

4.4 GREENHOUSE GAS EMISSIONS

This section outlines the Las Pilitas Quarry's contributions to greenhouse gas (GHG) emissions, as well as the current plans and policies recently adopted to reduce those emissions. The CEQA Air Quality Handbook published by the San Luis Obispo County Air Pollution Control District (2009, updated April 2012) contains the following definitions:

Greenhouse Gas: The emissions that contribute to the climate change effect are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), chlorofluorocarbons (CFC) and sulfur hexafluoride (F₆S).

Climate Change: Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHGs, particularly those generated from the human production and use of fossil fuels.

4.4.1 Existing Conditions

Regional Setting

San Luis Obispo County covers an area of about 3,316 square miles along the coast of central California. For geography, climate and meteorology the county can be divided into three general regions: 1) coastal plateau, 2) upper Salinas River valley, and 3) east county plain. The coastal plateau is immediately inland from the Pacific Ocean and is typically five to ten miles wide. It ranges in elevation from sea level to about 500 feet above sea level, and is bounded on the northeast by the Santa Lucia Mountain Range. The Santa Lucia Range rises to roughly 3,000 feet elevation and runs parallel to the coast almost the entire length of the county. The upper Salinas River valley lies inland from the Santa Lucia Range in the northern portion of the county. The east county plain lies further inland along the eastern flank of the county, and includes about one third of the county's area.

The Las Pilitas Quarry is within the Upper Salinas River Valley. The Upper Salinas River Valley, located in the northern one-third of the county, houses 25 percent of the county's population. The Upper Salinas River Valley is characterized by a variety of vegetation communities including riparian, oak woodlands, wetlands, native and nonnative grasslands, and chaparral. Coastal Live Oak and Blue Oak are dominant features of the landscape, with a wide variety of wildlife supported by the oak woodlands scattered throughout the area. Riparian trees such as cottonwoods and willows are common along drainage channels, streams, reservoirs, and marshes. Grassland vegetation is widespread on the rolling hills and flat areas that are either too dry to support oak woodland or have been cleared of oaks in the past.

Local Setting

The Project is within the Upper Salinas River Valley. The Upper Salinas River Valley, located in the northern one-third of the county, houses 25 percent of the county's population. Historically, this region has experienced the highest ozone and particulate levels in the county. Transport of ozone precursors from the coastal plateau and from the San Joaquin Valley may contribute to this condition.

4.4.2 San Luis Obispo County Plans and Policies

Table 4.4-1 presents a preliminary review of Plans and Policies of the San Luis Obispo County General Plan, relative to this proposed surface mining operation, that are applicable to greenhouse gas issues.

4.4.3 Regulatory Setting

Federal and State requirements applicable to greenhouse gas emissions are presented below in Table 4.4-2.

4.4.4 Assessment Methodology

Emissions are estimated using standard methods published by the California Air Resources Board (e.g., EMFAC2011, OFFROAD2011, CalEEMod) and compared to the 10,000 MTCO₂e/year threshold that has been established by the SLOAPCD (April 2012). Combustion of fossil fuels, electricity use, and water use generate GHG emissions. Construction emissions are assumed to be equal to a half year of operation phase emissions and are then amortized over the 25-year life of the project, following the procedure recommended by the SLOAPCD.

4.4.5 Significance Criteria

At the time the Notice of Preparation/Initial Study was distributed, the County had not revised its Initial Study form to reflect the most recent changes incorporated into Appendix G of the CEQA Guidelines. Consequently, significance criteria for greenhouse gas emissions were derived from the 2012 version of the CEQA Guidelines. Accordingly, the Las Pilitas Quarry project will have a significant impact related to greenhouse gas emissions if it will:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

**TABLE 4.4-1
POLICY CONSISTENCY ANALYSIS – GREENHOUSE GAS EMISSIONS**

| Source (Conservation and Open Space Element) | Policy Statement | Discussion | Preliminary Determination |
|---|--|--|--------------------------------------|
| Policy AQ 1.2 | Reduce vehicle miles traveled. Require projects subject to discretionary review to minimize additional vehicle travel. | Providing a local source for aggregate material, rather than importing such material from outside the area, minimizes long haul distances; reduction of vehicle trips therefore reduces fuel consumption and concurrent emission of greenhouse gases. | Potentially Consistent |
| Implementation Strategy AQ 1.2.1 (c) | New or expanded commercial, industrial, public, or mixed use projects with 25 employees or more should provide TDM programs such as parking cash-out, subsidized transit passes, ridesharing incentives, vanpools, employee showers, and bicycle parking and storage facilities. | Since the Quarry would employ no more than 3 to 5 people at full operations, this Strategy would not apply. | Potentially Consistent |
| Policy AQ 1.5 | Transportation efficiency. Improve the operating efficiency of the transportation system by reducing vehicle travel demand and expanding opportunities for multi-modal travel. | Providing a local source for aggregate material, rather than importing such material from outside the area, minimizes long haul distances; reduction of vehicle trips therefore reduces fuel consumption and concurrent emission of greenhouse gases. In addition, the project includes provisions for expanding the County's trail network by providing an easement over the subject property as a condition of approval. | Potentially Consistent |
| Policy AQ 1.7 | Bicycle and pedestrian travel. Encourage bicycle and pedestrian use by supporting the policies found in the Regional Transportation Plan, County Bikeways Plan, Land Use and Circulation Element, and County Parks and Recreation Element. In addition, support public | Since the Quarry would employ no more than 3 to 5 people at full operations, and due to the remote location of the proposed mine, this strategy would not apply for worker transportation. In addition, the project includes provisions for expanding the | Potentially Consistent |

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

**TABLE 4.4-1 (CONTINUED)
POLICY CONSISTENCY ANALYSIS – GREENHOUSE GAS EMISSIONS**

| Source (Conservation and Open Space Element) | Policy Statement | Discussion | Preliminary Determination |
|---|--|--|--------------------------------------|
| | and private efforts to facilitate bicycling and walking for transportation and recreation. | County's trail network by providing an easement over the subject property as a condition of approval. | |
| Policy AQ 4.1 | Reduce greenhouse gas emissions. Implement and enforce State legislative or regulatory standards, policies, and programs designed to reduce greenhouse gas emissions. | Although this Policy applies principally to the County as a regulatory agency, operations of this quarry, including construction dust control, equipment maintenance and implementation of a Reclamation Plan, will implement those regulations. | Potentially Consistent |
| Implementation Strategy AQ 4.2.2 | 2006 GHG Emissions Baseline Inventory Report. Refer to the 2006 Greenhouse Gas Emissions Baseline Inventory Report as the baseline for greenhouse gas emissions levels from County municipal operations and community-related activities until updated. (Report included as Appendix 2). | The analysis presented in this EIR is based on Appendix 2 of the Conservation and Open Space Element. | Potentially Consistent |
| Policy AQ 4.4 | Development projects and land use activities. Reduce greenhouse gas emissions from development projects and other land use activities. | Operations of this quarry, including construction dust control, equipment maintenance and implementation of a Reclamation Plan, will implement these regulations. | Potentially Consistent |
| Implementation Strategy AQ 4.4.3 | Reduce GHG emissions from community-wide transportation activities. Reduce greenhouse gas emissions resulting from communitywide transportation activities through expanded use of alternative fuel vehicles, increased use of alternative transportation modes, decreased VMT, development of | This Strategy is more applicable to urban/suburban areas; the relatively rural setting of this quarry would not conflict with this strategy. | Potentially Consistent |

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

**TABLE 4.4-1 (CONTINUED)
POLICY CONSISTENCY ANALYSIS – GREENHOUSE GAS EMISSIONS**

| Source (Conservation and Open Space Element) | Policy Statement | Discussion | Preliminary Determination |
|---|---|---|--------------------------------------|
| | compact, mixed-use, infill projects in established communities and urban areas, and other strategies identified in the Climate Action Plan. (Also refer to Policies AQ 1.1 – 1.8 above.) | | |
| Implementation Strategy AQ 4.5.1 | Identify carbon sequestration resources. Identify existing and potential opportunities for terrestrial and aquatic sequestration in the county, including but not limited to County lands, reclaimed mining lands, agricultural lands, and other areas or activities as appropriate. | The Reclamation Plan has identified opportunities for carbon sequestration, through the plant materials selected for landscaping. | Potentially Consistent |
| Implementation Strategy AQ 5.1.1 | Risk of sea level rise. Work with the Office of Emergency Services to identify the potential for sea level rise in the coastal planning areas. Amend the County's CEQA Initial Study Checklist, Area Plans, the Coastal Zone Land Use Ordinance, Safety Element, and Local Hazard Mitigation Plan as appropriate. | Since this Quarry site is located more than 10 miles from the Pacific Ocean, the potential effects of sea level rise on the site are negligible. | Potentially Consistent |
| Implementation Strategy AQ 5.2.5 | Support green business. Support local efforts to develop "green" or sustainable business practices that reduce greenhouse gas emissions and improve overall quality of life in the County. | Providing a local source for aggregate material, rather than importing such material from outside the area, minimizes long haul distances; reduction of vehicle trips therefore reduces fuel consumption and concurrent emission of greenhouse gases. | Potentially Consistent |

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

**TABLE 4.4-2
SUMMARY OF STATE AND FEDERAL REQUIREMENTS
GREENHOUSE GAS EMISSIONS**

| Requirements | Administering Agency | Applicability |
|--|---|---|
| Federal | | |
| Endangerment and Cause or Contribute Findings: US EPA must consider greenhouse gases to be air pollutants subject to regulation under the Clean Air Act. | US Environmental Protection Agency. | “These findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite for implementing greenhouse gas emissions standards for vehicles. In collaboration with the National Highway Traffic Safety Administration, EPA finalized emission standards for light-duty vehicles (2012–2016 model years) in May of 2010 and heavy-duty vehicles (2014–2018 model years) in August of 2011.” (http://www.epa.gov/climatechange/endangerment.html) |
| Tailoring Rule: Entities that newly construct or modify existing stationary sources of GHG emissions above certain thresholds must obtain a federal permit to operate. | San Luis Obispo County Air Pollution Control District (i.e., Rules 216 and 221) as delegated authority by US EPA to operate the federal operating permit program. | The Tailoring Rule applies to sources in all sectors including mining. The Rule also required administering agencies (e.g., San Luis Obispo County Air Pollution Control District) to develop rules implementing the Rule. Potentially applicable to the Project would be the requirement for new stationary sources of GHG emissions to obtain a federal permit to operate if emissions are greater than 100,000 tons per year of carbon dioxide equivalent. |
| State | | |
| California Governor’s Executive Order S-03-05 (2005) | Secretary of the California Environmental Protection Agency, in coordination with: the Secretary of the Business, Transportation and Housing Agency, Secretary of the Department of Food and Agriculture, Secretary of the Resources Agency, Chairperson of the Air Resources Board, Chairperson of the Energy Commission, and the President of the Public Utilities Commission | Established GHG reduction targets for the State, as follows: <ul style="list-style-type: none"> • By 2010, reduce GHG emissions to 2000 levels; • By 2020, reduce GHG emissions to 1990 levels; • By 2050, reduce GHG emissions to 80 percent below 1990 levels. |

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

**TABLE 4.4-2 (CONTINUED)
SUMMARY OF STATE AND FEDERAL REQUIREMENTS
GREENHOUSE GAS EMISSIONS**

| Requirements | Administering Agency | Applicability |
|--|--|--|
| Assembly Bill 32 (AB 32) – California Global Warming Solutions Act of 2006 | California Air Resources Board (CARB). | AB 32 requires CARB, the state agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to 1990 statewide levels by 2020, which is equivalent to an approximate 15 percent reduction below 2005 GHG levels. |
| Senate Bill 375 (SB 375) | California Air Resources Board (CARB). | SB 375 enhances California’s ability to reach its AB 32 goals by promoting good planning with the goal of more sustainable communities. SB 375 mandates regional greenhouse gas emission reduction targets for passenger vehicles. Pursuant to SB 375, the California Air Resources Board (CARB) established targets for 2020 and 2035 for each region covered by one of the State’s 18 metropolitan planning organizations (MPO). SLOCOG, as the regional MPO, must prepare a SCS that demonstrates how the region will meet its greenhouse gas reduction target through integrated land use, housing and transportation planning. Once adopted by SLOCOG, the SCS will be incorporated into the Regional Transportation Plan for San Luis Obispo County. |
| County/Regional | | |
| Conservation and Open Space Element of the San Luis Obispo County General Plan | County of San Luis Obispo. | <p>Purpose (as derived from the Element): The County recognizes the importance of clean air for a healthy environment and vibrant communities for current and future generations.</p> <ul style="list-style-type: none"> • Clean air protects the health of residents • Clear skies and clean air are attractive for tourism, which contributes to economic vitality • Clean air sustains our water resources, crops, and ecosystems • Achieving clean air helps to reduce greenhouse gas emissions and the effect of global climate change • Clean air is a highly valued resource by residents and visitors |

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

**TABLE 4.4-2 (CONTINUED)
SUMMARY OF STATE AND FEDERAL REQUIREMENTS
GREENHOUSE GAS EMISSIONS**

| Requirements | Administering Agency | Applicability |
|---|---|---|
| | | <p>This General Plan Element focuses on goals and policies that the County will pursue to improve local and regional air quality and to reduce San Luis Obispo County's contribution to global climate change. Specifically, the following two Goals are directly relevant to GHG emissions:</p> <p><u>Goal AQ.4.</u> Greenhouse gas emissions from County operations and communitywide sources will be reduced from baseline levels by a minimum of 15 percent by 2020.</p> <p><u>Goal AQ.5.</u> The County will adapt to adverse climate change.</p> |
| 2006 Greenhouse Gas Emissions Baseline Inventory Report (Appendix 2 of the Conservation and Open Space Element of the San Luis Obispo County General Plan). | County of San Luis Obispo. | The 2006 Greenhouse Gas Emissions Baseline Inventory found that, in the baseline year 2006, the community (unincorporated San Luis Obispo County) emitted approximately 1,506,163 metric tons of carbon dioxide equivalents (CO ₂ e). The transportation sector was by far the largest emitter (64.8 percent), producing approximately 976,585 metric tons of CO ₂ e in 2006. Emissions from the residential, commercial, and industrial sectors accounted for a combined 23.4 percent of the total while emissions from livestock and agricultural equipment comprised 9.7 percent of the total. |
| Rule 216 – Federal Part 70 Permits | San Luis Obispo County Air Pollution Control District as delegated authority by US EPA to operate the federal operating permit program. | Requires major sources that emit GHG's in quantities of 100,000 tons per year or more to obtain an operating permit. |
| Rule 221 – Federal Part 70 Potential to Emit Limitations | San Luis Obispo County Air Pollution Control District as delegated authority by US EPA to operate the federal operating permit program. | Requires reporting and recordkeeping from sources with emissions greater than 50 percent of the federal major source thresholds and establishes a de minimis level for GHG emissions of 5,000 MTCO ₂ e/yr. |

DRAFT EIR OSTER/LAS PILITAS QUARRY GREENHOUSE GAS EMISSIONS

Other local agencies in California have published industrial source GHG thresholds for use in CEQA. 10,000 metric tons of carbon dioxide equivalent per year (MTCO₂e/year) is used by South Coast and Bay Area AQMDs while Mojave Desert AQMD has chosen to maintain consistency with EPA by setting their threshold equal to the major source threshold of 100,000 MTCO₂e/year. This Environmental Impact Report uses the more conservative value of 10,000 MTCO₂e/year. In April 2012, the SLOAPCD revised its CEQA Air Quality Handbook to incorporate local GHG thresholds for project operational conditions. For stationary sources, the SLOAPCD threshold is 10,000 MTCO₂e/year (SLOAPCD 2012: page 3-6).

4.4.6 Project Impacts and Mitigation Measures

Based on the analysis conducted, GHG emissions impacts are negligible for this Quarry project.

Greenhouse Gas Generation

GHG emissions from Project activities are calculated based upon engine hours and size as presented in the air quality appendices to be 3,961 MTCO₂e/year (Appendix D). Grid electricity would be used to power the scale house and pump water. The scale house would have minor electricity use as compared to the water pump which turns out to be a minor source of GHG emissions overall.

Water use would be up to 4,000 gallons per day for dust control, plus up to 1,000 gallons per day for reclamation irrigation and other use. For purposes of GHG emissions estimation, 5,000 gallons are conservatively assumed to be used for 250 operating days and total 1.25 MM gallons/year. It is assumed that the water will be pumped from a well on-site using an electric pump. Electricity used is estimated based on the CEC Public Interest Energy Research (PIER) Program report “Refining Estimates of Water-Related Energy Use in California” (December 2006, CEC-500-2006-118). Electricity use is estimated to be 150 kWh/MG based on Table 4 of the CEC document and the fact that water will be supplied and conveyed (on-site) and would not be treated, or distributed by a publicly owned treatment works, or become wastewater that would require treatment. On this basis, Project electricity use is rounded up to 0.2 MWh/year and GHG emissions are calculated to be less than 0.1 MTCO₂e/year based on the eGRIDweb for the WECC California subregion (U.S. EPA 2007)

Greenhouse Gas Emissions Impact Screening

The information in Table 4.4-3 summarizes the incremental change in GHG emissions resulting from the Project and demonstrates that it does not exceed the SCAQMD GHG screening threshold of 10,000 MTCO₂e/year. This impact is less than significant.

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

**TABLE 4.4-3
INCREMENTAL CHANGE IN
GREENHOUSE GAS EMISSIONS**

| Energy Use | Emissions by Calendar Year (MTCO ₂ e/year) |
|--------------------|---|
| Fuel Use | 3,961 |
| Electricity Use | 0.1 |
| Incremental Change | +3,961 |

| Description of Impact | Mitigation Measure | Residual impact |
|--|--|-----------------------|
| IMPACT GHG-1: Greenhouse Gas Generation. The greenhouse gas emissions generated from the Quarry project may potentially exceed the Screening Threshold (10,000 MTCO ₂ e/year) established for evaluating these emissions. | MM GHG-1: Greenhouse Gas Generation. Since this effect is less than significant, no mitigation is required. | Less than Significant |

Potential Plan Conflicts

The most applicable greenhouse gas reduction policies are found in the Conservation and Open Space Element of the San Luis Obispo County General Plan. Table 4.4-1 presents a preliminary review of Plans and Policies of the County General Plan, relative to this proposed surface mining operation, that are applicable to greenhouse gas issues. In all cases, the Quarry project is potentially consistent with all of these policies.

| Description of Impact | Mitigation Measure | Residual impact |
|--|---|-----------------------|
| IMPACT GHG-2: Potential Plan Conflicts. The Quarry project may potentially conflict with the applicable Greenhouse Gas Emission policies of the Open Space and Conservation Element of the County General Plan. | MM GHG-2: Potential Plan Conflicts. Since this effect is less than significant, no mitigation is required. | Less than Significant |

Cumulative Effects

Given the regional (and global) nature of impacts related to GHG emissions, the analysis of GHG impacts is always in a cumulative framework. The SLOAPCD threshold of 10,000 MTCO₂e/year used in the discussions above is a threshold for determining the significance of a project contribution to cumulative GHG emissions and climate change. The CEQA Air Quality Handbook states (SLOAPCD 2009:Section 3.5.6):

If annual emissions of GHGs exceed these threshold levels, [10,000 MTCO₂e/year for stationary sources] the proposed project would result in a cumulatively considerable

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

contribution of GHG emissions and a cumulatively significant impact to global climate change.

Since the GHG emissions from the proposed quarry would be less than the threshold, it would not have a cumulative impact.

Other pending projects in the general region that would also emit GHG are listed in Section 5.0 of this EIR. The larger development projects include the Eagle Ranch Specific Plan and the undeveloped parts of the Dove Creek Planned Development, both in the City of Atascadero, and the Santa Margarita Ranch Agricultural Residential Cluster subdivision. Each of these projects is subject to evaluation regarding its GHG emissions. They are either already part of the regional baseline emissions, or will have their GHG emissions evaluated as part of CEQA review using the appropriate thresholds for each type of project in the SLOAPCD CEQA Air Quality Handbook.

The Hanson Santa Margarita Quarry is also an existing source of GHG emissions in the region. A pending application to increase the mined area within that quarry would continue the operation at its current level of activity, so there would be little or no increase in GHG emissions associated with that project. Both the Hanson Quarry and the proposed Oster/Las Pilitas Quarry are strategically located within the La Panza Granitics, a large area that is classified as a significant mineral deposit for aggregate purposes (MRZ-2) by the California State Geological Survey 2011 Special Report 215 (Busch and Miller 2011:pages 6 and 11). These two mines are located within the western margin of this large area, relatively near future development within the County. The location in this part of the La Panza Granitics will help to minimize the length of on-highway truck trips to deliver aggregate to market areas within the County, and help to keep GHG emissions associated with aggregate transport low.

In summary, since the project itself would have GHG emissions well below the threshold used to determine cumulative impacts, and since the project location is relatively favorable in terms of minimizing trip distances to market, its GHG emissions will not have a cumulative significant impact.

| Description of Impact | Mitigation Measure | Residual impact |
|---|--|-----------------------|
| IMPACT GHG-3: Cumulative Effects Related to Greenhouse Gas Emissions. The greenhouse gas emissions generated from the Quarry project may be significant, when combined with the emissions from the Hanson Quarry or other sources. | MM GHG-3: Cumulative Effects Related to Greenhouse Gas Emissions. Since this effect is less than significant, no mitigation is necessary. | Less than Significant |

**DRAFT EIR OSTER/LAS PILITAS QUARRY
GREENHOUSE GAS EMISSIONS**

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