels associated with operations would cause increases in ambient pollutant concentrations (Class III).***

FSRU equipment and Project vessels, i.e., LNG carriers, tugboats, and crew boats, would emit air pollutants. This impact discussion relates to all air pollutant emissions related to operational activities except for $NO_x$ and ROCs emissions from these activities (see Impacts AIR-4 and AIR-5).

The dispersion of air pollutants from these emission sources would cause an increase in the ambient air concentrations of each pollutant at downwind locations in the Pacific Ocean and along the coast of California. However, an air quality analysis of criteria pollutants emitted from FSRU equipment and Project vessels indicates that the projected increases in the ambient concentrations of criteria pollutants would neither violate any applicable air quality standards nor contribute substantially to existing or projected air quality violations. The analysis was conducted with the Offshore and Coastal Dispersion Model (see Appendix G7 for a summary of the analysis).

A separate screening-level analysis indicates that $NH_3$ emissions from FSRU equipment would result in projected increases in ambient $NH_3$ concentrations that would not exceed any of the stated significance criteria. The screening-level analysis was performed with SCREEN3. A summary of this screening-level analysis is provided in Appendix G8.

Given the distance of 12.01 NM (13.83 miles or 22.25 km) from the FSRU and most vessel operations to the nearest onshore receptors, potential increases in the ambient concentrations of air toxics emitted from these offshore operational activities were presumed not to expose sensitive receptors or the general public to substantial pollutant concentrations. Therefore, this would be a Class III impact.

Impacts, Applicant measures, and mitigation measures associated with air quality are summarized in Table 4.6-20.

**Table 4.6-20 Summary of Air Quality Impacts and Mitigation Measures**

| Impact | Mitigation Measure(s) |
|---|---|
| **Impact AIR-1:** Project construction activities in Ventura and Los Angeles Counties would generate emissions that exceed quantitative thresholds for ozone precursors, $NO_x$ and ROCs, and CO (Class I). | **MM AIR-1a. Construction Emissions Mitigation Plan.** The Applicant shall prepare a Construction Emissions Reduction Plan and work with the VCAPCD and the SCAQMD to implement specific measures contained in the plan. The plan shall outline specific measures to mitigate potential impacts associated with construction-related emissions of criteria air pollutants and toxic air contaminants. |
| **Impact AIR-2:** Onshore Project construction activities would generate $PM_{10}$ and $PM_{2.5}$ emissions that could cause or contribute to existing or projected violations of NAAQS and/or State Ambient Air Quality Standards (Class I). | **AM AIR-2a. Fugitive Dust Controls.** The Applicant or the designated representative would provide for the following control measures: excavation and moist spoils would be watered down; spoil piles that remain more than a few weeks would be covered with tarps; water trucks would be used for dust suppression; and disturbed areas not covered with surface structures would be stabilized following construction.<br>**MM AIR-2b. Construction Fugitive Dust Plan.** The Applicant or its designated representative shall be required to develop, and submit for approval, a Construction Fugitive Dust Control Plan prior to the commencement of construction activities. The plan shall outline the steps to be taken to minimize fugitive dust generated by construction activities by:<br>• Describing each active operation(s) that may result in the generation of fugitive dust;<br>• Identifying all sources of fugitive dust, e.g., earth moving, storage piles, vehicular traffic; and<br>• Describing the control measures to be applied to each of the sources of dust emissions identified above. The descriptions shall be sufficiently detailed to demonstrate that the best available control measure(s) required by the SCAQMD and the VCAQMD for linear projects will be used and/or installed during all periods of active operations.<br>At a minimum, the control measures specified in the Construction Emissions Reduction Plan shall conform with all applicable requirements of SCAQMD Rule 403 and with the fugitive dust mitigation measures described in section 7.4.1 of the Ventura County Air Quality Assessment Guidelines (2003). |

**Table 4.6-20 Summary of Air Quality Impacts and Mitigation Measures**

| Impact | Mitigation Measure(s) |
|---|---|
| | Due to potential exceedances of applicable air quality standards, this plan shall also identify specific methodologies for taking "real-time" measurements of $PM_{10}$ and $PM_{2.5}$ ambient concentrations at locations along the boundary of the proposed construction areas. The plan shall include a description of "action levels" for these measurements and the corresponding steps to be taken, e.g., increase watering to reduce ambient particulate concentrations. The specified monitoring methodologies included in this plan must meet the approval of the VCAPCD and the SCAQMD.<br>The Applicant or its designated representative shall obtain prior approval from the SCAQMD or the VCAPCD prior to any deviations from fugitive dust control measures specified in the Construction Fugitive Dust Plan. A justification statement used to explain the technical or safety reason(s) that preclude the use of required fugitive dust control measure(s) shall be submitted to the appropriate agency for review.<br>**MM AIR-1a. Construction Emissions Reduction Plan.** |
| **Impact AIR-3:** Although rare, an LNG spill from the FSRU or a pipeline rupture would result in a natural gas release and/or a fire that could cause temporary increases in ambient air concentrations of criteria pollutants in excess of air quality standards, expose sensitive receptors and the general public to substantial concentrations of toxic air contaminants, and/or create objectionable odors (Class I). | **AM PS-3a. More Stringent Pipeline Design** (see Section 4.2, "Public Safety: Hazards and Risk Analysis").<br>**AM PS-4a. Class 3 Pipeline Design Criteria** (see Section 4.2, "Public Safety: Hazards and Risk Analysis").<br>**MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System** (see Section 4.2, "Public Safety: Hazards and Risk Analysis").<br>**MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls** (see Section 4.2, "Public Safety: Hazards and Risk Analysis").<br>**MM PS-4d. Treat Shore Crossing as Pipeline HCA** (see Section 4.2, "Public Safety: Hazards and Risk Analysis").<br>**MM PS-4e. Automatic Monitoring for Flammable Gas** (see Section 4.2, "Public Safety: Hazards and Risk Analysis").<br>**MM PS-4f. Emergency Communication and Warnings** (see Section 4.2, "Public Safety: Hazards and Risk Analysis").<br>**MM PS-5a. Treat Manufactured Home Residential Community as a High Consequence Area** (see Section 4.2, "Public Safety: Hazards and Risk Analysis"). |

**Table 4.6-20 Summary of Air Quality Impacts and Mitigation Measures**

| Impact | Mitigation Measure(s) |
|---|---|
| **Impact AIR-4**: Emissions of $NO_x$ and ROC generated from FSRU equipment could contribute to ambient ozone impacts in the areas downwind of the Project (Class II). | **AM AIR-4a. Emission Reduction Programs.** As part of air permit-to-construct application procedures, the Applicant has committed to the USEPA, the CARB, and local air districts to identify a suitable emission reduction program (in addition to reductions inherent to the Project) that would reduce annual emissions of $NO_x$ by an amount up to the FSRU's annual $NO_x$ emissions. |
| **Impact AIR-5:** Emissions of $NO_x$ and ROC generated from LNG carriers, tugboats, and the crew/supply boat operating in California Coastal Waters could contribute to ambient ozone impacts in the areas located downwind of the Project (Class I). | **AM AIR-5a. Natural Gas Only on Project Vessels.** The Applicant has proposed to use natural gas as the primary fuel in the main and auxiliary engines on the LNG carriers, tug supply boats, and crew boat whenever these vessels are berthed at the FSRU or operating within 25 miles of the coast of California. A small amount of California diesel would be used simultaneously as a pilot fuel in LNG carrier, tugboat and crew/supply boat engines resulting in a fuel mixture with a natural gas to diesel ratio of approximately 99:1.<br>**AM AIR-5b. Reduced Vessel Traffic Between the FSRU and Port Hueneme.** The Applicant has proposed to reduce, by more than half, the number of weekly and annual transits made by the crew boat/supply boat to and from Port Hueneme and the FSRU from the original estimates in the October 2004 Draft EIS/EIR.<br>**MM AIR-5c. Consultation with CARB to Identify Emission Reduction Opportunities.** The Applicant shall continue to consult with the CARB in an effort to identify and implement additional emission reduction opportunities in Ventura County and/or the South Coast Air Basin, such as unfunded Carl Moyer projects, that would mitigate emissions generated from Project vessels operating in Federal waters. |
| **Impact AIR-6:** Project construction activities in Federal waters would generate emissions of $NO_x$ and ROCs that could contribute to ambient ozone impacts in the areas located downwind of the Project (Class III). | **MM AIR-1a. Construction Emissions Reduction Plan.** |
| **Impact AIR-7:** Air pollutants emitted during onshore and offshore Project construction activities would cause temporary increases in ambient pollutant concentrations (Class III). | **MM AIR1-a. Construction Emissions Reduction Plan.** |
| **Impact AIR-8:** Air pollutants emitted from FSRU equipment and Project vessels associated with operations would cause increases in ambient pollutant concentrations (Class III). | None. |

## 4.6.5 Alternatives

### 4.6.5.1 No Action Alternative

As explained in greater detail in Section 3.4.1, "No Action Alternative," under the No Action Alternative, MARAD would deny the license for the Cabrillo Port Project and/or the CSLC would deny the application for the proposed lease of State tide and submerged lands for a pipeline ROW. The No Action Alternative means that the Project would not go forward and the FSRU, associated subsea pipelines, and onshore pipelines and related facilities would not be installed. Accordingly, none of the potential environmental impacts identified for the construction and operation of the proposed Project would occur.

Since the proposed Project is privately funded, it is unknown whether the Applicant would fund another energy project in California; however, should the No Action Alternative be selected, the energy needs identified in Section 1.2, "Project Purpose, Need and Objectives," would likely be addressed through other means, such as through other LNG or natural gas-related pipeline projects. Such proposed projects may result in potential environmental impacts of the nature and magnitude of the proposed Project as well as impacts particular to their respective configurations and operations; however, such impacts cannot be predicted with any certainty at this time.

### 4.6.5.2 Alternative Deepwater Port, Subsea Pipelines, Shore Crossing, and Onshore Pipeline Location – Santa Barbara Channel/Mandalay Shore Crossing/Gonzales Road Pipeline Alternative

Compared to the proposed Project, emissions generated from FSRU and vessel operation for this alternative would be unchanged, but would take place closer to the California shoreline; it is expected that the differences in onshore and offshore ambient impacts would be minimal. An emission reduction program would be used to reduce ozone precursor emissions from FSRU stationary sources to a Class II impact. As with the Project as proposed, ozone precursor emissions from Project vessels operating in California Coastal Waters are only tentatively presumed to result in a considerable net increase of ozone precursors (Class I impact) pending resolution between the CARB and the Applicant regarding these emissions. The air quality impacts associated with the emissions of all other air pollutants from FSRU and vessel operation would not exceed any significance criteria and would be Class III impacts.

Emissions generated over the course of offshore construction for this alternative would be slightly less than Project emissions because of the shorter offshore pipeline route but would take place closer to the California shoreline. Daily offshore emissions would remain equivalent to those for the Project. Although activities under this alternative would occur closer to the coastline, it is expected that the differences in onshore ambient impacts would be minimal, and therefore are unlikely to exceed air quality standards. The air quality impacts due to offshore construction would not exceed any significance criteria and would be Class III impacts.

Compared to the Project, emissions generated over the course of onshore construction activities for this alternative would increase slightly because the pipeline route to the Center Road Valve Station would travel through a more densely populated area, resulting in a longer construction schedule. However, daily emissions would remain equivalent to those for the Project. Since air quality impacts are closely related to daily emissions, impacts from this alternative's onshore construction activities would be the same as those for the Project. Despite implementation of mitigation measures, $NO_x$ and ROCs emissions (and CO emissions in Los Angeles County) would exceed significance thresholds, and $PM_{10}/PM_{2.5}$ emissions would have the potential to cause exceedances of ambient air quality standards. Therefore, these impacts would be Class I and the mitigation measures applied to the Project would also be implemented for this alternative. The air quality impacts from other air pollutants emitted during onshore construction would not exceed any significance criteria. Therefore, the impacts would be Class III with no mitigation required.

Under this alternative, air quality impacts caused by an LNG spill or pipeline rupture would be the same as those for the proposed Project. Despite implementation of mitigation measures, air quality impacts associated with these events could exceed ambient air quality standards, expose the public to substantial pollutant concentrations, and/or create objectionable odors. Therefore, these impacts would be Class I and the mitigation measures applied for the Project would also be implemented for this alternative.

#### 4.6.5.3 Shore Crossing Alternatives

The air quality impacts associated with operational activities and offshore construction for the shore crossing alternatives would be identical to corresponding impacts for the proposed Project regardless of the shore crossing locations. Therefore, the following analysis reflects only the differences in impacts resulting from onshore construction activities.

**Point Mugu Shore Crossing/Casper Road Pipeline Alternative**

Under this alternative, the duration of shore crossing and pipeline construction would be equivalent to corresponding construction for the Project. Thus, construction emissions for this alternative would be the same as those for the Project. Despite implementation of mitigation measures, $NO_x$ and ROCs emissions in combination with the emissions in the remainder of the pipeline route in Ventura County would exceed significance thresholds, and $PM_{10}/PM_{2.5}$ emissions would have the potential to cause exceedances of ambient air quality standards. Therefore, these impacts would be Class I and the mitigation measures applied for the Project would also be implemented for this alternative. The air quality impacts from other air pollutants emitted during onshore construction would not exceed any significance criteria. Therefore, these impacts would be Class III with no mitigation required.

**Arnold Road Shore Crossing/Arnold Road Pipeline Alternative**

Under this alternative, the duration of shore crossing and pipeline construction would be equivalent to corresponding construction for the Project. Thus, construction emissions for this alternative would be the same as those for the Project. Despite implementation of mitigation measures, $NO_x$ and ROCs emissions, in combination with the construction emissions on the remainder of the pipeline route in Ventura County, would exceed significance thresholds, and $PM_{10}/PM_{2.5}$ emissions would have the potential to cause exceedances of ambient air quality standards. Therefore, these impacts would be Class I and the mitigation measures applied for the Project would also be implemented for this alternative. The air quality impacts from other air pollutants emitted during onshore construction would not exceed any significance criteria. Therefore, these impacts would be Class III with no mitigation required.

### 4.6.5.4 Alternative Onshore Pipeline Routes

The air quality impacts associated with operational activities and offshore construction for the onshore pipeline route alternatives would be identical to corresponding impacts for the proposed Project regardless of the onshore pipeline route selected. Therefore, the following analysis compares only the differences in onshore construction activities.

**Center Road Pipeline Alternative 1**

The emissions generated over the course of onshore construction for this alternative would be equivalent to those generated from the Project because although the pipeline route would be longer, it would traverse less densely populated areas. Since air quality impacts are closely related to daily emissions, impacts from onshore construction under this alternative would be the same as those for the Project. Despite implementation of mitigation measures, $NO_x$ and ROCs emissions would exceed significance thresholds, and $PM_{10}/PM_{2.5}$ dust emissions would have the potential to cause exceedances of ambient air quality standards. Therefore, these impacts would be Class I and the mitigation measures applied for the Project would also be implemented for this alternative. The air quality impacts from other air pollutants emitted during onshore construction would not exceed any significance criteria. Therefore, these impacts would be Class III with no mitigation required although MM AIR-1a would be applied.

**Center Road Pipeline Alternative 2**

Under this alternative, the duration of pipeline construction would be equivalent to the corresponding construction for the proposed Project. Thus, construction emissions for this alternative would be the same as those for the Project. Despite implementation of mitigation measures, $NO_x$ and ROCs emissions would exceed significance thresholds, and $PM_{10}/PM_{2.5}$ emissions would have the potential to cause exceedances of ambient air quality standards. Therefore, these impacts would be Class I and the mitigation measures applied for the Project would also be implemented for this alternative. The air quality impacts from other air pollutants emitted during onshore construction would not

exceed any significance criteria. Therefore, these impacts would be Class III with no mitigation required although MM AIR-1a would be applied.

**Center Road Pipeline Alternative 3**

Under this alternative, the duration of pipeline construction would be equivalent to corresponding construction for the Project. Thus, construction emissions for this alternative would be the same as those for the Project. Despite implementation of mitigation measures, $NO_x$ and ROCs emissions would exceed significance thresholds and $PM_{10}/PM_{2.5}$ emissions would have the potential to cause exceedances of ambient air quality standards. Therefore, these impacts would be Class I and the mitigation measures applied for the Project would also be implemented for this alternative. The air quality impacts from other air pollutants emitted during onshore construction would not exceed any significance criteria. Therefore, these impacts would be Class III with no mitigation required although MM AIR-1a would be applied.

**Line 225 Pipeline Loop Alternative**

As compared with the Project, the emissions generated over the course of onshore trenching and pipelay construction activities for this alternative would decrease slightly because the Line 225 Pipeline Loop route would be shorter and traverse more open land, resulting in a shorter construction schedule. However, daily emissions would remain equivalent to those for the Project. Since air quality impacts are closely related to daily emissions, impacts from onshore trenching and pipelay construction under this alternative would be the same as those for the Project.

Under the Project, the Line 225 Pipeline Loop would cross the Santa Clara River within the State Route 126 bridge. Under this alternative, the Line 225 Pipeline Loop would cross the Santa Clara River by either utilizing an existing pipe bridge or by drilling under the river with HDD. If HDD is used, emissions would increase because of additional equipment requirements. Installation of the pipeline beneath the Santa Clara River using HDD would take approximately three months, with drilling being conducted 24 hours per day/seven days per week.

Despite implementation of mitigation measures, $NO_x$, ROCs, and CO emissions would exceed significance thresholds and $PM_{10}/PM_{2.5}$ emissions would have the potential to cause exceedances of ambient air quality standards. Therefore, these impacts would be Class I and the mitigation measures applied for the Project would also be implemented for this alternative. The air quality impacts from other air pollutants emitted during onshore construction would not exceed any significance criteria. Therefore, these impacts would be Class III with no mitigation required although MM AIR-1a would be applied.

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