4.3 Air Quality

This section discusses construction and operational air emissions that could result from the Project. Greenhouse gas (GHG) emissions are discussed in Section 4.8, Greenhouse Gas Emissions. This section also describes the environmental setting, regulatory setting, identifies the applicable significance thresholds for impacts, assesses potential impacts of the Project, and recommends measures to mitigate any significant impacts, if applicable. The section also provides a discussion of cumulative impacts. Alternatives are discussed in Chapter 5.0, Alternatives.

As described in Chapter 2.0, Project Description, the Project would include the demolition of aboveground infrastructure and remediation of the site, followed by soil stabilization or revegetation of disturbed areas, with some minor long-term operations associated with remediation.

This analysis is intended to provide a reasonable worst-case scenario of potential air emissions resulting from the proposed activities.

Emission calculations and modeling results are included in Appendix C.

4.3.1 Environmental Setting

The County of San Luis Obispo (County) is part of the South Central Coast Air Basin, which also includes Santa Barbara and Ventura counties. The climate of the region is strongly influenced by its proximity to the Pacific Ocean. Airflow around the County plays an important role in the movement and dispersion of pollutants. The speed and direction of local winds are controlled by the location and strength of the Pacific high-pressure system and other global weather patterns, topographical factors, and circulation patterns that result from temperature differences between the land and the sea.

The land area of the County is approximately 3,316 square miles, encompassing varied vegetation, topography, and climate. From a geographical and meteorological standpoint, the County can be divided into three general regions: the Coastal Plateau, the Upper Salinas River Valley, and the East County Plain. Air quality in each of these regions is characteristically different, although the physical features that divide them provide only limited barriers to the transport of pollutants between the regions.

The Project is located within the Coastal Plateau. Approximately 75 percent of the County population, and a corresponding portion of the commercial and industrial facilities, are also within the Coastal Plateau. Due to higher population density and closer spacing of urban areas, emissions of air pollutants per unit area are generally higher in this region than in the other two regions of the County, although the meteorological characteristics of the coastal areas contribute to lower monitoring results.

4.3.1.1 Air Quality Monitoring

Ten air-quality monitoring stations measure the County's air quality (Figure 4.3-1). The San Luis Obispo County Air Pollution Control District (SLOCAPCD) operates eight permanent stations at Atascadero, Carrizo Plain, California Department of Forestry (Arroyo Grande-CDF - CAL FIRE station near the Santa Maria Refinery [SMR]), Mesa2, Morro Bay, Nipomo Regional Park, San Luis Obispo, and Red Hills. The California Air Resources Board (CARB) also operates a Paso Robles Station. SLOCAPCD also assists in the operation of the Oso Flaco Station for the California Department of Parks and Recreation (SLOCAPCD 2023b). All stations except the San Luis Obispo station monitor for wind and temperature. The stations monitor for a different mix of ozone, nitrogen dioxide, sulfur dioxide, and particulate matter (PM) depending on the station.

The closest SLOCAPCD station to the Project area that monitors for Project-related pollutants is the Mesa2 monitoring station, approximately one mile southeast of the Project area (sulfur dioxide, particulate matter). The Arroyo Grande-CDF monitoring station, approximately one mile northeast of the Project site, is examined in this report for particulate matter, and wind speed and direction information only and the Nipomo Regional Park station is utilized for ozone, nitrogen dioxide, and particulate matter.

Air quality monitoring is rigorously controlled by federal and state quality assurance and control procedures to ensure data validity. Gaseous pollutant levels are measured continuously and averaged every hour, 24 hours per day.

Specific Air Pollutants Characteristics

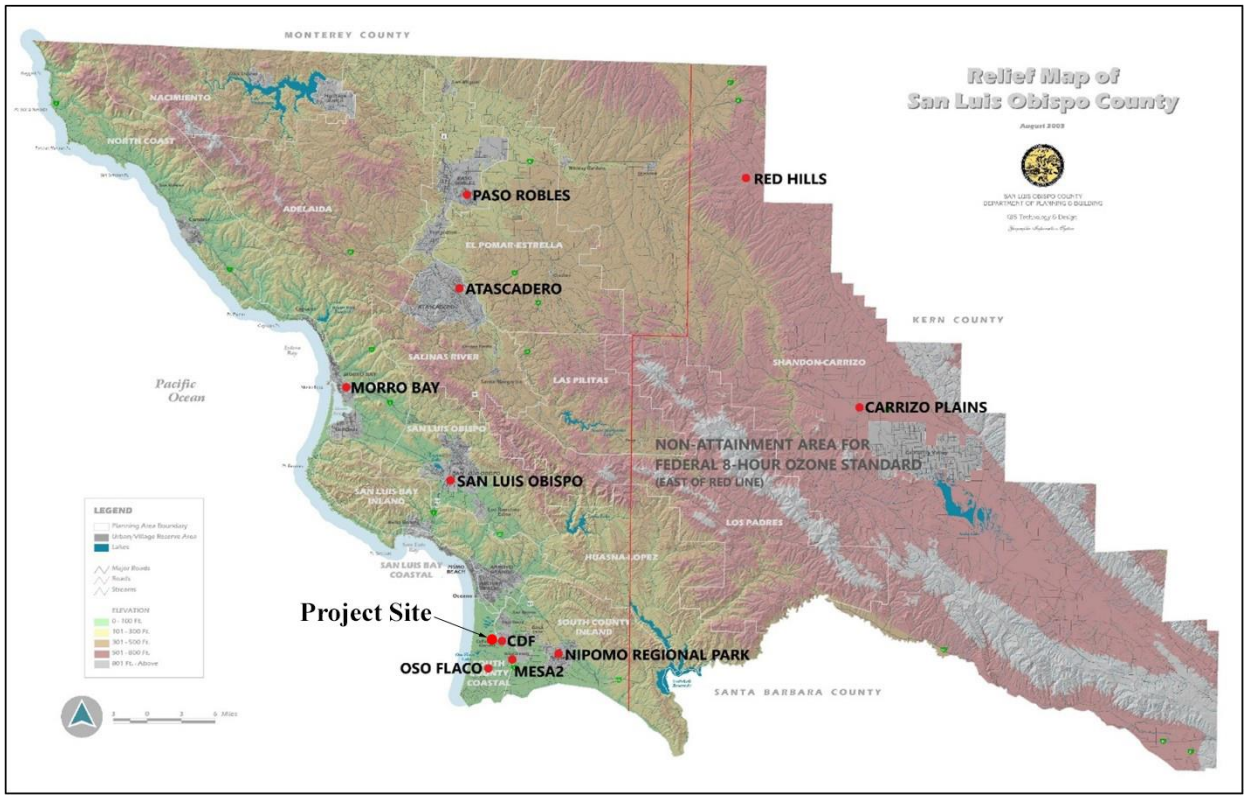
Carbon Monoxide (CO): CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs in the body. The ambient air quality standard for CO is intended to protect people whose medical condition already compromises their circulatory system's ability to deliver oxygen.

Nitrogen Dioxide (NO_2): NO_2 is a brownish gas formed in the atmosphere through a rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_x). NO_2 can cause respiratory irritation and constriction of the airways, making breathing more difficult.

Sulfur Dioxide (SO_2): SO_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms and breathing difficulty.

PM_{10}, the coarse fraction of suspended particulate matter measuring 10 microns or less in diameter, includes a complex mixture of man-made and natural substances including sulfates, nitrates, metals, elemental carbon, sea salt, soil, organics, and other materials. PM_{10} has adverse health impacts because these microscopic particles can penetrate the respiratory system. In some cases, the particulates themselves may cause actual damage to the alveoli of the lungs or they may contain adsorbed substances that are injurious.

Figure 4.3-1 Air Monitoring Stations



Source: SLOCAPCD 2023b

Ambient PM_{10} concentrations have been primarily a localized issue of concern in the County, including Paso Robles, San Luis Obispo, Morro Bay, and Nipomo. Exceedances in these areas are the major impetus for the County's nonattainment designation for the state PM_{10} standard. The major sources for PM_{10} are mineral quarries, grading, demolition, agricultural tilling, road dust, and vehicle exhaust.

$PM_{2.5}$ is a subset of the PM_{10}. In addition to the health effects of PM_{10}, exposure to $PM_{2.5}$ may result in increased respiratory symptoms, disease, and decreased lung function.

In addition to primary criteria pollutants, the SLOCAPCD monitors ozone at various locations throughout the region. Unlike primary criteria pollutants emitted directly from an emissions source, ozone is a secondary pollutant. Ozone is formed in the atmosphere through the photochemical reaction of volatile organic compounds (VOC), NO_x, oxygen, and other hydrocarbon materials with sunlight.

Ozone is a deep lung irritant, causing the passages to become inflamed and swollen. Exposure to ozone alters respiration, most characteristically with shallow, rapid breathing and a decrease in pulmonary performance. Ozone also reduces the respiratory system's ability to fight infection and remove foreign particles.

Ozone exists both at ground level, where it is considered a pollutant with harmful effects and at higher elevations in the lower portion of the stratosphere from approximately 13 to 40 kilometers

above Earth, where it absorbs more than 95 percent of the sun's ultraviolet light providing a beneficial effect.

Combustion byproducts reacting with sunlight and ambient conditions primarily generate ground-level ambient ozone. Areas where ozone violations primarily occur are the northern and eastern portions of the County, where summer temperatures are high. Ozone levels exceeding the state standard have been measured in Paso Robles, the Carrizo Plain, and Atascadero in recent years. In addition, ozone is carried into the County from upwind regions of the state.

Table 4.3.1 provides a list of the state and national criteria air pollutant standards and their associated attainment status. Because concentrations of ozone and PM_{10} exceed state health-based standards, the County has been designated as a non-attainment area for these two pollutants.

Table 4.3.2 shows the most recent monitoring data for pollutants for the monitoring stations located in San Luis Obispo County, with the Nipomo Regional Park and the Mesa2/Nipomo stations being closest to the Project site.

Exceedances to the federal ozone standard were noted during this timeframe at monitors located in the eastern County. PM_{10} and ozone exceed the state standards. The eastern portion of the County has been designated non-attainment for the federal 8-hr ozone standard.

As per the SLOCAPCD annual report in 2022 (the most recent year available):

> *[The 2022] Ozone overall trends show marked improvement from 2020 and 2021 levels, but a slight increase for the Red Hills station in both hours above 65 ppb and exceedances of the ozone standard in comparison to 2019. That said, in SLO County, the federal 8-hour 70 ppb ozone standard was only exceeded on 1 day in 2022, and that exceedance was at Red Hills.*
>
> *South County air quality continues to be impacted by dust blown from the Oceano Dunes State Vehicle Recreation Area (ODSVRA). While the federal PM_{10} standard was not exceeded anywhere in 2022, the more stringent state standard was exceeded on 52 days on the Nipomo Mesa, and most of these exceedances were due to windblown dust. In addition, the Rule 1001 performance standard was violated 30 times. This is an improvement over the previous year when the rule was violated 31 times.*

The CARB meteorological data from the Mesa2 and the CDF monitoring stations, approximately one mile southeast and east of the Project site, are the closest stations to the Project site that have detailed wind direction and speed information. This data was plotted into a wind rose (Figure 4.3-2) to demonstrate the predominant wind direction and speeds at the Project site. Figure 4.3-2 shows that the predominate wind blows from the west and northwest 36 percent of the time, and from the east (east and southeast) less than 20 percent of the time. Wind speeds averaged approximately five miles per hour, with periods of stronger winds above 20 miles per hour occurring less than one percent of the time.

Table 4.3.1 State and National Criteria Air Pollutant Standards, Effects, and Sources

Air Pollutant	State Standard (concentration, averaging time)	Federal Primary Standard (concentration, averaging time)	Attainment Status	Most Relevant Effects
Ozone	0.09 ppm, 1-hour average 0.070 ppm, 8-hour	0.070 ppm, 8-hour average	State: Non-attainment Federal: Non-attainment eastern County; Attainment western County	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage.
Particulate Matter (PM_{10})	20 µg/m^3, annual arithmetic mean 50 µg/m^3, 24-hour average	150 µg/m^3, 24-hour average	State: Non-attainment Fed: Unclassified	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children.
Particulate Matter ($PM_{2.5}$)	12 µg/m^3, annual arithmetic mean	12 µg/m^3, annual arithmetic mean 35 µg/m^3, 24-hour average	State: Attainment Fed: Unclassified	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease, elderly, and children.
Carbon Monoxide	9.0 ppm, 8-hour average 20 ppm, 1-hour average	9 ppm, 8-hour average 35 ppm, 1-hour average	State: Attainment Fed: Unclassified	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses.
Nitrogen Dioxide	0.18 ppm, 1-hour average, 0.03 ppm, annual average	0.053 ppm 0.10 ppm 98th percentile, 3-year average	State: Attainment Fed: Unclassified	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration.
Sulfur Dioxide	0.04 ppm, 24-hour average 0.25 ppm, 1-hour average	0.075 ppm, 1-hour, 99th percentile 3-year average 0.50 ppm 3hr 0.14 ppm 24-hour 0.03 ppm annual arithmetic mean	State: Attainment Fed: Unclassified	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.

Table 4.3.1 State and National Criteria Air Pollutant Standards, Effects, and Sources

Air Pollutant	State Standard (concentration, averaging time)	Federal Primary Standard (concentration, averaging time)	Attainment Status	Most Relevant Effects
Lead	1.5 µg/m^3, 30-day average	0.15 µg/m^3, roll 3-month average 1.5 µg/m^3, calendar quarter	Attainment	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction.
Visibility-Reducing Particles	In sufficient amount to give an extinction coefficient of 0.23 per kilometers (visual range of 10 miles or more) with relative humidity less than 70%, 8-hour average (10 a.m. to 6 p.m. PST)	No federal standard	Attainment	Reduction of visibility, aesthetic impact and impacts due to particulates (see above).
Sulfates	25 µg/m^3, 24-hour average	No federal standard	Attainment	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage due to corrosion.
Hydrogen Sulfide	0.03 ppm, 1-hour average	No federal standard	Attainment	Odor nuisance. IDLH and ERPG-3 of 100 ppm
Vinyl Chloride	0.01 ppm, 24-hour average	No federal standard	No information	Known carcinogen.

Notes: µg/m^3 = micrograms per cubic meter; ppm = parts per million.
Source: SLOCAPCD 2023c

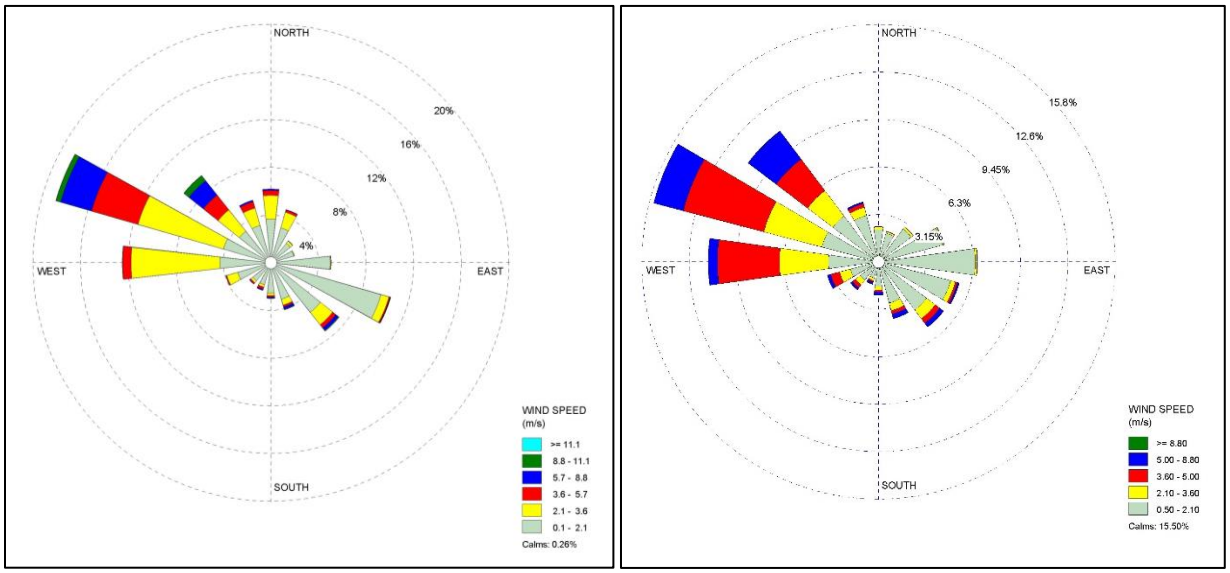
Table 4.3.2 Monitoring Results

Station	O_3 1-hour			O_3 8-hour				SO_2 1-hour			NO_2 1-hour		
	1st	2nd	3rd	1st	2nd	3rd	4th	1st	2nd	3rd	1st	2nd	3rd
Paso Robles	74 05/25	67 08/16	67 09/28	68 05/25	61 06/24	61 09/23	59 05/04						
Atascadero	69 09/02	69 09/28	67 10/04	64 10/03	63 09/05	62 08/26	59 04/01				26 11/17	25 02/10	24 02/11
Morro Bay	59 10/19	58 04/07	53 02/09	54 04/07	54 10/18	51 02/08	50 02/27						
Red Hills	80 05/26	75 09/02	72 06/07	**75** 05/25	70 09/01	69 09/28	69 10/05						
Carrizo Plain	76 09/08	69 08/16	69 09/25	66 08/16	64 06/07	63 09/01	63 09/02						
Nipomo Regional Park	65 10/19	63 09/05	61 04/07	58 04/07	58 10/18	56 10/19	54 04/08				19 01/12	19 01/13	19 01/28
Mesa2, Nipomo								3.5 04/07	3.5 11/22	3.1 05/12			

Station	Highest 24-hour PM_{10}			Annual Average PM_{10}‡	Highest 24-hour $PM_{2.5}$			Annual Average $PM_{2.5}$‡
	1st	2nd	3rd		1st	2nd	3rd	
Paso Robles	46 10/18	44 05/25	42 06/21	19.4				
Atascadero	38 01/26	38 02/10	37 02/11	17.4	24.3 12/17	22.8 01/20	22.4 01/14	6.14
San Luis Obispo Roberto Ct.	52 04/09	45 05/19	45 09/09	16.4	25.5 09/09	20.2 04/09	18.7 05/19	6.51
CDF, Arroyo Grande	103 04/10	100 06/13	96 04/09	29.1	26.8 04/09	26.1 04/10	25.9 06/13	9.12
Nipomo Regional Park	73 04/09	58 09/09	57 05/19	19.9				
Oso Flaco	67 04/09	66 04/10	58 05/08	19.2				
Mesa2, Nipomo	98 06/13	97 04/10	94 05/07	25.8	24.1 04/10	23.9 06/13	22.3 06/14	6.61

Note: Nipomo Regional Park and Mesa 2/Nipomo are located closest to the Project site.
Source: SLOCAPCD 2023b

Figure 4.3-2 Meteorological Station Wind Rose



Mesa 2 CDF

Note: Wind rose shows the direction that the wind is coming from.
Source: SLOCAPCD meteorological data, Nipomo Guadalupe Road (Mesa2) monitoring station 2008–2012.

4.3.1.2 Countywide Emissions Inventory

This section summarizes the countywide emission inventory.

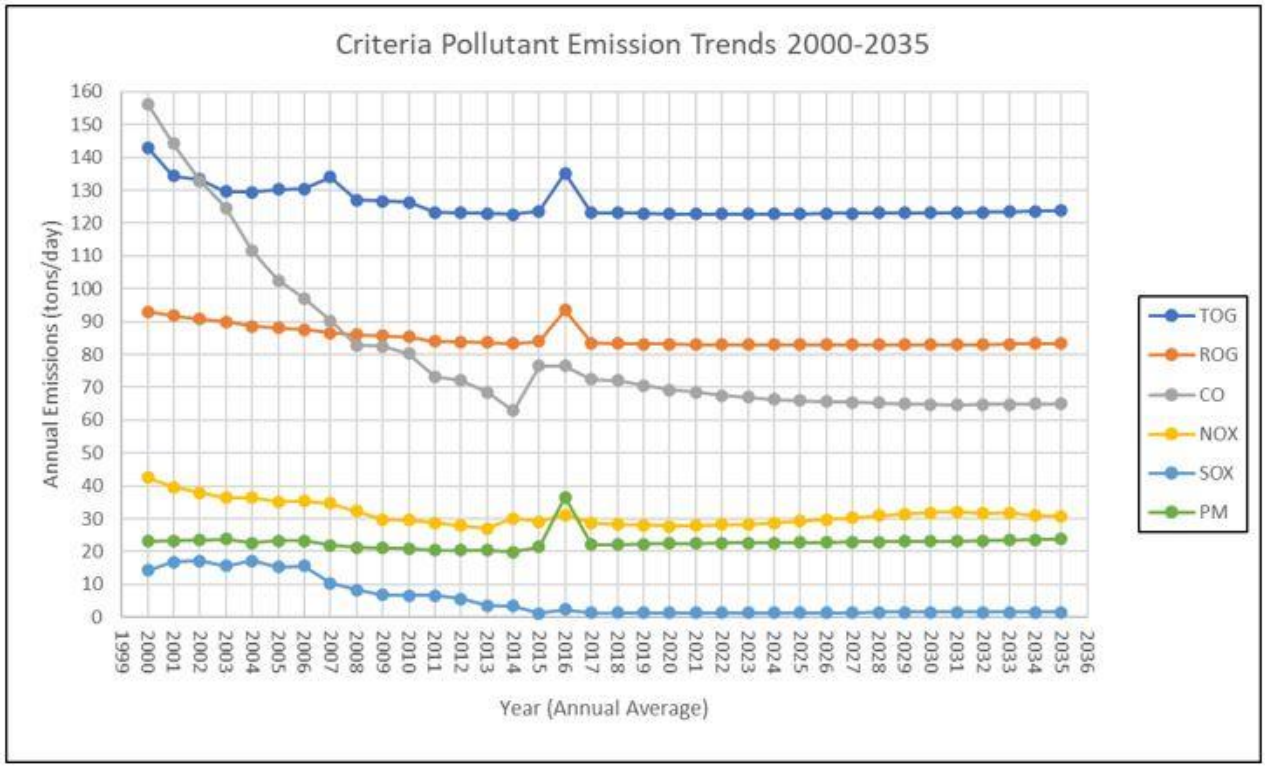
Countywide Criteria Pollutant Emissions

On a regional basis, ozone and particulate matter are the criteria pollutants of significant concern in the County. Ozone is a secondary pollutant, formed in the atmosphere by complex photochemical reactions involving the precursor pollutants of NO_x and reactive organic gases (ROG) and sunlight. Particulate matter is partly formed through atmospheric processes as well as windblown dust.

The amount of ozone formed is dependent upon both the ambient concentration of the chemical precursors and the intensity and duration of sunlight. Consequently, ambient ozone concentration tends to vary seasonally with the weather.

NO_x is emitted primarily from the combustion of fossil fuels with mobile source producing the majority of NO_x emissions. The majority of ROG emissions are also generated by mobile source fossil fuel combustion, wildfires, and through the evaporation of petroleum products. Particulate emissions are generated primarily from windblown and road dust, wildfires, and construction activities. Figure 4.3-3 shows the countywide inventory trends.

Figure 4.3-3 Countywide Inventory Trends



Notes: TOG= total organic gases; ROG= reactive organic gases; CO=carbon monoxide; NO_x= oxides of nitrogen; SO_x= sulfur oxide; PM= particulate matter.
Source: SLOCAPCD 2023b

Countywide Air Toxics

Air toxics are substances that may cause or contribute to an increase in cancer or serious illness, such as respiratory disease. The federal 1990 Clean Air Act Amendments (CAAA) set up a new nationwide air toxics control program. The federal program focuses on larger industrial sources that are of the highest national priority, such as chemical manufacturers. State and local air pollution control agencies adopt measures to minimize Californians' exposure to toxic air contaminants (TAC). The State of California regulates TAC in several ways. The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807, Chaptered 1983) created a program to reduce the health risks from air toxics.

This law expanded CARB authority to evaluate and control air toxics. An additional state law, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Chaptered 1987) supplements the original legislation by requiring a statewide air toxics inventory and notifying local residents of significant risks from nearby sources. A 1992 amendment to the law (Senate Bill 1731) requires that risks be reduced from these sources.

The CARB has identified asbestos as a TAC. In its natural state, asbestos occurs throughout many areas. Serpentine is a very common rock type in California and was identified by the CARB as having the potential to contain naturally occurring asbestos. Under the CARB Air Toxics Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations, prior to

any grading activities at a site, a geologic analysis is necessary to determine if serpentine rock is present. Grading projects larger than one acre in serpentine rock would require prior SLOCAPCD approval of an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program.

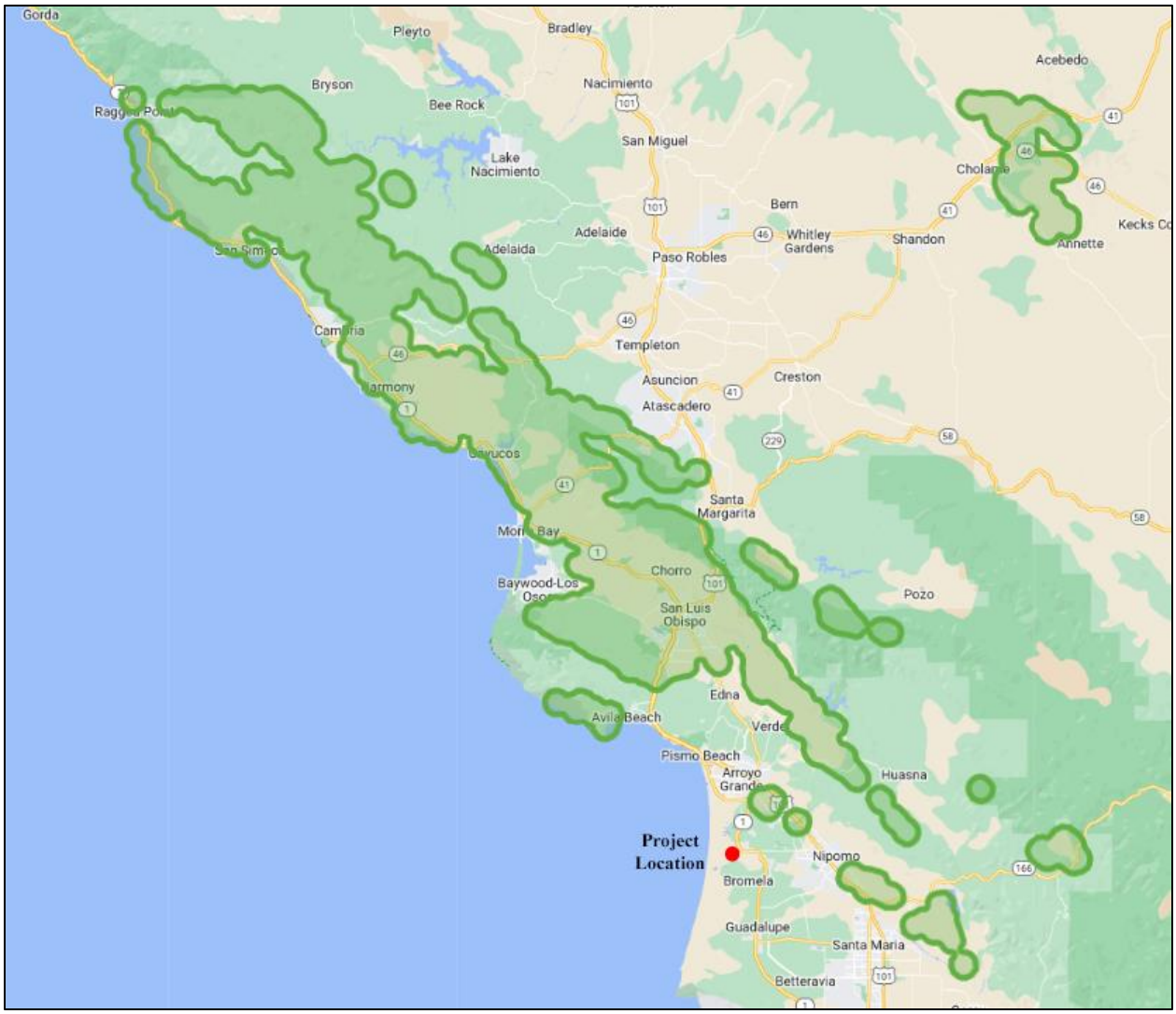
Serpentine rock is found in many regions of the County, including coastal areas, as far inland as Paso Robles, and the extreme eastern area along the San Andreas Fault. Figure 4.3-4 shows areas subject to the naturally occurring asbestos ATCM requirements. The Project site is not within one of these general areas.

Fugitive Dust

The Project is located in an area (the Nipomo Mesa) that has historically been subject to poor air quality conditions due to high northwesterly winds and blowing sand and dust across the Oceano dunes (SLOCAPCD 2023b). The SLOCAPCD has been investigating the source of the high particulate matter concentrations on the Nipomo Mesa for more than the past decade in cooperation with other agencies. A number of studies have been conducted addressing the issues of dust from the ODSVRA, in cooperation with the SLOCAPCD and other entities, as well as planning documents for the dunes areas, including:

- 2023 Study by Desert Research Institute and SLOCAPCD staff titled "Quantifying the Source Attribution of PM_{10} Measured Downwind of the Oceano Dunes State Vehicular Recreation Area;
- 2023: The Scientific Advisory Group (SAG) has prepared a "State of the Science" Report, which summarizes and synthesizes all of the various reports, studies, and other publicly available materials relevant to the Oceano Dunes dust issue and mitigation measures. This report was prepared independently by the SAG;
- 2022/2021: State Parks Draft Annual Report and Work Plan in 2021. The report was subsequently reviewed by the SLOCAPCD and the Scientific Advisory Group (SAG). A second draft was submitted in September 2022;
- 2022 paper titled "*The role of off highway vehicle activity in augmenting dust emissions at the Oceano Dunes State Vehicular Recreation Area, Oceano CA*" has been published by Atmospheric Environment;
- 2022: The SLOCAPCD and the Scientific Advisory Group (SAG) issued a response to the State Parks OHV Division's funded document "Scripps/UCSD Interim Report 2021," by Dr. Lynn Russell;
- 2020: The SLOCAPCD issued conditional approval of 90 acres of dust control to be implemented by California Department of Parks and Recreation as part of their 2020 Annual Report and Work Plan in response to Stipulated Order of Abatement #17-01;
- 2020/2019: State Parks completed the first draft of their Annual Report & Work Plan (ARWP). State Parks provided revisions to the drafts of the ARWP;
- 2020: State Parks Draft Public Works Plan issued;
- 2019: State Parks submitted a Particulate Matter Reduction Plan;

Figure 4.3-4 Areas Requiring Asbestos ATCM Geological Analysis and Requirements



Source: SLOCAPCD 2023c

- 2018: SLOCAPCD stipulation order 17-01 with regard to alleged nuisances defined pursuant to District Rule 402 and California Health and Safety Code section 41700, beginning on or about May 20, 2010, and on certain occasions thereafter, as a result of particulate matter emissions from the Oceano Dunes State Vehicular Recreation Area ("ODSVRA");
- 2013: South County Community Monitoring Project report issued;
- 2013: State Parks Dunes Monitoring Study conducted;
- 2011: State parks Dust Mitigation Study conducted;
- 2010: South County Phase 2 Particulate Matter Study;
- 2007: State Parks Dunes Vegetation Study; and
- 2005: South County Phase 1 Particulate Matter Study.

As the ODSVRA is upwind of the Nipomo Mesa and the SMR, the studies generally indicate that the dunes area is a major source of particulates on the Nipomo Mesa. According to the 2023 Scientific Advisory Group report (SAG 2023);

> *In the absence of human disturbance, natural forces will shape coastal sand sheets into sand dunes exhibiting characteristic patterns of dune geomorphology, vegetation cover, and rippled sand surface with particle size distribution and composition patterns that reflect the local geological and meteorological conditions... Intensive human use of coastal dune areas, including vehicle activity and camping, may disrupt the naturally occurring features of coastal dunes. For example, the mechanical action of vehicle tires can turn over the surface layer of dunes, potentially increasing saltation and dust emissivity by bringing fine particles to the surface (i.e., changing particle size distribution) or breaking up the surfaces themselves. In addition, intensive use can inhibit the growth of new vegetation or even destroy existing vegetation. All these factors will lead to changes in the factors that govern dust emissivity from dunes.*
>
> *… [Studies for the period when the ODSVRA was closed due to COVID] indicated that the removal of vehicles led to a substantial decline in airborne PM_{10}.*
>
> *... [Studies also] showed that there has been a reduction in the [some characteristics in dunes] over time as an increasing number of dust mitigation treatments have been installed, suggesting an overall reduction in PM_{10} emissions...*
>
> *Despite this strong evidence for the role of vehicles in enhancing PM_{10} emissions and concentrations at the ODSVRA, and the effects of dust mitigation treatments toward reducing such emissions, the specific mechanisms by which vehicle activity causes such an enhancement in PM_{10} emissions remain poorly understood and should be the subject of future study in order to understand what emissions are attributable to vehicle activity as opposed to those from other sources.*

The SLOCAPCD Annual Report (SLOCAPCD 2023b) also indicates that:

> *Windblown dust from the ODSVRA remains an air quality challenge affecting South San Luis Obispo County. For more than a decade, the APCD has been engaged with the California Department of Parks and Recreation (State Parks) in an effort to resolve the issue and improve the region's air quality; these actions are chronicled on the APCD's website.6 From 2011 to 2022, the annual number of exceedances of the California PM_{10} standard at CDF varied from as few as 38 to as many as 97, with most related to ODSVRA dust…*

In order to assess the effectiveness of mitigation implemented since 2017, the report indicates:

> *Applying the methodology to the 2022 data yields a statistically significant 31.6% improvement in event-day PM_{10} at CDF compared to the baseline year of 2017 …*

> *… the result for CDF for 2022—a 31.6% improvement relative to 2017—is about the same as the result for the previous year, namely the 33.5% improvement for 2021. While 2022 saw no incremental improvement over 2021, this is consistent with most of new mitigation acreage being too far south to influence CDF…*
>
> *…the annual number of [Rule 1001 attributable to the ODSVRA] violations has generally decreased since the Oso Flaco monitor was established.*

The SLOCAPCD adopted Rule 1001 in 2011 and revised in 2016, "Fugitive Dust Emissions Standards, Limitations and Prohibitions" to address fugitive dust from offroad vehicle activity on the dunes. Annual violations attributable to the ODSVRA range from about 30 to 70 per year. (SLOCAPCD 2023b).

The Project is in an area that is impacted by periods of high particulate matter concentrations during blowing dust events. To keep the public informed of periods of deteriorating air quality, the SLOCAPCD provides a daily air quality forecast for the County, which is partitioned into nine air quality forecast zones. Air quality forecast for a six-day period is provided for each zone. In the Nipomo Mesa area, there are four forecast zones as shown in the map Figure 4.3-5. The zones are named for the monitoring stations that are located within each zone; Arroyo Grande-CDF, MESA2, NRP, and SLO.

The darker colors in Figure 4.3-5 signify the typical location of the dust plume and the greater impacts during a typical blowing dust event. The public can experience adverse health impacts in areas with blowing dust. This Project is in, or may affect, the Arroyo Grande-CDF, Mesa 2, or NRP zones. Areas within the zones can experience annual exceedances of particulate ranging between 45–95 (zone Arroyo Grande-CDF), 30-60 (zone Mesa2) and 0–20 (zone NRP).

The blowing dust events are typically most frequent in the spring; however, dust events can occur at any time of the year. As shown in Figure 4.3-5, the greatest impacts occur when the strong winds blow from the northwest which direct the dust plume inland over the Nipomo Mesa where it can impact residents. Residents can plan to avoid peak dust impacts by being aware of typical dust plume characteristics. A typical event tends to start around noon and ends by the early evening, with peak impacts between 1:00 p.m. to 5:00 p.m. The strongest events can result in blowing dust from 9:00 a.m. to 7:00 p.m., with peak impacts between noon and 6:00 p.m. Outdoor activities and exercise should be planned in late evenings and mornings due to lower particulate matter concentrations.

Efforts to reduce particulate matter on the Nipomo Mesa are underway through Stipulated Abatement Order 17-01 entered between the SLOCAPCD and California Department of Parks and Recreation Off-Highway Motor Vehicle Recreation Division (State Parks). The Order was approved by the SLOCAPCD Hearing Board on April 30, 2018. This stipulated abatement order calls for specific actions to ensure significant reductions in particulate matter are achieved on the Nipomo Mesa over a five-year period.

Figure 4.3-5 Nipomo Fugitive Dust Areas

Source: SLOCAPCD 2023b

4.3.1.3 Odors

The release of material that contains even small amounts of sulfur compounds (hydrogen sulfide [H_2S]) or hydrocarbons produces an odor. Several compounds associated with the oil and gas industry can produce nuisance odors. Sulfur compounds, found in oil and gas, have very low odor threshold levels. For instance, H_2S can be detected by humans at concentrations from 0.5 parts per billion (ppb) (detected by two percent of the population) to 40 ppb, qualified as annoying by 50 percent of the population. Above these levels, H_2S would be detected by most people. The Occupational Safety and Health Administration limits occupational exposure to H_2S at 20 ppm with a 50-ppm peak over 10 minutes (29 Code of Federal Regulations [CFR] 1910.1000 Z-2 Table). Inhaling 100 ppm can be lethal according to the Emergency Response Planning Guideline (AIHA 2008).

Health impacts of H_2S are generally at higher concentrations than those which first produce odors. The California Office of Environmental Health Hazard Assessment (OEHHA) reference exposure levels for H_2S indicate that acute impacts of H_2S are experienced at levels of 30 ppb (for a 1-hour exposure).

Many volatile compounds found in oil and gas (e.g., pentane, n-pentane, hexane, ethane, and longer chain hydrocarbons) typically have petroleum or gasoline odors with varying odor

thresholds. The most odiferous of these compounds are hexane, which has an odor threshold of between 68 and 248 ppm, and pentane, which has an odor threshold of 2 ppm (NJDPH 2007).

4.3.1.4 Valley Fever

Valley fever is caused by Coccidioides, a fungus that lives in soil in the southwestern United States and parts of Mexico, Central America, and South America. Inhaling the airborne fungal spores can cause an infection called coccidioidomycosis, which is also known as "cocci" or "Valley fever." Most people who are exposed to the fungus do not get sick, but some people develop flu-like symptoms that may last for weeks to months. In a very small proportion of people who get Valley fever, the infection can spread from the lungs to the rest of the body and cause more severe conditions, such as meningitis or even death. Valley fever cannot spread from person to person (CDC 2023).

Most cases of Valley fever in the US occur in people who live in or have traveled to the southwestern United States, especially Arizona and California. The coastal areas of California are considered "suspected endemic" (CDC 2023).

Although Valley fever concerns are not addressed by the SLOCAPCD, they may be a concern for projects that generate a lot of fugitive dust, thereby potentially increasing the incidence of Valley fever in workers and nearby residents if proper dust control methods are not followed. As fugitive dust is addressed in this section of the EIR, Valley fever issues have also been addressed here.

4.3.1.5 Historical Emissions from Refinery Operations

Historical SMR activities and operations have produced impacts associated with criteria pollutant emissions, emissions of GHGs (see Section 4.8), and emissions of toxic materials.

Santa Maria Refinery Criteria Pollutant Emissions
Historical operations at the SMR produced criteria emissions associated with a range of equipment types and operations, including:

- Combustion sources, including diesel pumps and compressors, heaters, boiler, generators, incinerators and flares (emergency use only);
- Fugitive emissions from pumps, valves, and connections;
- Fugitive emissions from hydrocarbon tanks;
- Coke handling and storage; and
- Other miscellaneous sources, including solvent use, oily water treatment, cooling towers, and sulfur pit vents.

The SMR reports emissions from these sources to the SLOCAPCD annually. Table 4.3.3 summarizes the emissions for these sources for the operations of the SMR for the last five years prior to the application submittal (see Chapter 2.0, Project Description).

Table 4.3.3 SMR Historical Emissions Summary

Data Year	ROG	NO_x	ROG + NO_x	CO	SO_2	PM
tons/year						
2017	22.1	59.3	81.4	7.2	64.7	25.0
2018	28.5	44.9	73.4	6.5	67.9	23.7
2019	27.6	51.1	78.7	6.1	80.3	24.2
2020	26.6	42.7	69.3	4.7	52.9	22.7
2021	25.8	40.6	66.4	4.3	43.0	21.0
Average	26.1	47.7	73.8	5.8	61.8	23.3
Average tons per quarter	6.5	11.9	18.5	1.4	15.4	5.8
Average pounds per day	143.1	261.5	404.6	31.6	338.4	127.8

Source: SLOCAPCD Facility Corporate Emission Inventory Report (CEIR) Data. Note data submitted to the SLOCAPCD did not include PM2.5, only PM.

Off-site criteria emissions include the emissions from vehicles used to transport employees and from vehicles used to transport coke, sulfur, and other materials delivered to or exported by the SMR. These emissions include:

- Emissions from trucks and trains used to transport coke;
- Emissions from trucks used to transport sulfur;
- Emissions from trucks associated with normal materials shipments and employee duties; and
- Emissions from employee vehicles.

Table 4.3.4 shows estimated emissions from off-site vehicle trips associated with direct SMR operations, including trucks and rail trips within California.

Table 4.3.4 SMR Historical Off-site/On-site (truck and rail) Emissions Summary

Data Year	ROG	NO_x	ROG + NO_x	CO	SO_2	PM_{10}	DPM	$PM_{2.5}$
tons/year								
2017	0.5	34.1	34.6	1.7	0.0	28.8	0.24	0.2
2018	0.4	29.8	30.2	1.5	0.0	25.2	0.21	0.2
2019	0.4	29.0	29.5	1.5	0.0	24.5	0.21	0.2
2020	0.5	33.9	34.3	1.7	0.0	28.6	0.24	0.2
2021	0.3	24.4	24.7	1.2	0.0	20.6	0.17	0.2
Average	0.4	30.2	30.7	1.5	0.0	25.5	0.21	0.2
Average tons per quarter	0.1	7.6	7.7	0.4	0.01	6.38	0.05	0.1
Average pounds per day	2.6	178.5	181.1	9.8	0.3	146.7	1.32	1.3
Average tons per quarter: ON SITE	0.01	0.34	0.35	0.04	0.00	0.12	0.003	0.002

Table 4.3.4 SMR Historical Off-site/On-site (truck and rail) Emissions Summary

Data Year	ROG	NO_x	ROG + NO_x	CO	SO_2	PM_{10}	DPM	$PM_{2.5}$
tons/year								
Average pounds per day: ON SITE	0.34	11.75	12.09	1.99	0.01	3.01	0.15	0.15

Note: DPM = diesel particulate matter.
Source: Phillips 66 Application estimates of truck and rail emissions within the County with modification by EIR preparer. Rail emissions assume transport south towards the Port of Los Angeles.

SMR Toxic Emissions

Toxic emissions are associated with operations at the SMR as well as emissions from diesel trucks operating along area roadways. SMR emissions of toxic materials are estimated by the SMR and submitted to the SLOCAPCD along with modeling of cancer, acute, and chronic impacts at locations near the SMR. These estimates are required by regulation, particularly the AB 2588 requirements.

A toxic emission inventory was developed for the SMR in 2004, which included only stationary sources at the SMR and also included operations such as the calciner, which have since been shut down. The 2004 inventory was used in a 2007 health risk assessment (HRA) prepared by Phillips 66 (previously ConocoPhillips, ConocoPhillips 2011) which utilized CARB's Hotspots Analysis and Reporting Program model to assess the cancer, chronic, and acute health risk impacts.

The primary cause of health risk impacts at the SMR in 2004 was determined to be the diesel-cooling water pump. In 2005, a diesel oxidation catalyst (DOC) was reportedly installed on the diesel cooling water pump to reduce diesel particulate emissions by 30 percent. The installation of the DOC and shutdown of calcining operations resulted in a reduction in health risk levels to 15 cancer cases per one million at the SMR boundary (ConocoPhillips 2007).

As documented in the Phillips 66 Rail Spur Project EIR (County 2015, not certified as the project was not approved), since 2004, several additional changes at the SMR additionally reduced toxic emissions, including shutting down the calciner, installation of various DOC and diesel particulate filters (DPF) on several diesel engines, and reductions in fugitive emissions with a more rigorous fugitive emissions control program. Additionally, the SLOCAPCD reported that the diesel cooling water pump has been replaced by a natural gas engine with catalyst, which has reduced risk levels by at least 80 percent. This would reduce cancer health risk levels to approximately five cases per one million. The estimation of cancer risk levels is based upon a person being exposed to the air toxin at one location for 30 years.

As part of the Phillips 66 Throughput Increase EIR (County 2012), the Applicant prepared and submitted a revised HRA utilizing 2010 emission data and assumptions about the operating characteristics of the SMR if it were to operate at the increased throughput levels. The revised HRA indicated that the highest cancer risks at the facility fence line would be 2.1 in a million, and that chronic and acute risks would be 0.02 and 0.38, respectively. These levels are less than the health risk thresholds of 10 in one million (for cancer) and 1.0 HI for acute and chronic impacts and would be less than significant. The main driver in the 2010 HRA was diesel particulate emissions associated with diesel engines at the SMR.

The Phillips 66 Throughput Project EIR also assessed the health risks associated with truck traffic to and from the SMR. Health risks were estimated at five to six cases per million along Highway 1 near Willow Road. Since the Throughput EIR was prepared, the Willow Road/Highway 101 interchange has been completed and the SMR traffic utilized that route instead of the Highway 1 route to the south. This would shift the health risks associated with the SMR truck traffic to along Willow Road instead of Highway 1 south of Willow Road.

Since the 2012 analysis, the OEHHA which produces the guidelines for conducting HRAs and the HARP model, released a report in 2015 which updated health risk exposure assessment methods related to HRAs to account for the increased sensitivity and breathing rates of children and younger adults. The report defined updated breathing rates on a per kilogram basis for children which caused an increase in health risk for children by over 2.7 times as much as the previous model. The OEHHA report also added an age sensitivity factor to account for children ranging in age from between three and 10. The report also adjusted the "fraction of time at home" value to be age dependent, although for children whose school is located within the one in a million risk level from a facility are assumed to be at home 100 percent of the time (OEHHA 2015). In combination, these adjustments caused the cancer risk estimates to increase substantially. A finalized HRA Guidance Document was released in early 2015 (OEHHA 2015) along with a revised version of the HARP modeling program (HARP2) which was used in an updated analysis in the Phillips 66 Rail Spur FEIR (County 2015). The OEHHA adjustments do not affect the acute and chronic risk assessments.

The Phillips 66 Rail Spur FEIR utilized the updated approach in 2015 and estimated the cancer risk to be 18.1 in a million at the nearest sensitive receptor (assuming a 30-year exposure duration, as per OEHHA Guidelines, and a Tier 1 assessment assuming all children under 16 years of age are at home 100 percent of the time as Lopez Continuation High School and the Mesa Middle School are located within the proposed Project one in a million cancer contour), which is above the SLOCAPCD threshold. This receptor is affected primarily by trucks entering and leaving the SMR. The SMR "facility only" cancer risk was estimated to be 0.6 in a million (County 2015).

SMR Historical Odor Emissions and Issues

Several historical activities at the SMR, including sulfur handling, combustion of sulfurous gases, and fugitive emissions from leaking components, could produce odors in the surrounding residential and industrial areas. The SMR was under an Abatement Order from 1989 to 1993 from the SLOCAPCD. As a result of that order, plant and process modifications were made to attempt to reduce emissions and odors. A fugitive emissions program implemented in 2007 reduced emissions from leaking components. The 2007 shutdown of the Calciner Plant also reduced the combustion and emissions of sulfurous gases.

The SLOCAPCD investigates and compiles odor complaints for the SMR. As indicated in the Phillips 66 Rail Spur Final EIR (County 2015), the SLOCAPCD historically recorded approximately 7.5 complaints per year prior to 2014. Records obtained from the SLOCAPCD from 2014 up until 2022 indicate an average of 19 odor complaints per year. Many of these are non-descript (no specific cause identified) and were not specifically identified as associated with a problem at the SMR, but SLOCAPCD records indicate meteorological conditions and odor type that could potentially indicate the SMR facility. In addition, the SMR has received, on average

since 2014, 0.7 SLOCAPCD notices of violation per year, for issues ranging from failure to submit appropriate plans, emissions levels that exceed permit values and fenceline monitoring issues.

4.3.2 Regulatory Setting

Federal, state, and local agencies have established standards and regulations that govern the Project. The following sections summarize the regulatory setting for air quality that applies to development within the local air basin.

4.3.2.1 Federal Regulations

The Clean Air Act of 1970 directs attainment and maintenance of the National Ambient Air Quality Standards (NAAQS). The 1990 Amendments to this Act included new provisions that address air pollutant emissions that affect local, regional, and global air quality. The United States Environmental Protection Agency (U.S. EPA) is responsible for implementing the Clean Air Act and establishing the NAAQS for criteria pollutants. The U.S. EPA periodically adopts revisions to the Ozone and Particulate Matter Standards in the Clean Air Act. These revisions included 8-hour ozone standards and particulate matter standards for $PM_{2.5}$.

Air Quality Management Plan
Under the provisions of the Clean Air Act, the U.S. EPA requires each state that has not attained the NAAQS to prepare an Air Quality Management Plan, which is a separate local plan detailing how to meet the federal standards. The governor of each state designates a local agency to prepare these plans, which are then incorporated into a State Implementation Plan.

Emission Standards for Non-Road Diesel Engines
To reduce emissions from non-road diesel equipment, the U.S. EPA established a series of increasingly strict emission standards for new non-road diesel engines. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006. Tier 3 standards were phased in from 2006 to 2008. Tier 4 standards were phased in from 2008 until 2015, and generally apply to all model years after 2014. These standards apply to construction equipment.

Federal Regulation of Locomotives
Section 213 of the Federal Clean Air Act directs U.S. EPA to adopt emissions standards applicable to new locomotives and new engines used in locomotives. U.S. EPA promulgated the regulation in 1998 (Title 40 Part 1033) with an update in 2008. The regulation establishes emission standards consisting of several tiers (Tier 0 through 4), applicable to remanufactured and new locomotives as specified in the Final EPA National Locomotive Rule, with the tiers being phased in over a number of years. Locomotive engines are required to meet the specific Tier level when they are either originally manufactured or are remanufactured. The Tier level is a function of the locomotive original manufacture date. The 2008 Revised regulation Tier levels are labeled a "+" (such as Tier 0+) to indicate the updated 2008 levels. For example, for a locomotive originally manufactured in 1995 and remanufactured in 2006, it would have to meet the Tier 0 standard. A locomotive originally manufactured in 2003 and remanufactured in 2011 would have to meet the Tier 1+ standard.

4.3.2.2 State Regulations

California Air Resources Board
The CARB has jurisdiction over all air pollutant sources in the state; it delegated responsibility for stationary sources to local air districts and retained authority over emissions from mobile sources. The County's local air district is the SLOCAPCD. The CARB established the California Ambient Air Quality Standards (CAAQS). Comparing the criteria pollutant concentrations in ambient air to the CAAQS determines state attainment status for criteria pollutants in a given region. The CARB, in partnership with local California air quality management districts, developed a pollutant-monitoring network to aid attainment of CAAQS. The network consists of numerous monitoring stations throughout California that monitor and report various pollutants' concentrations in ambient air.

California Clean Air Act
The California Clear Air Act (CCAA) went into effect on January 1, 1989, and was amended in 1992 (California Health and Safety Code, Division 26). The CCAA mandates achieving the health-based CAAQS at the earliest practical date.

Air Toxics "Hot Spots" Information and Assessment Act of 1987
The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) requires an inventory of air toxics emissions from individual facilities, an assessment of health risk, and notification of potential significant health risk (California Health & Safety Code, Division 26, Part 6).

California Diesel Fuel and Diesel Risk Reduction Plan Regulations
With the California Diesel Fuel Regulations, the CARB set sulfur limitations for diesel fuel sold in California for use in on-road and off-road motor vehicles. The rule initially excluded harbor craft and intrastate locomotives, but it later included them with a 2004 rule amendment. Under this rule, diesel fuel used in motor vehicles, except harbor craft and intrastate locomotives, has been limited to 500 ppm sulfur since 1993. This sulfur limit was later reduced to 15 ppm, effective September 1, 2006.

The CARB In-Use Off-Road Diesel Vehicle Regulation applies to in-use off-road diesel engines greater than 25 hp used in construction, mining, airport ground support, logging, and industrial equipment such as forklifts. The rule was amended several times in 2009 and 2010. The Off-Road regulation:

- Imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles;
- Requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System, DOORS) and labeled;
- Restricts the adding of older vehicles into fleets; and
- Requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (VDECS) (i.e., exhaust retrofits).

The requirements and compliance dates of the Off-Road regulation vary by fleet size.

California Asbestos Regulations
California Title 8 section 1529 addresses asbestos exposure in all construction work and includes items such as demolition and salvage, spill emergency procedures, transportation and storage, exposure assessments and monitoring, compliance methods, respiratory protection, and protective clothing.

California Solid Waste Handling Regulations
Title 14, section 17360 addresses nonhazardous petroleum contaminated soil operations and facilities regulatory requirements, including soil transfer operations, disposal facilities, etc.

CARB Portable Equipment Registration Program (PERP) 17 CCR 2450 et seq.
The Portable Equipment Registration Program allows owners or operators of portable engines and associated equipment 50 horsepower or greater, commonly used for construction or farming to register their units under a statewide portable program that allows them to operate their equipment throughout California without having to obtain individual permits from local air districts.

4.3.2.3 Local Regulations

Local regulations and guidance applicable to the Project are discussed below.

San Luis Obispo County Air Pollution Control District
In 1967, California passed legislation that placed the primary responsibility for controlling air pollution at the local level. In April 1970, the San Luis Obispo County Board of Supervisors formed the SLOCAPCD, which included a decision-making body known as the SLOCAPCD Board of Directors. Over the past 30+ years, the SLOCAPCD has adopted and implemented nearly 100 rules and currently has over 1,000 individual permits and agricultural registrations. In 1994, revisions to state law changed the composition of the Board of Directors to include all five County supervisors plus one city council member from each of the seven incorporated cities.

As part of the CCAA, the SLOCAPCD is required to develop a plan to achieve and maintain the state ozone standard by the earliest practicable date. To this end, the SLOCAPCD developed the Clean Air Plan (CAP). The latest CAP is dated 2001, adopted by the SLOCAPCD at a hearing on March 26, 2002, which addresses state requirements by updating the 1991 CAP (SLOCAPCD 2001). The 1991 CAP, adopted by the SLOCAPCD in 1992, contained a comprehensive set of control measures designed to reduce ozone precursor emissions from a wide variety of stationary and mobile sources. The 2001 CAP, similar to the 1998 CAP, is mainly a continuation of the 1995 CAP and proposed no new control measures.

Control measures proposed in the CAP include vapor recovery, solvent content reduction, improved fuel combustion, fuel switching or electrification, chemical or catalytic reduction, reduced vehicle use, and new source reviews.

The SLOCAPCD also issues annual reports that address issues such as air quality summaries for each year as well as air quality trends. The most recent air quality annual report is 2022 (SLOCAPCD 2023b).

The SLOCAPCD developed several rules that are potentially applicable to the Project, including:

- Rule 204 – Requirements (new source review);
- Rule 219 – Toxics new source review;
- Rule 401 – Visible emissions;
- Rule 402 – Nuisance;
- Rule 403 – Particulate matter emission standards;
- Rule 405 – Nitrogen oxides emission standards, limitations, and prohibitions;
- Rule 406 – Carbon monoxide emission standards and limitations;
- Rule 407 – Organic material emission standards;
- Rule 412 – Airborne toxic control measures;
- Rule 417 – Control of fugitive emissions of volatile organic compounds;
- Rule 419 – Petroleum pits, ponds, sumps, well cellars and wastewater separators;
- Rule 420 – Cutback asphalt paving materials;
- Rule 425 – Storage of volatile organic compounds;
- Rule 430 – Control of oxides of nitrogen from industrial, institutional, commercial boilers, steam generators, and process heaters;
- Rule 431 – Stationary internal combustion engines; and
- Rule 433 – Architectural coatings.

San Luis Obispo County General Plan Conservation and Open Space Element

The Conservation and Open Space Element (COSE) is a comprehensive long-range planning document that sets forth goals, policies, and actions to address the conservation and preservation of public services, air quality, vegetation and wildlife, mineral resources, and visual resources, historic and archaeological resources, and energy (County 2010). Applicable air quality policies include, but are not limited to:

- Policy AQ 1.2 Reduce vehicle miles traveled. Require projects subject to discretionary review to minimize additional vehicle travel;
- 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;
- Policy AQ 1.8 Support SLO Regional Rideshare. Support San Luis Obispo Regional Rideshare's Transportation Choices Programs that promote transportation alternatives by providing financial or other incentives to employers, employees, and commuters who develop Trip Reduction Plans and implement commute options;
- Policy AQ 3.2 Attain air quality standards. Attain or exceed federal or state ambient air quality standards (the more stringent if not the same) for measured criteria pollutants;
- Policy AQ 3.3 Avoid air pollution increases. Avoid a net increase in criteria air pollutant emissions in planning areas certified as Level of Severity II or III for Air Quality by the County's Resource Management System (RMS);

- Policy AQ 3.4 Toxic exposure. Minimize public exposure to toxic air contaminants, ozone, particulate matter, sulfur dioxide, carbon monoxide, nitrogen oxides, and lead;
- Policy AQ 3.7 Reduce vehicle idling. Encourage the reduction of heavy-vehicle idling throughout the county, particularly near schools, hospitals, senior care facilities, and areas prone to concentrations of people, including residential areas; and
- Policy AQ 3.8 Reduce dust emissions. Reduce PM_{10} and $PM_{2.5}$ emissions from unpaved and paved County roads to the maximum extent feasible.

San Luis Obispo Council of Governments 2019 Regional Transportation Plan and Sustainable Communities Strategy

The 2019 Regional Transportation Plan (RTP), which was adopted by the San Luis Obispo Council of Governments (SLOCOG) Board in June 2019, includes the region's Sustainable Communities Strategy (SCS) and outlines how the region will meet or exceed its GHG reduction targets by creating more compact, walkable, bike-friendly, and transit-oriented communities; preserving important habitat and agricultural areas; and promoting a variety of transportation demand management and system management tools and techniques to maximize the efficiency of the transportation network.

4.3.3 Thresholds of Significance

According to the SLOCAPCD CEQA Air Quality Handbook (SLOCAPCD 2023a), project impacts may be considered significant depending on the conclusion of the air quality analysis based on the following:

a. Comparison of predicted ambient criteria pollutant concentrations resulting from the project to state and federal health standards, when applicable.
b. Comparison of calculated project emissions to SLOCAPCD emission thresholds (both construction and operations).
c. The evaluation of special conditions, including toxic emissions, which apply to certain projects.
d. Consistency with the most recent Clean Air Plan for San Luis Obispo County.

The SLOCAPCD CEQA Air Quality Handbook defines thresholds for long-term operational emissions and short-term construction related emissions.

4.3.3.1 Comparison to State and Federal Health Standards

As per the SLOCAPCD CEQA Air Quality Handbook (SLOCAPCD 2023a) state and federal ambient air quality standards are established to protect public health and welfare from the adverse impacts of air pollution. Industrial and large commercial projects are sometimes required to perform air quality dispersion modeling if the SLOCAPCD determines that project emissions may have the potential to cause an exceedance of these standards. In such cases, models are used to

calculate the potential ground-level pollutant concentrations resulting from the project. The predicted pollutant levels are then compared to the applicable state and federal standards. A project is considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of any ambient air quality standard.

Generally, the more detailed air quality modeling to confirm compliance with threshold a) above is conducted if the threshold screening levels in threshold b) are substantially exceeded.

4.3.3.2 Operational Thresholds

Table 4.3.5 shows the threshold criteria established by the SLOCAPCD to determine a project's significance and appropriate mitigation level for long-term operational emissions (i.e., vehicular and area source emissions).

Table 4.3.5 SLOCAPCD Thresholds of Significance for Operational Emissions Impacts

Pollutant	Daily	Annual
ROG + NO_x	25 pounds	25 tons
Diesel Particulate Matter (DPM)	1.25 pounds	-
Fugitive Dust Particulate Matter (PM_{10})	25 pounds	25 tons
CO	550 pounds	-

Source: SLOCAPCD 2023a

Emissions that equal or exceed the designated threshold levels are considered potentially significant and shall be mitigated. For projects requiring air quality mitigation, the SLOCAPCD has developed a list of both standard and discretionary mitigation strategies tailored to the type of project proposed: residential, commercial, or industrial.

Generally, the SLOCAPCD utilizes thresholds to ensure that ambient air quality standards are not exceeded. However, industrial and large commercial projects that have high emissions above the thresholds and are in close proximity to receptors are sometimes required to perform air quality dispersion modeling if the SLOCAPCD determines that project emissions may have the potential to cause an exceedance of these standards.

Projects that exceed the SLOCAPCD's operational phase 25 ton/year threshold may be required to complete an Activity Management Plan (AMP). Applicants must work with the SLOCAPCD on the development of the AMP and the critical elements necessary for each individual project.

4.3.3.3 Construction Thresholds

Use of heavy equipment and earth-moving operations during Project construction generates fugitive dust and combustion emissions that may have substantial temporary impacts on local air quality. Fugitive dust emissions would result from land clearing, demolition, ground excavation, cut and fill operations, and equipment traffic over temporary roads. Combustion emissions, such as NO_x and ROG, are most significant when using diesel-fueled equipment, such as loaders,

dozers, haul trucks, compressors, and generators. Table 4.3.6 lists the SLOCAPCD construction thresholds.

Table 4.3.6 SLOCAPCD Thresholds of Significance for Construction Emissions Impacts

Pollutant	Daily	Quarterly Tier 1	Quarterly Tier 2
ROG + NO_x	137 pounds	2.5 tons	6.3 tons
Diesel Particulate Matter (DPM)	7 pounds	0.13 tons	0.32 tons
Fugitive Dust Particulate Matter (PM_{10})	-	2.5 tons	-

Source: SLOCAPCD 2012 and 2017

For construction projects, an exceedance of the 2.5 ton/quarter ROG + NO_x threshold requires Standard Mitigation Measures and Best Available Control Technology (BACT) for construction equipment. Off-site mitigation may be required if feasible mitigation measures are not implemented, or if no mitigation measures are feasible for the Project. For construction projects exceeding the 6.3 ton/quarter threshold, Standard Mitigation Measures, BACT, implementation of a Construction Activity Management Plan (CAMP), and off-site mitigation are required.

4.3.3.4 Special Conditions

Special conditions are defined in the 2012 SLOCAPCD CEQA Air Quality Handbook and associated 2017 Clarification Memo for construction as the following:

- Sensitive receptors: the proximity of sensitive individuals (receptors) to a construction site constitutes a special condition, and the handbook indicates that construction sites within 1,000 feet of sensitive receptors may require a more aggressive implementation of mitigation measures;
- Diesel idling restrictions: limits on diesel idling within 1,000 feet of sensitive receptors;
- Naturally Occurring Asbestos (NOA): requires the development of an Asbestos Dust Mitigation Plan for construction within areas that may contain NOA;
- Asbestos Material in Demolition: removal of materials that may contain asbestos shall have additional handling requirements;
- Development burning: prohibition on burning; and
- Special permits for some equipment.

Some of these construction-related special conditions are currently managed by federal, state, or local rules and regulations, such as diesel idling, handling of asbestos materials, etc.

For operational phases of the Project, special conditions described in the Handbook include:

- The potential to emit toxic pollutants (see discussion below);
- Emissions from agricultural operations;

- Fugitive dust emissions; and
- Nuisance Impacts (odor): if a project has the potential to cause an odor or other nuisance problem which could impact a considerable number of people, then it may be considered significant.

4.3.3.5 Air Toxic Health Risk Thresholds

SLOCAPCD Rule 219, Toxics New Source Review, defines acceptable levels of health risk for regulated sources. Rule 219 identifies significance thresholds as follows:

> *The facility-wide risk from any source shall not exceed ten (10.0) in a million for cancer or a health hazard index (HI) of one (1.0) for either chronic non-cancer or acute health impacts, unless that facility is included in the Air Toxics Hot Spots program by the District, and the source simultaneously develops and implements an APCO-approved airborne toxic risk reduction audit and plan, as codified in Chapter 6, Facility Toxic Air Contaminant Risk Reduction Audit and Plan, of the California Health and Safety Code.*

These thresholds are utilized to evaluate facility-wide risk following the implementation of Best Available Control Technology for Toxics (TBACT), which could include the use of cleaner diesel engines and implementing California verified diesel emission control strategies, such as the installation of catalysts. As per SLOCAPCD Rule 219, impacts are assessed at the "maximum exposed individual and the nearest receptor" with a receptor being a residence, school, health-care facility, or off-site worksite. Acute impacts are based on the off-site location where any member of the public has reasonable access (defined in this EIR as the SMR boundary). As per SLOCAPCD and the California Air Pollution Control Officers Association (CAPCOA) Guidance (CAPCOA 2009), for CEQA, the thresholds apply to all facilities including vehicle emissions, and road related emissions. Construction impacts are not addressed in the CAPCOA Guidelines; however, "*lead agencies under CEQA are required to identify health risk from construction activities or projects and mitigate if they are deemed significant*" (CAPCOA 2009). The OEHHA provides some guidance on conducting risk assessments for short-term projects (OEHHA 2015) and generally short-term projects lasting longer than two months should utilize the HRA tools provided by OEHHA for third trimester and later potential impacts.

4.3.3.6 Consistency with CAP

As per the SLOCAPCD, a CAP consistency analysis is generally required for a Program Level Environmental Impact Report (EIR), and may be necessary for a Project Level EIR, depending on the project being considered. Examples of projects and programs requiring a consistency analysis include: General Plan Updates and Amendments, Specific Plans, Area Plans, large residential developments, and large commercial or industrial developments.

The consistency analysis should evaluate the following questions:

- Are the population projections used in the plan or project equal to or less than those used in the CAP for the same area?
- Is the rate of increase in vehicle trips and miles traveled less than or equal to the rate of population growth for the same area?
- Have all applicable land use and transportation control measures (TCMs) from the CAP been included in the plan or project to the maximum extent feasible?

If the answer to all the above questions is yes, then the proposed project or plan is considered to be consistent with the CAP. If the answer to any one of the questions is no, then the emissions reductions projected in the CAP may not be achieved, which could delay or preclude attainment of the state ozone standard. This would be considered inconsistent with the CAP.

4.3.4 Impact Assessment Methodology

Air emissions are estimated utilizing computer models which incorporate a range of different inputs and emission factors. Generally, on-site construction emissions are estimated utilizing the CalEEMod computer model, which incorporates emission factors for equipment, on-site fugitive dust emissions, and emissions associated with employees commuting. Materials handling related to concrete/asphalt crushing is handled separately. In addition, the generation of waste materials to be hauled off site by train and truck are calculated separately from the CalEEMod model using the EMFAC emission factor model and spreadsheets to estimate emissions rates from on-road vehicles, the U.S. EPA for locomotive emission rates, and the AP-42 Compilation of Air Pollutant Emissions Factors to estimate fugitive dust from on-road vehicle travel. Project operational emissions are nominal and primarily related to only occasional vehicles commuting to the site and on site related to restoration monitoring, etc.

Toxic emission impacts are assessed utilizing a health risk approach utilizing the HARP2 model and short duration activities. Impacts for air emissions are short lived as they are almost entirely associated with construction emissions. The OEHHA guidance is used to assess health risks from short-term construction.

4.3.5 Project-Specific Impacts and Mitigation Measures

Compliance with the thresholds discussed above (Section 4.3.3) are addressed in this section. Threshold a) related to predicted ambient criteria pollutant concentrations associated with modeling of ambient concentrations associated with the Project emissions, was not conducted as the Project emissions levels are below the SLOCAPD thresholds and is therefore not addressed.

The primary emissions associated with the Project would be emitted by construction sources associated with the demolition and remediation activities as well as mobile sources associated with the transportation of materials. These would involve the following activities that would generate air emissions:

- Construction equipment associated with aboveground demolition;
- Construction equipment associated with belowground demolition and remediation;

- Fugitive dust from disturbed areas and vehicle travel both on-road and off-road;
- Fugitive dust from material crushing and loading and unloading of debris;
- Trucks to haul materials to/from the Project site; and
- Trains used to haul materials from the Project site.

Impacts associated with the air emissions from these activities are discussed below. GHG emissions associated with the Project are addressed in Section 4.8, Greenhouse Gas Emissions.

Impact #	Impact Description	Residual Impact
AQ.1	Threshold b): Would construction activities associated with the Project generate criteria pollutant emissions that exceed SLOCAPCD thresholds?	Class II

Air emissions from on-site construction activities were estimated using the emission factors and equations from the CalEEMod 2022.1.1.20 (online) software model, and the assumptions on the duration and personnel detailed in Chapter 2.0, Project Description. Appendix C includes details on the CalEEMod model inputs/outputs and construction equipment and periods of operation for each equipment piece.

Truck hauling emissions were calculated using emissions factors obtained from CARB emission factor computer module guidance (EMFAC2017) Version 1.0.2 and calculated separately from the CalEEMod model in spreadsheets. Fugitive dust emission factors from off-site paved roads are included in this analysis and are based on AP-42, Chapter 13.2.1.

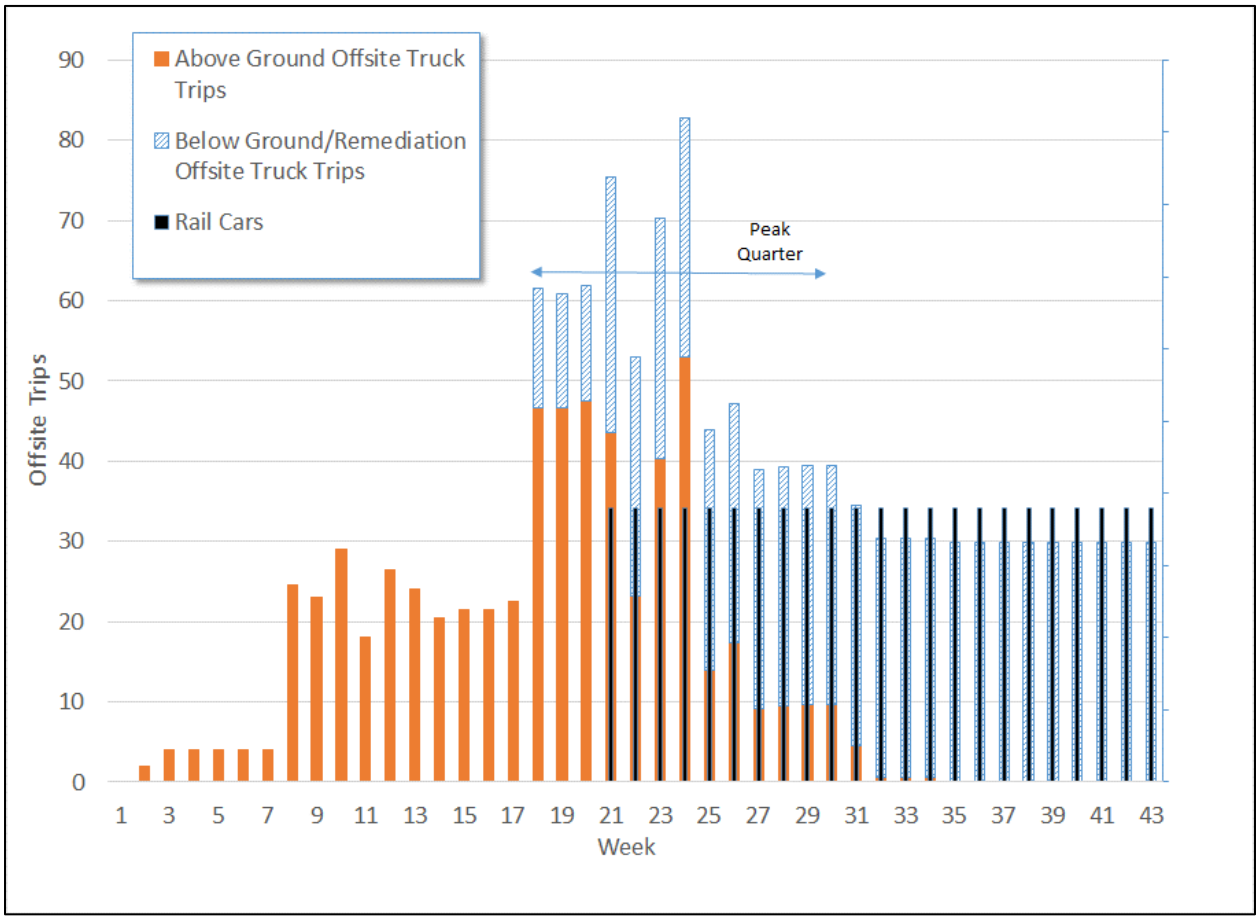
Rail emission factors are also calculated separately from the CalEEMod model in spreadsheets and are based on the EPA document Emission Factors for Locomotives (EPA-420-F-09-025).

Emission factors for fugitive dust from some sources, such as material crushing, which are not included in the CalEEMod model, are calculated separately and based on the EPA document AP 42, Table 11.19.2-2. Emission calculations are provided in Appendix C.

For the purpose of the air quality assessment, demolition and remediation activities were assumed to occur continuously over a period of approximately three years and to begin as early as 2025. A substantial amount of the remediation work will be completed in the first three years, and then remediation will likely continue, but at a lower intensity level, over additional years (potentially up to 10 years) to finalize remediation and site grading and restoration depending on sub-surface site conditions and detailed remediation and grading work plans. The quarter with the peak level of activity is estimated based on the equipment schedule in order to estimate maximum quarterly and daily emissions. This peak quarter was determined to occur during a period of overlapping aboveground and belowground demolition and remediation activities in Year 1. See Figure 4.3.6.

The anticipated maximum daily haul trips and commuter trips per month for the combined activities was also included in the analysis and, thus, represents a reasonable worst-case scenario for the purpose of estimating emissions from on-site equipment and personnel, on-site material staging, crushing, and loading, and off-site hauling by a combination of rail and truck.

Figure 4.3-6 Peak Weekly Trips (Rail and Truck)



Source: Applicant submittals

The overall duration of activity may be longer than this scenario, but the intensity of on-site work is not expected to be greater than the scenario illustrated.

The Applicant supplied information on the estimated volumes of materials generated and associated truck and rail activity by week during the first year of peak activity. These are presented in Appendix C.

The CalEEMod modeling arrangement assumes a single phase lasting one quarter, with equipment arrangements based on Chapter 2.0, Project Description, and the assumptions in the Applicant's Air Quality Report. It was conservatively assumed that a large range of equipment would be operating simultaneously during the peak quarter, including equipment from aboveground demolition (in the process equipment areas, for example) and belowground demolition (in the tank farm area for example) related to remediation (also in the tank farm area for example). Although changes to phasing could produce lower emissions (such as the assumptions in the Applicants Air Quality Report), this conservative approach estimates a reasonable worst case for emissions during the peak quarter.

CalEEMod inputs are summarized below:

- Wind Speed and Precipitation data used the County defaults;
- Climate Zone data used the County defaults;
- The utility was selected as Pacific Gas and Electric Company;
- Construction equipment listings and horsepower are based on equipment listings provided by the Applicant;
- Equipment load factors utilize the CalEEMod defaults;
- Fugitive dust use the CalEEMod defaults; and
- Mitigations for construction included watering exposed areas two times per day for fugitive dust control and is incorporated into the mitigated Project as per the CalEEMod model.

During construction, a large portion of PM_{10} emissions typically arises from large pieces of equipment and vehicles traveling on disturbed soil on site, unpaved surfaces, and various earth-moving activities, such as grading and clearing and the movement of materials to the rail loading area. The Applicant assumed a worst case of up to 200,500 cubic yards of remediated material would be moved on site, with additional material movement as per cut and fill needs (see Table 2.1). Dust emissions from material movement and vehicle movement are known as "fugitive dust" and depend heavily on the size of the graded area, volume of soil moved, the number of vehicles and construction machinery required, the duration of construction and the moisture levels/amount of watering occurring. The fugitive PM_{10} emissions are estimated based on a disturbed area as provided by the Applicant. Emission factors were used from CalEEMod program for soil moving and road dust.

On-site vehicle movements of remediated soil and materials removed during aboveground and belowground activities would be moved on site to the rail loading area or moved on site to be transported off site or moved on site to the crushing area. These on-site trips assume 50 percent travel on unpaved roads.

Table 4.3.7 shows the estimated emissions during the peak quarter and Table 4.3.8 shows the estimated emissions during the peak day. Peak daily and quarterly reactive organic gases plus oxides of nitrogen (ROG + NO_x), PM_{10}, and DPM emissions from demolition and remediation activities are shown in Table 4.3.9 compared to the SLOCAPCD thresholds for emissions that occur within the County. For emissions outside of the County that occur along truck and rail routes in other air districts, see Tables 4.3.10 and 4.3.11.

Table 4.3.7 Peak Quarter Emissions, Tons/Quarter, Unmitigated

Activity	Peak Quarter Emissions, tons/quarter						
	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_x	DPM
Demolition and Remediation							
Construction Equipment	2.37	0.22	0.08	0.07	1.53	0.03	0.08
Construction Fugitive Dust			9.43	0.95			
Total On-site	2.37	0.22	9.51	1.02	1.53	0.03	0.08

Table 4.3.7 Peak Quarter Emissions, Tons/Quarter, Unmitigated

Activity	Peak Quarter Emissions, tons/quarter						
	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_x	DPM
Off-site Hauling							
Off-site Hauling: Trucks	0.51	0.01	0.01	0.01	0.03	0.00	0.003
Off-site Hauling: Trucks Fugitive Dust			0.59	0.15			
Off-site Hauling: Rail	0.09	0.00	0.00	0.00	0.03	0.00	0.00
Total Off-site	0.60	0.01	0.61	0.15	0.06	0.00	0.01
Peak Quarter Total	***2.97***	***0.23***	***10.12***	***1.17***	***1.59***	***0.03***	***0.09***
Peak Quarter On-site, NO_x + ROG, tons	2.59						
Peak Quarter Off-site, NO_x + ROG, tons	0.61						
Peak Quarter Total NO_x + ROG, tons	3.20						
Peak Quarter Total Fugitive Dust On-site, tons	9.43						
Peak Quarter Total Fugitive Dust, tons	10.03						

Table 4.3.8 Daily Emissions, Pounds/Day, Unmitigated

Activity	Daily Emissions, pounds/day						
	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_x	DPM
Demolition and Remediation							
Construction Equipment, lbs	72.80	6.94	2.44	2.23	47.20	0.15	2.44
Construction Fugitive Dust, lbs			292.00	29.40			
Total On-site, lbs	72.80	6.94	294.44	31.63	47.20	0.15	2.44
Off-site Hauling							
Off-site Hauling: Trucks, lbs	46.07	0.61	0.99	0.49	2.61	0.09	0.27
Off-site Hauling: Trucks Fugitive Dust, lbs			52.62	12.92			
Off-site Hauling: Rail, lbs	3.96	0.15	0.09	0.08	1.43	0.01	0.09
Total Off-site, lbs	50.03	0.76	53.70	13.49	4.04	0.09	0.36
Daily Total, lbs	***122.83***	***7.70***	***348.14***	***45.12***	***51.24***	***0.24***	***2.80***
Peak Daily On-site, NO_x + ROG, lbs	79.74						
Peak Daily Off-site, NO_x + ROG, lbs	50.79						
Peak Daily, NO_x + ROG, lbs	130.53						

Notes: Daily emissions of fugitive dust is not utilized for thresholds; only the quarterly emissions are used in the thresholds, so it is not shown in this table which only shows daily summary

Table 4.3.9 Project Construction Emissions and SLOCAPCD Thresholds, Unmitigated

Pollutant	SLOCAPCD Thresholds			Project Construction Only		Baseline		Project Construction Change Over Baseline	
	Daily lbs	Quarterly		Daily lbs	Qrtly tons	Daily lbs	Qrtly tons	Daily lbs	Qrtly tons
		Tier 1 tons	Tier 2 tons						
ROG + NO_x	137	2.5	6.3	130.53	3.20	586	26.2	-455	-23.0
Diesel Particulate Matter	7.0	0.13	0.32	2.80	0.09	1.32	0.05	1.47	0.03
Particulate Matter (PM_{10})	-	2.5	-	-	10.03/ 9.43*	-	6.38/ 0.12*	-	3.65/ 9.31*

Notes: * Total on-site plus off-site/on-site only.
Source is CalEEMod. See Appendix C for CalEEMod output files and more detailed calculations. Applicant report with modifications. See Appendix C for calculations.

The analysis demonstrates that emissions from Project construction activities as comparted with historical emissions would not exceed the SLOCAPCD thresholds for the daily or quarterly emissions of NO_x and ROG, or the daily or quarterly emissions of DPM. The historical operations emissions of the refinery produced larger amounts of NO_x and ROG on average, and therefore there would be a net reduction in these emissions associated with the Project.

There would be a potential exceedance of the construction thresholds for fugitive dust emissions in the unmitigated scenario due primarily to the earth movement and vehicle travel on dirt roads at the site, which exceeds the historical levels of fugitive dust emissions. The historical operations at the SMR did not generate large amounts of on-site fugitive dust as most of the fugitive dust was generated from off-site vehicle travel. Note that these levels listed in the above tables do not include any measures to control dust levels.

"On-site only" fugitive dust is not specifically delineated as a threshold by the SLOCAPCD; the SLOCAPCD thresholds are for both on-site and off-site emissions of fugitive dust combined. However, as the Nipomo Mesa experiences periods of fugitive dust that are severe, the potential contribution of the Project to these dust levels is a potential issue. As there is an increase in on-site fugitive dust emissions on site and the area is very susceptible to dust impact historically, given the correct conditions, construction on-site dust emissions could produce a significant impact. Therefore, mitigation measures have been included below.

Emissions in other air districts associated with truck and rail travel through those respective districts would also be below their respective CEQA thresholds (Table 4.3.10) for construction (where applicable) except for the South Coast Air Quality Management District (SCAQMD). However, as the historical SMR operations entailed a peak day travel of rail transportation through the SCAQMD, the net increase in SCAQMD emissions would be below the SCAQMD thresholds, and impacts would therefore be less than significant in the SCAQMD (See Appendix C).

Table 4.3.10 Air District Thresholds

Air District	Units	NO_x	ROG/VOC	PM_{10}	$PM_{2.5}$	CO	SO_x
SBCAPCD	ton/year	25	25	-	-	-	-
SCAQMD	lb/day	100	75	150	55	550	150
SJVAPCD	ton/year	10	10	15	15	100	27
VCAPCD	lb/day	-	-	-	-	-	-
MDAQMD	ton/year	25	25	15	12	100	25

Note: SBCAPCD = Santa Barbara County APCD; SCAQMD= South Coast Air Quality Management District; SJVAPCD = San Joaquin Valley APCD; VCAPCD = Ventura County APCD; MDAQMD = Mojave Desert Air Quality Management District.
Source: respective APCD/AQMD CEQA guidelines and Applicant air quality report (see Appendix C).

Table 4.3.11 Construction Only Emissions in Other Air Districts: Mobile Emissions

Air District	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_x	Significant (exceeds thresholds above)?
Ton/year							
SBCAPCD	9.93	0.35	0.80	0.20	3.41	0.01	No
SJVAPCD	0.32	0.00	0.36	0.00	0.02	0.00	No
VCAPCD	4.96	0.18	0.25	0.10	1.75	0.01	NA
MDAQMD	16.84	0.62	0.36	0.35	6.06	0.02	No
Pounds/day							
SCAQMD	108.8	3.9	7.3	2.2	37.9	0.1	Yes for NO_x

Note these emissions do not include historical emissions out-of-County.
Source: Applicant air quality report (see Appendix C). Ventura County ACPD does not have construction thresholds.

Valley fever is also a potential threat to workers and off-site areas if construction dust is not controlled. Measures below addressing dust emissions and potential exposure would minimize potential impacts.

During grading or demolition, hydrocarbon contaminated soils would also be encountered, and special handling of these soils would reduce potential exposure of the public. See Section 4.9, Hazards and Hazardous Materials, for a discussion of hydrocarbon-contaminated material handling and asbestos handling.

Mitigation measures for larger construction projects and as recommended by the SLOCAPCD to control fugitive dust emissions are associated with measures such as site watering, vehicle speed limits, maintaining minimum soil moisture, etc. A number of these measures are already proposed by the Applicant and have been incorporated into the measures below.

Mitigation Measures

AQ.1-1 ***Demolition & Remediation Activity Management Plan (DRAMP):*** *The Applicant shall prepare a Demolition & Remediation Activity Management Plan (DRAMP) to be approved by the SLOCAPCD, and County Planning and Building, and include*

requirements in the SLOCAPCD CEQA Handbook identified as fugitive dust mitigation measures:

1. *Reduce the amount of the disturbed area where possible.*

2. *Use of water trucks or sprinkler systems, in sufficient quantities to prevent airborne dust from leaving the site and from exceeding the SLOCAPCD's limit of 20 percent opacity for greater than three minutes in any 60-minute period. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible. Please note that when water use may be a concern due to drought conditions, the contractor or builder should consider use of a dust suppressant that is effective for the specific site conditions to reduce the amount of water used for dust control. Please refer to SLOCAPCD for a list of potential dust suppressants.*

3. *All dirt stockpile areas should be sprayed daily and covered with tarps or other dust barriers as needed.*

4. *All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible, and building pads should be laid as soon as possible after grading unless seeding or soil binders are used;*

5. *All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) or otherwise comply with California Vehicle Code (CVC) Section 23114;*

6. *"Track-Out" is defined as sand or soil that adheres to and/or agglomerates on the exterior surfaces of motor vehicles and/or equipment (including tires) that may then fall onto any highway or street as described in CVC Section 23113 and California Water Code 13304. To prevent 'track out', designate access points and require all employees, subcontractors, and others to use them. Install and operate a 'track-out prevention device' where vehicles enter and exit unpaved roads onto paved streets. The 'track-out prevention device' can be any device or combination of devices that are effective at preventing track out, located at the point of intersection of an unpaved area and a paved road. Rumble strips or steel plate devices need periodic cleaning to be effective. If paved roadways accumulate tracked out soils, the track-out prevention device may need to be modified;*

7. *All fugitive dust mitigation measures shall be shown on grading and building plans;*

8. *In support of SLOCAPCD standard fugitive dust mitigation measures, the Applicant shall designate a Visible Emission Evaluation certified person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize nuisance violations from dust complaints (Rule 402) and to reduce visible emissions below the SLOCAPCD's limit of 20 percent opacity (Rule 401) for greater than 3 minutes in any 60-minute period. Their duties shall include holidays and weekend periods when work may not be in progress. The*

name and telephone number of such persons shall be provided to the SLOCAPCD Engineering & Compliance Division, and reproduced on all permit plans submitted to the County, prior to the start of any grading, earthwork, or demolition;

9. *Permanent dust control measures identified in the approved Project revegetation and landscape plans should be implemented as soon as possible, following completion of any soil disturbing activities;*

10. *Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading should be sown with a fast germinating, non-invasive grass seed and watered until vegetation is established;*

11. *All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the SLOCAPCD;*

12. *Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site;*

13. *Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers shall be used with reclaimed water where feasible. Roads shall be pre-wetted prior to sweeping when feasible;*

14. *Construction activities that will generate dust shall be limited to periods when air quality based on PM_{10} only is rated as good. If the forecast falls out of the "good" rating, activities that will generate dust can continue if the PM_{10} emissions from those activities are effectively managed under a PM_{10} mitigation agreement between APCD and Phillips 66 that includes upwind and downwind monitoring information (see item 19 below). The 6-day forecast for the CDF forecast zone is available from the SLOCAPCD website, https://www.slocleanair.org/air-quality/air-forecasting-map.php. This information should be used by all on-site workers to plan demolition and remediation activities;*

15. *Provide training to all site workers regarding dust control policies and practices and maintain records of training;*

16. *Take additional measures as needed to ensure dust from the Project site is not impacting areas outside the Project boundary;*

17. *Between June 1 and November 30, when Valley fever rates of infection are the highest, additional dust suppression measures (such as additional water or the application of additional soil stabilizer) shall be implemented prior to and immediately following ground disturbing activities if wind speeds exceed 15 miles per hour (mph) or temperatures exceed 95 degrees Fahrenheit for three consecutive days. The additional dust suppression will continue until winds are 10 mph or lower and outdoor air temperatures are below 90 degrees for at least two consecutive days. The additional dust suppression measures will be incorporated into the Final*

Dust Control Plan. The Plan shall be submitted to County Public Health and County Department of Planning and Building for review and approval;

18. *The primary Project construction contractor will prepare and implement a worker training program that describes potential health hazards associated with Valley fever, common symptoms, proper safety procedures to minimize health hazards, and notification procedures if suspected work-related symptoms are identified during construction. The worker training program will identify safety measures to be implemented by construction contractors during construction. Safety measures shall include: 1) Providing HEPA-filtered air-conditioned enclosed cabs where applicable on heavy equipment; 2) Train workers on proper use of cabs, such as turning on air conditioning prior to using the equipment; 3) Providing communication methods, such as two-way radios, for use by workers in enclosed cabs; 4) Providing personal protective equipment (PPE), such as half-mask and/or full-mask respirators equipped with particulate filtration, to workers active in dusty work areas; 5) Providing separate, clean eating areas with hand-washing facilities for construction workers; 6) Cleaning equipment, vehicles, and other items before they are moved off site to other work locations; 7) Providing training for construction workers so they can recognize the symptoms of Valley fever and promptly report suspected symptoms of work-related Valley fever to a supervisor; and 8) Directing workers that exhibit Valley fever symptoms to immediately seek a medical evaluation; and*

19. *The operator shall enter into a PM_{10} mitigation agreement with the SLOCAPCD to operate particulate air monitoring stations to measure $PM_{2.5}$ and PM_{10} concentrations upwind (between the Oceano Dunes State Recreational Vehicle Area (ODSVRA) and the Project's demolition/remediation activities) and downwind of proposed construction areas. Air monitoring shall be installed with sufficient time before construction starts to enable measurement of baseline conditions and to establish performance criteria sufficient to limit potential equipment emissions and fugitive dust impacts from the Project on area residences. Performance criteria, air quality mitigation measures and operating characteristics of the system shall be in the Demolition and Remediation Activity Management Plan.*

Submittal Timing: *Prior to County permit issuance.* ***Approval Trigger:*** *Issuance of County permit* ***Responsible Party:*** *The Applicant or designee.* ***What is required:*** *Approved Demolition & Remediation Activity Management Plan (DRAMP).* ***To whom it is submitted and approved by:*** *SLOCAPCD, County Public Health, and County Department of Planning and Building.*

Residual Impacts

See Tables 4.3.12 and 4.3.13 for peak quarterly and daily emissions estimates with mitigation and Table 4.3.14 for a comparison to the SLOCAPCD thresholds.

Table 4.3.12 Peak Quarter Emissions, Tons/Quarter MITIGATED

Activity	Peak Quarter, tons/quarter						
	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_x	DPM
Demolition and Remediation							
Construction Equipment	1.82	0.11	0.03	0.02	2.80	0.03	0.03
Construction Fugitive Dust			0.94	0.10			
Total On-site	1.82	0.11	0.97	0.12	2.80	0.03	0.03
Off-site Hauling							
Off-site Hauling: Trucks	0.51	0.01	0.01	0.01	0.03	0.00	0.00
Off-site Hauling: Trucks Fugitive Dust			0.59	0.15			
Off-site Hauling: Rail	0.09	0.00	0.00	0.00	0.03	0.00	0.00
Total Off-site	0.60	0.01	0.61	0.15	0.06	0.00	0.01
Peak Quarter Total, tons	***2.42***	***0.12***	***1.58***	***0.27***	***2.86***	***0.03***	***0.04***
Peak Quarter On-site, NO_x + ROG, tons	1.93						
Peak Quarter Off-site, NO_x + ROG, tons	0.61						
Peak Quarter Total NO_x + ROG, tons	2.54						
Peak Quarter Total Fugitive Dust On-site, tons	0.94						
Peak Quarter Total Fugitive Dust, tons	1.54						

Source: Applicant submittals with modifications. See Appendix C

Emissions levels of fugitive dust with the mitigation measures would be below the thresholds. Fugitive dust emissions from only on-site sources are considered a potential impact on the Nipomo Mesa due to historical issues related to dust (see Section 4.3.1.2). These mitigation measures are effective in combating dust issues, producing reductions of 55–84 percent based on CalEEMod mitigation effectiveness for each measure. The application of the mitigation in the CalEEMod model indicates that peak quarter fugitive dust emissions would be reduced substantially, and on-site only fugitive dust emissions would also be below the thresholds. Therefore, impacts would be **less than significant with mitigation (Class II).**

Please note that there are land use issues related to generating dust emissions during construction on the Nipomo Mesa that have not been addressed in this section. Although the Project, in combination with baseline or on-site-only emissions of fugitive dust, are below the SLOCAPCD thresholds for quarterly emissions, the General Plan indicates that any net increase of fugitive dust on the Nipomo Mesa is not allowed. This is discussed further in Section 4.11, Land Use and Planning.

Table 4.3.13 Daily Emissions, Pounds/Day MITIGATED

Activity	Daily Emissions, pounds/day						
	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_x	DPM
Demolition and Remediation							
Construction Equipment, lbs	55.60	3.26	0.82	0.77	86.40	0.16	0.82
Construction Fugitive Dust, lbs			29.20	3.15			
Total On-site, lbs	55.60	3.26	30.02	3.92	86.40	0.16	0.82
Off-site Hauling							
Off-site Hauling: Trucks, lbs	46.07	0.61	0.99	0.49	2.61	0.09	0.27
Off-site Hauling: Trucks Fugitive Dust, lbs			52.62	12.92			
Off-site Hauling: Rail, lbs	3.96	0.15	0.09	0.08	1.43	0.01	0.09
Total Off-site, lbs	50.03	0.76	53.70	13.49	4.04	0.09	0.36
Total, On-site plus Off-site, lbs	105.63	4.02	83.72	17.41	90.44	0.25	1.18
Peak Daily On-site, NO_x + ROG, lbs	58.86						
Peak Daily Off-site, NO_x + ROG, lbs	50.79						
Peak Daily, NO_x + ROG, lbs	109.65						

Notes: Daily fugitive dust is not utilized for thresholds: only the quarterly is used, so it is not shown in the daily summary. Also includes the use of Tier 4 engines as part of mitigation under impact AQ.3.
Source: Applicant submittals with modifications. See Appendix C

Table 4.3.14 Project Construction Emission Thresholds within the County Summary MITIGATED

Pollutant	SLOCAPCD Thresholds			Project Construction Only		Project Construction Change Over Baseline	
	Daily Pounds	Quarterly		Daily, pounds	Quarterly, tons	Daily, pounds	Quarterly, tons
		Tier 1 tons	Tier 2 tons				
ROG + NO_x	137	2.5	6.3	109.65	2.54	-476	-23.6
Diesel Particulate Matter	7.0	0.13	0.32	1.18	0.04	-0.15	-0.02
Fugitive Dust Particulate Matter (PM_{10})	-	2.5	-	-	1.54/0.94*	-	-4.84/ 0.82*

Notes: * Total on-site plus off-site/on-site only.
Source is CalEEMod. See Appendix C for CalEEMod output files and more detailed calculations. Applicant report with modifications.

Impact #	Impact Description	Residual Impact
AQ.2	Threshold b): Would operational activities associated with the Project generate criteria pollutant emissions that exceed SLOCAPCD thresholds?	Class III

Although continued remediation monitoring is part of the construction Project, it could be considered operations as it would continue for a number of years. Operational activities at the Project site would be the activities associated with the long-term remediation and vegetation monitoring and site management, which would entail the use of pickup trucks visiting the site, potentially multiple times per week. The use of pickup trucks a few times per week on site generates less than one pound/day of NO_x + ROG, PM_{10}, and DPM. Impacts would be **less than significant (Class III).**

The reduction in air emissions from the elimination of the SMR would be a beneficial impact over the long term (after construction is completed).

Impact #	Impact Description	Residual Impact
AQ.3	Threshold c): Would activities associated with the Project generate toxic emissions that exceed SLOCAPCD thresholds?	Class II

Construction activities would produce emissions of toxic materials from primarily diesel combustion sources containing DPM and fugitive dust. As part of the EIR analysis a health risk assessment (HRA), utilizing the HARP2 (version 22118) modeling program, was conducted to estimate the impacts of the on-site diesel emissions and fugitive dust generation on nearby areas and residential parcels. The HARP2 model is a health risk assessment model and is recommended in CAPCOA HRA Guidelines (CAPCOA 2009) for Land Use projects (mentioned in the SLOCAPCD CEQA Handbook).

Generally, detailed risk assessments are conducted for long-term operational activities that generate toxic emissions. However, although the CAPCOA document does not provide a methodology for construction projects, it indicates that:

> *lead agencies under CEQA are required to identify health risk from construction activities or projects and mitigate if they are deemed significant*.

OEHHA also indicates that:

> *local air pollution control districts sometimes use the risk assessment guidelines for the* Hot *Spots program in permitting decisions for short-term projects such as construction* (OEHHA 2015).

and the OEHAA provides guidance for the cancer risk evaluation for short-term projects. The OEHHA's evaluation of the impact of early-in-life exposure is recommended for use of the evaluation of short-term projects. OEHHA indicates that:

> *Exposure from projects lasting more than 6 months should be evaluated for the duration of the project. In all cases, for assessing risk to residential receptors, the exposure should be assumed to start in the third trimester … (OEHHA, 2009). Thus, for example, if the District is evaluating a proposed 5-year mitigation project at a hazardous waste site, the cancer risks for the residents would be calculated based on exposures starting in the third trimester through the first five years of life.*

The HARP2 model allows for the evaluation of exposures of shorter duration than the standard 30 years. Therefore, the HARP2 model was utilized to assess the potential for cancer, chronic and acute impacts from the on-site construction activities on nearby receptors over the three-year peak construction activity period.

Assumptions made in the HRA include the following:

- Use of regulatory default options in the dispersion modeling;
- Use of an area source for all construction activity at the site; and
- Receptors located at a spacing of 100 meters out to 6 km as well as all residential parcels within approximately one mile of the site.

The HRA was prepared in accordance with the methodology in Health Risk Assessments for Proposed Land Use Projects (CAPCOA 2009) and the OEHHA guidance (OEHHA 2015). The estimation of cancer risk levels is based upon a person being exposed to the air toxin at one location from the third trimester of pregnancy through the third year of life. See Appendix C for details on the modeling assumptions.

Meteorological data utilized were from the Nipomo station for five years (2008–2012) obtained from the SLOCAPCD as part of the previous Rail Spur Project EIR (County 2015). This data was processed specific to the Mesa area and is still considered applicable as the use of any years of meteorological data in modeling is acceptable as long as the years are somewhat contiguous.

Cancer risk was evaluated by examining DPM pollutant emissions and fugitive dust sources. Health risks associated with the acute and chronic non-cancer risks are adverse health effects evaluated by comparing the contaminant concentration of each compound with the appropriate Reference Exposure Level (REL), performed by the HARP2 model.

For diesel trucks entering and leaving the facility, as they are a part of the current/baseline conditions and would not increase over the baseline analysis, trucks were not included in the analysis as they would present the same or lower health risks than the baseline operations.

Rail emissions, however, might increase over the baseline. Rail emissions along the mainline route might be similar to historical levels as the rail cars would be added to existing trains (up to eight rail cars per train), and therefore the incremental increase in risk would be nominal. However, as a worst case, the Rail Spur EIR examined the potential cancer risks for additional trains along rail routes and concluded that, with 260 trains per year, impacts could be potentially significant for areas when trains travel at low speeds. As this Project would generate fewer than 260 trains per year, and would not last more than a year or so with peak train transport (the Rail Spur EIR

assumed 260 trains per year continuously), and with the utilization of existing trains, the impacts of train activity on health risk would be less than significant. However, rail emissions within one mile of the SMR were included in the on-site health risk analysis.

DPM impacts for cancer and chronic emissions utilized the OEHHA assessments for DPM included in the HARP2 model. For acute impacts, the DPM was speciated and the HARP2 model was run separately for the acute impacts to address the potential acute impacts from DPM (OEHHA does not have a reference exposure level for acute DPM exposure).

Fugitive dust emissions utilized the CARB speciation profiles for unpaved road dust and the PM_{10}/PM_{30} ratios (CARB 2023b) to speciate the fugitive dust in the model.

The results from the HARP2 model are shown in Table 4.3.15 associated with the construction Project over three years. As the fugitive dust levels are quite high without any mitigation, cancer and chronic risks are above the thresholds for the unmitigated case. Acute risks would be below the threshold hazard index (HI) along the SMR fence line.

Table 4.3.15 Health Risk Assessment Results

Results	Cancer	Chronic	Acute
Project Unmitigated	10.99	0.71	0.45
Project Mitigated	2.82	0.11	0.07

Notes: Results using HARP2 version 22118, mitigated case assumes fugitive dust mitigation and the use of Tier 4 construction equipment. Cancer and chronic at the highest sensitive receptor (residence receptor 12706). Acute impacts are the highest along the entire SMR fence line.
Source: See Appendix C for more details.

Project construction cancer risk from on-site activities would increase over the SMR historical operations by more than the threshold and therefore could be a potentially significant impact.

Mitigation measures for larger construction projects and as recommended by the SLOCAPCD to control DPM and fugitive dust emissions (see mitigation measure AQ.1-1 above for mitigation of fugitive dust) are associated with measures such as the use of cleaner construction equipment (Tier 4) and watering and soil stabilizer methods to reduce fugitive dust emissions. The measure for construction equipment is listed below.

Mitigation Measures

AQ.3-1 ***Clean Construction Equipment:*** *The Applicant shall ensure that all grading and construction equipment greater than 100 bhp be Tier 4 interim or equipped with CARB Level 3 diesel particulate filters (DPF), or equivalent, to achieve an 85 percent reduction in diesel particulate emissions from an uncontrolled engine. Stickers shall be adhered to equipment that demonstrates compliance.*

Submittal Timing: *Prior to County permit issuance.* ***Approval Trigger:*** *Issuance of County permit* ***Responsible Party:*** *The Applicant or designee.* ***What is required:*** *Submittal of documentation evidence of construction equipment CARB certification.* ***To whom it is submitted and approved by:*** *SLOCAPCD and County Department of Planning and Building.*

Residual Impacts

Methods recommended to control DPM emissions are very effective in reducing DPM emissions and impacts, with CalEEMod demonstrating that use of the mitigation provides a substantial reduction in DPM emissions. Most construction equipment is in the process of being converted to the cleaner diesel fleet requirements as part of California regulations and cleaner, Tier 4 equipment is reasonably available throughout California. Studies by the SCAQMD (SCAQMD 2023) indicate that a 2021 inventory of construction equipment shows that while many Tier 0 to Tier 3 engines are still in use, Tier 4 engines are readily available comprising the largest group of equipment in use. The availability of Tier 4 engines is prevalent (the largest category) for engine categories in all horsepower ranges, indicating a high degree of availability. The CalEEMod model shows that DPM emissions would be reduced, due to the prevalence of Tier 4 equipment being used today, by about 65 percent, with cancer risk reduced as shown in Table 4.3.15. In addition, the large reduction in fugitive dust associated with mitigation measure AQ.1-1 also substantially reduces risks. With the use of cleaner construction equipment and fugitive dust measures, cancer and chronic risks would be reduced below the thresholds and impacts would be **less than significant with mitigation (Class II).**

The reduction in toxic pollutant emissions from the elimination of the SMR would be a beneficial impact over the long term (after construction is completed).

Impact #	Impact Description	Residual Impact
AQ.4	Threshold d): Would activities associated with the Project generate odors?	Class II

Sources of odors from the SMR would be related to emissions of hydrocarbons, hydrogen sulfide, and emissions of diesel exhaust. Emissions of fugitive hydrocarbons from the Project would be substantially less than that from the historical operations at the SMR. As the SMR equipment to be removed with demolition would have been cleaned and purged prior to the start of Project construction, minimal remaining hydrocarbons or sulfur compounds would exist within equipment to be removed as part of the above/belowground demolition efforts. However, if some equipment is not purged prior to removal or purging missed some areas, then potential impacts could occur.

As fugitive emissions would be substantially reduced over the historical operations, and minimal inventory of hydrocarbons are anticipated in any equipment to be removed, potential odor issues would be reduced over the baseline activities and impacts from hydrocarbon or sulfur odors would be less than significant. The reduction in potential odors issues from the elimination of the SMR would be a beneficial impact over the long term.

Odors could also result from accidents (spills of oils and construction diesel) or the movement of contaminated soils. As contaminated soils handling impacts would be mitigated through mitigation measure HAZ.1-1 (Section 4.9, Hazards and Hazardous Materials), odor impacts would be managed, and impacts would be less than significant. Impacts related to on-site spills would be addressed through mitigation measure HAZ.2-1. Additional odors may be generated from purging or other issues. These could generate potentially significant impacts.

Mitigation Measures

AQ.4-1 ***Odor Control and Purging Plan:*** *The Applicant shall submit an Odor Control and Purging Plan that includes the use of degassing systems for equipment and pipeline purging operations that may be required and includes proactive measures to eliminate or reduce objectionable odors emanating from demolition and remediation activities, and an action plan if odor issues or complaints arise.*

Submittal Timing: *Prior to County permit issuance.* ***Approval Trigger:*** *Issuance of County permit.* ***Responsible Party:*** *The Applicant or designee.* ***What is required:*** *Odor Control and Purging Plan.* ***To whom it is submitted and approved by:*** *SLOCAPCD and County Department of Planning and Building.*

Residual Impacts

A release of odors, from contaminated materials, pipeline purging and equipment removal activities, could occur during demolition and remediation but would be managed through SLOCAPCD-approved Odor Control and Purging Plan. Therefore, potential impacts from odors would be **less than significant with mitigation (Class II).**

Impact #	Impact Description	Residual Impact
AQ.5	Threshold d): Would Project air emissions be consistent with the adopted Air Quality Plans?	Class II

As part of the planning process, Air Pollution Control Districts make assumptions about future growth. Projects also need to have been considered in the Clean Air Plan growth projections for cumulative impacts to be considered insignificant. Consistency with the Clean Air Plan, for the projects subject to these guidelines, means that stationary source and vehicle emissions associated with the Project are accounted for in the Clean Air Plan's emissions growth assumptions. As this Project would involve the demolition of one of the largest sources of criteria pollutants in the County, it would be consistent with the planning efforts. However, if the scope of the Project changes, the SLOCAPCD should be aware of the changes and make appropriate actions to ensure compliance.

Mitigation Measures

AQ.5-1 ***Recordkeeping:*** *The operator shall submit a plan and schedule for monitoring and reporting on, and maintain records on, 1) the fuel usage on a quarterly basis, for construction equipment; 2) the truck trips, type of trucks (Tier level) and associated destinations/sources of trucks; 3) train deliveries and number of railcars; and 4) any other metrics required to estimate emissions associated with this EIR. The operator shall compare associated emissions with those calculated in this EIR for a period defined by the SLOCAPCD, but not less than three years. Upon approval of the Plan and Schedule, the operator shall, for not less than three years, conduct monitoring and keep records of the fuel usage, vehicle trips and other metrics used to prepare the reports, and shall submit reports quarterly to SLOCAPCD and County Department of Planning and Building. The records supporting the quarterly reports shall be retained*

on site until the Project is completed and made available to SLOCAPCD or County personnel upon request.

Submittal Timing: *Prior to any permit issuance.* ***Approval Trigger:*** *Issuance of permit* ***Responsible Party:*** *The Applicant or designee.* ***What is required:*** *Air Quality Monitoring and Reporting Plan.* ***To whom it is submitted and approved by:*** *SLOCAPCD and County Department of Planning and Building.*

Residual Impacts
Impacts would be **less than significant with mitigation (Class II).**

4.3.6 Mitigation Measure Impacts to Other Issue Areas

The mitigation measures above would involve the use of water and cleaner construction equipment. The use of cleaner construction equipment would not have any impact on other issue areas as operation of the equipment would be identical to other, less clean equipment, except for the air quality benefits. The water used as part of the fugitive dust control could total approximately 40,000 gallons per day, assuming a dust control application rate of 0.33 gallons/yd^2 (as per Mojave 2000 to achieve 75 percent control on a busy unpaved roadway) and application on 10 percent of the site area daily. Historical water use at the SMR has averaged 982,000 gallons per day (see Chapter 2.0, Project Description). Therefore, water use would be less than four percent of historical water use and would not have a significant impact.

4.3.7 Cumulative Impacts

Cumulative projects are discussed in Chapter 3.0, Cumulative Study Area and below.

Ongoing SMR projects, including the Slop Oil Spill and the Northern Inactive Waste Site (NIWS) remediation projects and the remaining facilities off-site projects (Summit Pump Station and Santa Maria Pump Station), would continue remediation efforts and would not have a cumulative impact for air emissions as they do not generate significant air emissions.

Other projects in the area, such as the Arroyo Grande Oil Field, the Caballero Battery project or the Dana Reserve projects, or the Santa Barbara County projects, would entail development in the area and could contribute to increases in air emissions in the area, from construction, operations, or both. However, none of these projects are located in close proximity to the SMR site (within 1 km) and would therefore not generate overlapping health risks, and these other projects would be required to comply with the SLOCAPCD CEQA requirements, through requirements in the region to mitigate the emissions increases if above the thresholds. The Project also complies with the SLOCAPCD CEQA requirements by being below the thresholds. Therefore, a cumulative impact would not occur.

Roadway projects would not entail the use of large emissions sources and would therefore not produce cumulative impacts.

4.3.8 References

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