3.2 Air Quality

3.2.1 Introduction

This section evaluates the potential for the proposed project to result in adverse impacts related to air quality. The analysis of air quality impacts is based on the general air quality and meteorological conditions in the South Coast Air Basin (SCAB), the relevant regulatory ordinances, and a discussion of the methodology and thresholds used to determine whether the proposed project would result in significant impacts. This section analyzes the potential for both project-level and cumulative environmental impacts.

Data used in this section includes information obtained from the *Air Quality Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (Greve & Associates 2017 [Appendix B1]), Cumulative Impacts White Paper (SCAQMD 2003), the *Health Risk Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (SWAPE 2017 [Appendix B2]), and the Air Quality element of the *City of Long Beach General Plan*. All information sources used are included as citations within the text; sources are listed in Section 3.2.5, References.

3.2.2 Environmental Setting

3.2.2.1 Regional Climate and Meteorology

The proposed project is located in Los Angeles County, which is within the SCAB. The SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD) for air quality planning purposes. The SCAB is an approximately 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the program area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of Southern California combine to make the basin an area of high air pollution potential. The SCAB is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight

triggers the photochemical reactions that produce ozone. The region experiences more days of sunlight than any other major urban area in the nation except Phoenix (SCAQMD 2013).

3.2.2.2 Criteria Pollutants

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable or breathable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. The pollutants are referred to as "criteria air pollutants" since they are the most prevalent air pollutants known to be harmful to human health, and extensive health-effects criteria documents are available about their effects on human health and welfare. Standards have been established for each criteria pollutant to meet specific public health and welfare criteria set forth in the federal Clean Air Act (CAA). California has generally adopted more stringent ambient air quality standards for the criteria air pollutants and has adopted air quality standards for some pollutants for which there is no corresponding national standard. The National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for each of the monitored pollutants and their effects on health are summarized in **Table 3.2-1, State and National Criteria Air Pollutant Standards, Effects, And Sources**. The NAAQS and CAAQS have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. A brief description of the health effects of regulated criteria air pollutants are provided below.

Table 3.2-1 State and National Criteria Air Pollutant Standards, Effects, And Sources

Pollutant	Averaging Time	State Standard	National Standard (Primary)	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	—	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO_X) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial/ industrial mobile equipment.
	8 hours	0.070 ppm	0.070 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030 ppm	0.053 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Sulfur Dioxide	1 hour	0.25 ppm	0.75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	—	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	—	0.03 ppm		

Table 3.2-1 State and National Criteria Air Pollutant Standards, Effects, And Sources

Pollutant	Averaging Time	State Standard	National Standard (Primary)	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Respirable Particulate Matter (PM_{10})	24 hours	50 µg/m^3	150 µg/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 µg/m^3	—		
Fine Particulate Matter ($PM_{2.5}$)	24 hours	—	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
	Annual Avg.	12 µg/m^3	12.0 µg/m^3		
Lead	Monthly Avg.	1.5 µg/m^3	—	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	—	1.5 µg/m^3		
	Rolling 3-month Average	—	0.15 µg/m^3		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal Power Plants, Petroleum Production and refining
Sulfates	24 hour	25 µg/m^3	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility	Produced by the reaction in the air of SO_2.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See $PM_{2.5}$.

SOURCE: CARB 2016a. *Ambient Air Quality Standards*, available at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.
ppm = parts per million; µg/m^3 = micrograms per cubic meter.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) or volatile organic compounds (VOCs), and nitrogen oxides (NO_X). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is based on a list of exempted carbon compounds determined by CARB. VOC is a term used by the USEPA and is based on USEPA's own exempt list. For the purposes of this assessment, the term VOC is used. The time required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed, it remains in the atmosphere for 1 or 2 days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth (rainout), or

absorption by water molecules in clouds that later fall to earth with rain (washout). Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and other respiratory ailments. Long-term exposure may lead to scarring of lung tissue and may lower the lung efficiency (CARB 2015).

Volatile Organic Compounds

VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the State as toxic air contaminants (TACs) (CARB 2016c). These are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons, along with architectural coatings. Emissions of VOCs themselves are not "criteria" pollutants; however, they contribute with NO_X to formation of O_3 and are regulated as O_3 precursor emissions.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory illness and impaired lung functioning, and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high-pollution days, especially in conjunction with high ozone levels (CARB 2011).

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively nonreactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia and can cause nausea, dizziness, and headaches at moderate concentrations (CARB 2009a). CO measurements and modeling were important in the early 1980s, when CO levels were regularly exceeded throughout California (CARB 2004). In more recent years, CO measurements and modeling have not been a priority in most California air districts because of the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Sulfur Dioxide

SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant, mainly as a result of burning high-sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as SO_X.

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease (CARB 2009b).

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Particulate matter can also damage materials and reduce visibility (CARB 2005). One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROGs. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by wood burning in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH_3), NO_X, and SO_X.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks as well as motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 was largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved through enhanced controls in the metals-processing industry.

3.2.2.3 Toxic Air Contaminants

Concentrations of TACs are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

Between July 2012 and June 2013, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES IV), which is a follow-up to previous air toxics studies conducted in the SCAB. The MATES IV Final Report was issued in May 2015. The study, based on actual monitored data throughout the SCAB, consisted of a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize carcinogenic risk across the SCAB from exposure to TACs. The study concluded that the average of the modeled air toxics concentrations measured at each of the monitoring stations in the SCAB equates to a background cancer risk of approximately 418 per million based on the average of 10 fixed monitoring sites and 367 per million based on a population-weighted average risk. The risk is primarily due to diesel exhaust, which is about 65 percent lower for the average of 10 fixed monitoring sites and 57 percent lower for the population-weighted risk than the previous MATES III cancer risk (SCAQMD 2015, ES-2-3). Subsequent to

the SCAQMD's risk calculations estimates performed for MATES IV, the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA Guidance) updated the methods for estimating cancer risks (OEHHA 2015). The updated method utilizes higher estimates of cancer potency during early life exposures and uses different assumptions for breathing rates and length of residential exposures. When combined together, SCAQMD staff estimates that risks for the same inhalation exposure level will be about 2.5 to 2.7 times higher using the updated methods. This would be reflected in the average lifetime air toxics risk estimated from the monitoring sites data going from 418 per million to 1,023 per million the average of 10 fixed monitoring sites and from 367 per million to 897 per million for the population-weighted risk (SCAQMD 2015, 2-11). Under the updated OEHHA methodology, adopted in March 2015, the relative reduction in risk from the MATES IV results compared to MATES III would be the same (about 65 percent reduction in risk).

Approximately 68 percent of the airborne carcinogenic risk is attributed to diesel particulate emissions matter (DPM), approximately 22 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 10 percent is attributed to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations) (SCAQMD 2015, ES-2). The study also found lower ambient concentrations of most of the measured air toxics compared to the levels measured in the previous study conducted during 2004 and 2006. Specifically, benzene and 1,3-butadiene, pollutants generated mainly from vehicles, were down 35 percent and 11 percent, respectively (SCAQMD 2015, 6-1). The reductions were attributed to air quality control regulations and improved emission control technologies. In addition to air toxics, MATES IV included continuous measurements of black carbon and ultrafine particles (particles smaller than 0.1 micron in size), which are emitted by the combustion of diesel fuels. Sampling sites located near heavily-trafficked freeways or near industrial areas were characterized by increased levels of black carbon and ultrafine particles compared to more rural sites.

3.2.2.4 Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Offensive odors are unpleasant and can lead to public distress, generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

3.2.2.5 Local Setting

Existing Criteria Pollutants Levels at Nearby Monitoring Stations

The SCAQMD maintains a network of air quality monitoring stations located throughout the SCAB to measure ambient pollutant concentrations. The project site is located in SCAQMD Source Receptor Area (SRA) 4 South Los Angeles County Coastal in Los Angeles County. From 2012 to 2016, the SCAQMD has operated monitoring stations located at the following locations in the City of Long Beach: (1) 3648 North Long Beach Boulevard (Long Beach – North); (2) 1305 Pacific Coast Highway (Long Beach – South); and (3) 2425 Webster Avenue (Long Beach – Hudson) (SCAQMD 2017b). These stations have measured different pollutants over the years. Ambient air quality data, which are summarized in **Table 3.2-2, Ambient Air**

Quality Data Summary from Long Beach Monitoring Station (2012–2016), were obtained from these stations as described below:

- **Long Beach—North (South Los Angeles County Coastal 1).** In 2012 and 2013, this station provided ambient air quality monitoring data the following pollutants: O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. In 2014, 2015, and 2016, this station provided ambient air quality monitoring data the following pollutant: $PM_{2.5}$.
- **Long Beach—South (South Los Angeles County Coastal 2).** From 2012 through 2016, this station provided ambient air quality monitoring data the following pollutants: PM_{10}, $PM_{2.5}$, and lead.
- **Long Beach—Hudson (South Los Angeles County Coastal 3).** In 2012, 2013, and 2014, this station provided ambient air quality monitoring data the following pollutants: O_3, NO_2, CO, SO_2. In 2015 and 2016, this station provided ambient air quality monitoring data the following pollutants: O_3, NO_2, CO, SO_2, and PM_{10}.

Table 3.2-2 Ambient Air Quality Data Summary from Long Beach Monitoring Station (2012–2016)

Pollutant/Standard [a]	2012	2013	2014	2015	2016
O_3 (1-hour)					
Maximum Concentration (ppm)	0.084	0.092	0.087	0.087	0.079
Days > CAAQS (0.09 ppm)	0	0	0	0	0
O_3 (8-hour)					
Maximum Concentration (ppm)	0.067	0.070	0.072	0.066	0.059
4th High 8-hour Concentration (ppm)	0.060	0.060	0.061	0.056	0.055
Days > CAAQS (0.070 ppm)	0	0	1	0	0
Days > NAAQS (0.070 ppm)	0	0	1	0	0
NO_2 (1-hour; Annual)					
NO_2 (1-hour)					
Maximum Concentration (ppm)	0.077	0.067	0.136	0.102	0.076
Days > CAAQS (0.18 ppm)	0	0	0	0	0
98th Percentile Concentration (ppm)	0.063	0.056	0.085	0.064	0.066
Days > NAAQS (0.100 ppm)	0	0	0	0	0
NO_2 (Annual)					
Annual Arithmetic Mean (0.030 ppm)	0.022	0.014	0.021	0.020	0.019
CO (1-hour; 8-hour)					
CO (1-hour)					
Maximum Concentration (ppm)	2.6	2.7	4	3.3	3.3
Days > CAAQS (20 ppm)	0	0	0	0	0
CO (8-hour)					
Maximum Concentration (ppm)	2.2	2.0	2.6	2.2	2.2
Days > CAAQS (9.0 ppm)	0	0	0	0	0
SO_2 (1-hour; 24-hour)					
SO_2 (1-hour)					
Maximum Concentration (ppm)	0.022	0.022	0.015	0.038	0.018
Days > CAAQS (0.25 ppm)	0	0	0	0	0
99th Percentile Concentration (ppm)	0.014	0.010	0.010	0.012	0.012
Days > NAAQS (0.075 ppm)	0	0	0	0	0
SO_2 (24-hour)					
Maximum Concentration (ppm)	0.004	0.004	0.003	0.005	0.004
Days > CAAQS (0.04 ppm)	0	0	0	0	0

Table 3.2-2 Ambient Air Quality Data Summary from Long Beach Monitoring Station (2012–2016)

Pollutant/Standard [a]	2012	2013	2014	2015	2016
PM_{10} (24-hour; Annual)					
PM_{10} (24-hour)					
Maximum Concentration (µg/m^3)	54	54	59	62	56
Samples > CAAQS (50 µg/m^3)	1	1	2	2	3
Samples > NAAQS (150 µg/m^3)	0	0	0	0	0
PM_{10} (Annual Average)					
Annual Arithmetic Mean (20 µg/m^3)	25.5	27.3	26.6	26.5	27.8
$PM_{2.5}$ (24-hour; Annual)					
$PM_{2.5}$ (24-hour)					
Maximum Concentration (µg/m^3)	46.7	35 [b]	41.4 [b]	48.3	28.9
98th Percentile Concentration (µg/m^3)	25.1	24.6	27.2	31.2	22.05
Samples > NAAQS (35 µg/m^3)	4	1	1	4	0
$PM_{2.5}$ (Annual)					
Annual Arithmetic Mean (12 µg/m^3)	10.57	10.97	10.72	10.26	9.62
Lead (30-day Average; 3-Month Rolling Average)					
Maximum 30-day average (µg/m^3)	0.007	0.012	0.012	0.010	0.008
Days > CAAQS (1.5 µg/m^3)	0	0	0	0	0
Maximum 3-month rolling average (µg/m^3)	0.005	0.0009	0.010	0.010	0.01
Days > NAAQS (0.15 µg/m^3)	0	0	0	0	0

SOURCES: SCAQMD 2017b; CARB 2017; USEPA 2017a.
a. ppm = parts per million; µg/m^3 = micrograms per cubic meter
b. Exceptional events occurred in 2013 for $PM_{2.5}$. Exceptional events are not considered violations of an ambient air quality standard.
c. N/A indicates insufficient data for the given category.

The Long Beach – South station is located closest to the project site (located approximately 4 miles to the northwest of the project site); therefore, ambient air quality monitoring data from this station were reported in Table 3.2-2 for the available pollutants (i.e., 2012 through 2016 for PM_{10}, $PM_{2.5}$, and lead). The Long Beach – North station is the next closest to the project site (located approximately 6 miles to the northwest of the project site); therefore, ambient air quality monitoring data from this station were reported in Table 3.2-2 for the pollutants not covered by the Long Beach – South station (i.e., 2012 and 2013 for O_3, NO_2, CO, and SO_2). Ambient air quality monitoring data from the Long Beach – Hudson station (located approximately 7 miles to the northwest of the project site) were used in Table 3.2-2 for pollutants not covered by either the Long Beach – South or Long Beach – North stations (i.e., 2014, 2015, and 2016 for O_3, NO_2, CO, and SO_2.).

The SCAQMD's "Historical Data by Year" reports do not provide the ambient air quality monitoring data for CO (1-hour) for years 2012 and 2013 and for SO_2 (24-hour) for years 2012 through 2016 (SCAQMD 2017b). Therefore, data for these pollutant averaging periods and years were obtained from the USEPA and CARB (USEPA 2017a; CARB 2017). Table 3.2-2 includes refinements to the data to exclude exceptional events (USEPA 2017a). Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable and are not considered violations of an ambient air quality standard (USEPA 2017b). Exceptional events occurred in 2013 and 2014 for the $PM_{2.5}$ measurements in the Long Beach area as a result of high-wind natural events, wildfires, and/or fireworks on Independence Day and New Year's Eve (SCAQMD 2017a).

Sensitive Receptors and Locations

Land uses such as residences, schools, hospitals, and convalescent homes are considered sensitive to poor air quality conditions because infants, children, the elderly, and people with health afflictions (especially respiratory ailments) are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are also considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short.

The project area is located in Long Beach in Southern Coastal Los Angeles County and is bound by Alamitos Bay on the west and the San Gabriel River on the east. The nearest sensitive receptors to the project area include the single-family residences located approximately 330 feet north of the Synergy Oil Field site, 830 feet southwest of the Pumpkin Patch site, 850 feet northwest of the project site, and a multi-family residential area located approximately 700 feet west of the project site. The proposed project itself would not introduce any new noise-sensitive receptors. The nearest school is the Rosie the Riveter Charter High School, located approximately 1,475 feet north of the Synergy Oil Field site at 690 North Studebaker Road.

3.2.3 Regulatory Framework

3.2.3.1 Federal

The federal CAA of 1963 was the first federal legislation regarding air pollution control and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990. At the federal level, the USEPA is responsible for implementation of certain portions of the CAA including mobile source requirements. Other portions of the CAA, such as stationary source requirements, are implemented by state and local agencies.

The CAA establishes federal air quality standards, known as NAAQS and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA which are most applicable to the proposed project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions). Title I requirements are implemented for the purpose of attaining NAAQS for the following criteria pollutants: (1) O_3; (2) NO_2; (3) CO; (4) SO_2; (5) PM_{10}; and (6) lead. The NAAQS were amended in July 1997 to include an 8-hour standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 3.2-1 shows the NAAQS currently in effect for each criteria pollutant. The proposed project is located within the SCAB, which is an area designated as non-attainment for O_3 and $PM_{2.5}$ because it does not currently meet NAAQS for certain pollutants regulated under the CAA. **Table 3.2-3, South Coast Air Basin Attainment Status**, provides a summary of the attainment status of the Los Angeles County portion of the SCAB with respect to the federal and state standards.

Table 3.2-3 South Coast Air Basin Attainment Status

Pollutant	National Standards	California Standards
O_3 (1-hour standard)	N/A [a]	Non-attainment—Extreme
O_3 (8-hour standard)	Non-attainment—Extreme	Non-attainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Attainment	Non-attainment
$PM_{2.5}$	Non-attainment—Serious	Non-attainment
Lead	Non-attainment (Partial) [b]	Attainment
Visibility Reducing Particles	N/A	Unclassified
Sulfates	N/A	Attainment
Hydrogen Sulfide	N/A	Unclassified
Vinyl Chloride [c]	N/A	N/A

SOURCE: USEPA 2016; CARB 2016b.

N/A = not applicable

a. The NAAQS for 1-hour ozone was revoked on June 15, 2005, for all areas except Early Action Compact areas.

b. Partial Nonattainment designation—Los Angeles County portion of the air basin only for near-source monitors.

c. In 1990, CARB identified vinyl chloride as a TAC and determined that it does not have an identifiable threshold. Therefore, CARB does not monitor or make status designations for this pollutant.

Title II of the federal CAA pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have strengthened in recent years to improve air quality. For example, the standards for NO_X emissions have been lowered substantially, and the specification requirements for cleaner burning gasoline are more stringent.

3.2.3.2 State

California Clean Air Act

The California CAA requires all areas of the State to achieve and maintain the CAAQS by the earliest practical date. The CAAQS regulate the same criteria pollutants as the NAAQS but also regulate State-identified criteria pollutants, including sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. In general, the CAAQS are more stringent than the NAAQS. CARB has primary responsibility for ensuring implementation of the California CAA,[22] responding to the federal CAA planning requirements applicable to the state, and regulating emissions from motor vehicles and consumer products within the state. Table 3.2-1 shows the CAAQS currently in effect for each of the federally recognized criteria pollutants as well as the additional pollutants recognized by the state.

Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. Table 3.2-3 provides a summary of the attainment status of the Los Angeles County portion of the

[22] Chapter 1568 of the Statutes of 1988.

SCAB with respect to the CAAQS. Because vinyl chloride is a TAC, CARB does not classify attainment status for this pollutant.

California Air Resources Board On-Road and Off-Road Vehicle Rules

In 2000, CARB released the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, which is a comprehensive plan adopted for the purpose of reducing DPM emissions, which the State identified as a TAC (CARB 2000). In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to DPM and other TACs (Title 13 California Code of Regulations [CCR], Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings (GVWR) greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location.

In 2008, CARB also approved the Truck and Bus regulation to reduce PM and NO_X emissions from existing diesel vehicles operating in California (13 CCR, Section 2025, subsection (h)). The requirements were amended to apply to nearly all diesel-fueled trucks and buses with a GVWR greater than 14,000 pounds. For the largest trucks in the fleet, those with a GVWR greater than 26,000 pounds, there are two methods to comply with the requirements. The first way is for the fleet owner to retrofit or replace engines, starting with the oldest engine model year, to meet 2010 engine standards, or better. This is phased over 8 years, starting in 2015, and would be fully implemented by 2023, meaning that all trucks operating in the State subject to this option would meet or exceed the 2010 engine emission standards for NO_X and PM by 2023. The second option, if chosen, requires fleet owners, starting in 2012, to retrofit a portion of their fleet with diesel particulate filters (DPFs) achieving at least 85 percent removal efficiency, so their entire fleet is equipped with DPFs as of January 1, 2016; however, DPFs do not lower NO_X emissions; thus, fleet owners choosing the second option must still comply with the 2010 engine emission standards for their trucks and buses by 2020.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR, Section 2449). Implementation is staggered based on fleet size (which is the total of all off-road horsepower under common ownership or control), with large fleets beginning compliance in 2014, medium fleets in 2017, and small fleets in 2019. Each fleet must demonstrate compliance through one of two methods. The first option is to calculate and maintain fleet average emissions targets, which encourages the retirement or repowering of older equipment and rewards the introduction of newer, cleaner units into the fleet. The second option is to meet the Best Available Control Technology (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies (VDECS) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turn overs or retrofits (VDECS installation) be fully implemented by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

3.2.3.3 Regional

South Coast Air Quality Management District

The SCAQMD is primarily responsible for planning, implementing, and enforcing air quality standards for all of Orange County, Los Angeles County (excluding the Antelope Valley portion), the western, non-desert portion of San Bernardino County, and the western, Coachella Valley, and San Gorgonio Pass portions of Riverside County. While air quality in the SCAB has improved, the SCAB requires continued diligence to meet the air quality standards.

Air Quality Management Plan

The SCAQMD has adopted a series of AQMPs to meet the CAAQS and NAAQS. The SCAQMD released the Draft 2016 AQMP on June 30, 2016 for public review and comment (SCAQMD 2016). A revised Draft 2016 AQMP was released in October 2016 and the SCAQMD Governing Board adopted the 2016 AQMP on March 3, 2017 (SCAQMD 2017a). CARB approved the 2016 AQMP on March 23, 2017. Key elements of the 2016 AQMP include implementing fair-share emissions reductions strategies at the federal, state, and local levels; establishing partnerships, funding, and incentives to accelerate deployment of zero- and near-zero-emissions technologies; and taking credit from co-benefits from greenhouse gas, energy, transportation, and other planning efforts. The strategies included in the 2016 AQMP are intended to demonstrate attainment of the NAAQS for the federal non-attainment pollutants ozone and $PM_{2.5}$. While the 2016 AQMP was adopted by the SCAQMD and CARB, it has not been yet received USEPA approval for inclusion in the SIP. Therefore, until such time as the 2016 AQMP is approved by the USEPA, the 2012 AQMP remains the applicable AQMP.

The 2012 AQMP includes planning assumptions and growth projections, and relies on the latest scientific and technological information to achieve federal standards for air quality in the SCAB (SCAQMD 2013). It incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. Additionally, it highlights the significant amount of emission reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal CAA.

The key undertaking of the 2012 AQMP is to bring the SCAB into attainment with the NAAQS for the 24-hour $PM_{2.5}$ standard. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2024 8-hour O_3 standard deadline with new measures designed to reduce reliance on the federal CAA Section 182(e)(5) long-term measures for NO_X and VOC reductions. The SCAQMD expects exposure reductions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

Air Quality Guidance Documents

The SCAQMD published the *California Environmental Quality Act (CEQA) Air Quality Handbook* to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts (SCAQMD 1993). The *CEQA Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports (EIRs) and was used extensively in the preparation of this analysis; however, the SCAQMD is currently in the process of replacing the *CEQA Air Quality Handbook*

with the Air Quality Analysis Guidance Handbook.[23] While this process is underway, the SCAQMD recommends that lead agencies avoid using the screening tables in Chapter 6, Determining the Air Quality Significance of a Project, and the on-road mobile source emission factors in Table A9-5-J1 through Table A9-5-L as they are outdated. The SCAQMD instead recommends using other approved models to calculate emissions from land use projects, such as the California Emissions Estimator Model (CalEEMod) software, initially released in 2011 and updated in 2016.

The SCAQMD has published a guidance document called the *Final Localized Significance Threshold Methodology* that is intended to provide guidance in evaluating localized effects from mass emissions during construction (SCAQMD 2008).

Rules and Regulations

The SCAQMD has developed many rules and regulations to regulate sources of air pollution in the SCAB and to help achieve air quality standards. The proposed project may be subject to the following SCAQMD rules and regulations:

Regulation II—Permits: This regulation sets forth SCAQMD permitting requirements.

Rule 219—Equipment not requiring a written permit pursuant to Regulation II: The rule identifies equipment, processes, and operations that emit small amounts of air contaminants that do not require written permits.

Rule 222—Filing requirements for specific emission sources not requiring a written permit pursuant to Regulation II: The rule provides an alternative to written permits for equipment or processes specified in the rule.

Regulation IV—Prohibitions: This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, start-up/shutdown exemptions and breakdown events. The following is a list of rules which may apply to the proposed project:

Rule 401—Visible Emissions: This rule states that a person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart or of such opacity as to obscure an observer's view.

Rule 402—Nuisance: This rule states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403—Fugitive Dust: This rule requires projects to prevent, reduce or mitigate fugitive dust emissions from a site. Rule 403 restricts visible fugitive dust to the project property line, restricts the net PM_{10} emissions to less than 50 micrograms per cubic meter ($\mu g/m^3$) and restricts the tracking out of bulk materials onto public roads. Additionally, projects must utilize one or more of the best available control measures (identified in the tables within the rule). Mitigation measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities. Finally, a contingency plan may be required if so determined by the USEPA.

[23] Available at http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

Rule 462—Organic Liquid Loading Emission Limits: This rule is intended to control emissions of VOC from facilities that load organic liquids with a vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual loading conditions into any tank truck, trailer, or railroad tank car.

Rule 463—Organic Liquid Storage Emission Control Requirements: The purpose of this rule is to reduce emissions of VOC from the storage of organic liquids in stationary aboveground tanks. This rule applies to any aboveground stationary tank with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids, and any aboveground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline.

Rule 464—Emissions from Wastewater Separators: This rule provides requirements for wastewater treatment equipment used to separate petroleum-derived compounds from wastewater.

Rule 466—Leaks from Pumps and Compressors: This rule provides requirements for leaks from pumps or compressors.

Rule 466.1—Leaks from Valves and Flanges: This rule provides requirements for leaks from valves and flanges.

Regulation XI—Source Specific Standards: Regulation XI sets emissions standards for specific sources. The following is a list of rules which may apply to the proposed project:

Rule 1110.2—Emissions from Gaseous- and Liquid-Fueled Engines Limits: The purpose of this rule is to reduce VOC, NO_X, and CO emissions from engines.

Rule 1134—Emissions of Oxides of Nitrogen from Stationary Gas Turbines: The purpose of this rule is to control emissions from existing stationary gas turbines, 0.3 MW and larger.

Rule 1148—Thermally Enhanced Oil Recovery Wells: Requires steam drive well to have VOC emissions of 4.5 pounds per day or less, or if the steam drive well is connected to a vapor control system then the average emissions should be no more than 4.5 pounds per day.

Rule 1148.1—Oil and Gas Production Wells: Addresses emissions of VOCs from the wellheads, the well cellars and the handling of produced gas at oil and gas production facilities.

Rule 1148.2—Notification and Reporting Requirements for Oil and Gas Wells and Chemical Suppliers: The purpose of this rule is to gather air quality-related information on oil and gas well drilling, well completion, and well reworks.

Rule 1150—Excavation of Landfill Sites: This rule requires the implementation of an Excavation Management Plan for the excavations of landfilled materials.

Rule 1166—Volatile Organic Compound Emissions from Decontamination of Soil Procedures and Requirements: This rule sets requirements to control the emission of VOC from excavating, grading, handling and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition.

Rule 1173—Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants: This rule is intended to control VOC leaks from components and releases from atmospheric process pressure relief devices.

Rule 1176—VOC Emissions from Wastewater Systems Limits and Required Controls: This rule is intended to limit volatile organic compound (VOC) emissions from wastewater systems.

Rule 1178—Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities: The purpose of this rule is to further reduce emissions of VOC from storage tanks located at petroleum facilities.

Rule 1186—PM_{10} Emissions from Paved and Unpaved Roads, and Livestock Operations: This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM_{10} emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also Rule 403).

Regulation XIV—New Source Review of Air Toxics and Other Non-Criteria Pollutants: Regulation XIV sets requirements for new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants or other non-criteria pollutants. The following is a list of rules which may apply to the proposed project:

Rule 1470—Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines: This rule applies to stationary compression ignition (CI) engine greater than 50 brake horsepower and sets limits on emissions and operating hours. In general, new stationary emergency standby diesel-fueled engines greater than 50 brake horsepower are not permitted to operate more than 50 hours per year for maintenance and testing.

Southern California Association of Governments

In February 2011, CARB adopted greenhouse gas emissions reduction targets under SB 375 for the SCAG region. The target is a per capita reduction of 8 percent for 2020 and 13 percent for 2035 compared to the 2005 baseline. On April 7, 2016, SCAG adopted the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Using growth forecasts and economic trends, the 2016 RTP/SCS provides a vision for transportation throughout the region for the next 25 years. Refer to Section 3.6, *Greenhouse Gas Emissions*, for additional information and analysis with respect to the SCAG 2016 RTP/SCS.

3.2.3.4 Local

City of Long Beach General Plan

Air Quality Element—1996

Goal 6.0: Minimize particulate emissions from the construction and operation of roads and buildings, from mobile sources, and from the transportation, handling and storage of materials.

Policy 6.1: Control Dust. Further reduce particulate emissions from roads, parking lots, construction sites, unpaved alleys, and port operations and related uses.

Goal 7.0: Reduce emissions through reduced energy consumption.

3.2.4 Analysis of Impacts

This section describes the impact analysis relating to air quality for the proposed project. It describes the methods and applicable thresholds used to determine the impacts of the proposed project.

3.2.4.1 Significance Criteria

CEQA Guidelines Appendix G provides that a project would have a significant air quality impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people.

As guided by *CEQA Guidelines* Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. As such, the significance thresholds and analysis methodologies in SCAQMD's *CEQA Air Quality Handbook* are used in evaluating proposed project impacts. The SCAQMD has established regional daily mass emissions thresholds for criteria pollutants and ozone precursors, which are shown in **Table 3.2-4, South Coast Air Quality Management District (SCAQMD) Regional Air Quality Significance Thresholds**.

Table 3.2-4 South Coast Air Quality Management District (SCAQMD) Regional Air Quality Significance Thresholds

Pollutant	Mass Daily Thresholds (lbs/day)	
	Construction	Operations
Volatile Organic Compounds (VOC)	75	55
Oxides of Nitrogen (NO_X)	100	55
Carbon Monoxide (CO)	550	550
Oxides of Sulfur (SO_X)	150	150
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Lead [a]	3	3
TACs (including carcinogens and non-carcinogens	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	

SOURCE: SCAQMD, 2015b.
a. As the project would not involve the development of any major lead emissions sources, lead emissions are not analyzed further in the EIR.

Aside from regional air quality impacts, projects in the SCAB are also required to analyze local air quality impacts. As discussed previously, SCAQMD has developed LSTs that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and thus would not cause or contribute to localized air quality impacts. LSTs are developed based on the ambient concentrations of that pollutant for each of the 38 SRAs in the basin. The localized thresholds, which are found in the mass rate look-up tables in SCAQMD's *Final Localized Significance Threshold Methodology* document, were developed for use on projects that are less than or equal to 5 acres in size and are only applicable to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. The project area is located in SRA 4 South Los Angeles County Coastal in Los Angeles County. The applicable construction and operational LSTs for a 5-acre site or greater at various receptor distances within SRA 4 are shown in **Table 3.2-5, South Coast Air Quality Management District (SCAQMD) Localized Air Quality Significance Thresholds**.

It should be noted that with regards to NO_X emissions, the two principal forms of NO_X are NO and NO_2, with the vast majority (95 percent) of the NO_X emissions being comprised of NO; however, because adverse health effects are associated with NO_2 and not NO, the analysis of localized air quality impacts associated with NO_X emissions is focused on NO_2 levels. For combustion sources, SCAQMD assumes that the conversion of NO to NO_2 is complete at a distance of 5,000 meters from the source.

Table 3.2-5 South Coast Air Quality Management District (SCAQMD) Localized Air Quality Significance Thresholds

	Allowable emissions (lb/day) as a function of receptor distance (feet) from site boundary				
	82 ft.	164 ft.	328 ft.	656 ft.	1,640 ft.
5+ Acre Site in SRA 4—South Coastal Los Angeles County					
Construction Thresholds					
Nitrogen Oxides (NO_X)[a]	123	118	126	141	179
Carbon Monoxide (CO)	1,530	1,982	2,613	4,184	10,198
Respirable Particulate Matter (PM_{10})	14	42	58	92	191
Fine Particulate Matter ($PM_{2.5}$)	8	10	18	39	120
Operational Thresholds					
Nitrogen Oxides (NO_X)[a]	123	118	126	141	179
Carbon Monoxide (CO)	1,530	1,982	2,613	4,184	10,198
Respirable Particulate Matter (PM_{10})	4	10	14	22	46
Fine Particulate Matter ($PM_{2.5}$)	2	3	5	10	29

SOURCE: SCAQMD, 2009.

a. The localized thresholds listed for NO_X in this table take into consideration the gradual conversion of NO to NO_2.The analysis of localized air quality impacts associated with NO_X emissions focuses on NO_2 levels as they are associated with adverse health effects.

3.2.4.2 Methodology

Air pollutant emissions associated with the proposed project would result from short term construction impacts associated with the wetlands restoration work, grading and construction for two new oil operating facilities and a connecting aboveground pipeline, and drilling for 120 new wells. Operational emissions are associated with the vehicle trips associated with the two oil production facilities and the visitors center and restored wetlands, which will be open to the public. Operational emissions also include emissions from four natural gas turbines, oil well workover operations, and visitor and employee trips to and from the site. The emissions generated by these activities and other secondary sources have been estimated and compared to the applicable thresholds of significance recommended by SCAQMD.

As stated in Chapter 1, *Introduction*, on April 28, 2016, the City sent an NOP to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the project to identify the relevant environmental issues that should be addressed in the EIR. Comments were received about the project's emissions related to SCAMQD significance thresholds. The following impact evaluation compares the project's estimated emissions to SCAQMD regional and localized thresholds and provides feasible mitigation strategies where necessary. No other comments related to air quality or air quality standards were identified in the received comments.

Consistency with Air Quality Management Plan

The SCAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the SCAB is in non-attainment of the NAAQS (e.g., ozone and $PM_{2.5}$). The SCAQMD's AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving the NAAQS. These strategies were developed, in part, based on regional growth projections prepared by the SCAG. Projects that are consistent with the assumptions used in the AQMP do not interfere with attainment because their growth was included in the projections utilized in the formulation of the AQMP. Thus, projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they were to exceed the SCAQMD's numeric indicators.

Construction Emissions

The substantial majority of construction activities would occur over a 4-year period with the remaining components occurring intermittently over a 40-year period and would be substantially less intense requiring fewer heavy-duty equipment and fewer number of days per year of construction activity. Construction of the proposed project has the potential to generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment, such as cranes and excavators, and through vehicle trips generated from worker trips, haul trucks, and vendor/material supply trucks traveling to and from the project area. In addition, fugitive dust emissions would result from demolition and various soil-handling activities. Evaporative emissions of VOCs result from the application of asphalt and architectural coatings and vary depending on the amount of asphalt and coatings applied on a daily basis. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources of emissions.

Daily regional emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile source and fugitive dust emissions factors. The emissions are estimated using the CalEEMod (Version 2016.3.1) software, an emissions inventory software program recommended by the SCAQMD. CalEEMod is based on outputs from OFFROAD and EMFAC, which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, including on- and off-road vehicles. The input values used in the CalEEMod modeling analysis were adjusted to be project-specific based on construction information provided by the Applicant. These values were then applied to the construction phasing assumptions used in the criteria pollutant analysis to generate criteria pollutant emissions values for each construction activity. The construction equipment, construction scheduling, and emissions calculations are provided in the *Air Quality Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (2017), prepared by Greve & Associates, LLC and provided in Appendix B1 of this EIR.

For purposes of this analysis, the construction emissions were modeled as occurring during the 4 years of construction activities and were estimated using CalEEMod based on known project-specific details. Construction activities associated with construction would generate pollutant emissions from the following construction activities and phases: (1) demolition and site preparation, (2) construction of well cellars, (3) installation of process equipment, (4) construction of tanks, (5) off-site construction, (6) construction of office, warehouse, and parking lot, (7) wetland restoration, (8) turbine commissioning, which generally involves starting and stopping the turbine up to 10 times during the day and running the turbine for up to 20

hours to ensure proper functioning of the equipment (turbine commissioning would occur after most, if not all, of the other phases have been completed), and (9) potential landfill excavation and fill for an old existing landfill (household and construction waste) on the Pumpkin Patch site. The landfill excavation and fill may not be required and the timing of the activity is not yet known. It is possible the landfill excavation and fill could occur separately from the other phases of the project. Therefore, the landfill excavation and fill emissions are broken out separately.

Demolition, remediation, and grading activities would occur mainly during Year 1 and carryover to the beginning of Year 2. These activities include pipeline removal and storage tank removal. Year 2 would consist of the installation of berms and tidal channels along with the removal of older channels and berms. Restoration would also begin in the northern Restoration area. Restoration includes wetland grading, planting, irrigating, pest control, and trash removal. Additionally, the construction of non-oil facilities would begin in Year 2. By Year 3, it is anticipated that restoration work in the restoration area would be complete. During Year 3 and Year 4, construction of the non-oil facilities would occur. Emissions would be generated from worker and vendor vehicle trips, welding equipment, heavy-duty off-road construction equipment and other handwork construction equipment.

The Pumpkin Patch site currently has an old landfill that may need to be excavated to address site stability and high concentrations of contaminants. If excavated, the solid waste would be removed, and then replaced with clean imported soil. The excavated solid waste (consisting of both dry and wet material) would be transported to either an active landfill in either Simi Valley or Irwindale, and any contaminated soils would be transported to a Class I landfill, such as Kettleman. The landfill excavation and fill is incorporated into construction emissions estimates. The emissions associated with the construction and restoration would mainly result from the installation of process equipment and wetlands restoration efforts.

Commissioning

In addition to the construction activities described above, the commissioning of the turbines on the LCWA site would generate emissions on site. Commissioning involves starting and stopping the turbines up to 10 times per day and running the turbine for up to 20 hours. One turbine would be commissioned per day due to the complexity of the initial startup and operations. For purposes of this analysis, commissioning emissions are reported with the construction emissions.

Operation and Maintenance

Operation and maintenance activities would consist of the operation of natural gas for space heating, two electric-powered drilling rig, two diesel-powered workover rigs, turbines located at LCWA, and other miscellaneous sources. The LCWA site would contain up to four gas turbine generator sets to convert natural gas from the wells to electricity and is the dominant source of emissions on all sites. Other emissions would be generated by electricity and natural gas consumption at the Synergy Oil Field site and transportation fuel combustion from employee/worker travel to and from the site. Transportation fuel combustion may occur from oil truck trips[24] that would haul the crude oil from the site to off-site refinery locations in the region, but only if the legacy wells are producing at capacity or if excess natural gas or residual petroleum requires off-site truck

[24] Oil haul would only occur for the original, legacy wells if they are producing at capacity; however, because the Applicant is reducing existing production by 75 percent, no oil haul trucking would be required. Some excess natural gas may be transported off site by truck along with residual petroleum.

transport. For the purposes of this assessment, transportation fuel demand from oil truck trips are included in order to provide a conservative analysis.

The existing oil field well sites would be phased out over a 40-year period, starting upon the completion and occupation of the new office building and warehouse on the Pumpkin Patch site. The emissions associated with the assumed baseline oil operations would be reduced by 75 percent once building permits are obtained for the office building on the Pumpkin Patch site. Over the next 20 years, half of the existing 53 wells would be plugged and abandoned. This represents an 87.5 percent reduction from the assumed baseline emission levels. By Year 40, all wells would be plugged and abandoned, which would represent a 100 percent reduction of the baseline emissions.

Localized Significance Thresholds

The localized effects from the on-site portion of the emissions are evaluated at nearby sensitive receptor locations potentially impacted by the proposed project according to the SCAQMD's Localized Significance Threshold Methodology (SCAQMD 2008), which relies on on-site mass emission rate screening tables and project-specific dispersion modeling, where appropriate. The localized significance thresholds (LST) are only applicable to NO_X, CO, PM_{10}, and $PM_{2.5}$. For NO_X and CO, the thresholds are based on the ambient air quality standards. For PM_{10} and $PM_{2.5}$, the thresholds are based on requirements in SCAQMD Rule 403 (Fugitive Dust). The SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the LSTs and, therefore, not cause or contribute to an exceedance of the applicable ambient air quality standards without project-specific dispersion modeling. The localized analysis is based on this SCAQMD screening criteria. The screening criteria depend on (1) the area in which the project is located, (2) the size of the project area, and (3) the distance between the project area and the nearest sensitive receptor (e.g., residences, schools, hospitals). The project area is located in SRA 4 (South Los Angeles County Coastal) in Los Angeles County. The most stringent screening criteria for SRA 4 applicable to the largest project area (5 acres) with adjacent sensitive receptors (within 328 feet, or 100 meters, or less) were used for this assessment.

CO Hotspots

Localized areas where ambient concentrations exceed state and/or federal standards are termed CO hotspots. Emissions of CO are produced in greatest quantities from motor vehicle combustion and are usually concentrated at or near ground level because they do not readily disperse into the atmosphere, particularly under cool, stable (i.e., low or no wind) atmospheric conditions. CO decreased dramatically in the SCAB with the introduction of the catalytic converter in 1975. No exceedances of CO have been recorded at monitoring stations in the SCAB for some time and the basin is currently designated as a CO attainment area for both the CAAQS and NAAQS.

The SCAQMD conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the SCAB. These include (a) Wilshire Boulevard/Veteran Avenue; (b) Sunset Boulevard/Highland Avenue; (c) La Cienega Boulevard/Century Boulevard; and (d) Long Beach Boulevard/Imperial Highway. In the 2003 AQMP, the SCAQMD notes that the intersection of Wilshire Boulevard/Veteran Avenue is the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day. This intersection is located near the on- and off-ramps to Interstate 405 in West Los Angeles. The evidence provided in Table 4-10 of Appendix V of the 2003 AQMP shows that the peak modeled CO concentration due to vehicle emissions at these four intersections was 4.6 ppm (1-hour average) and 3.2 ppm (8-hour average) at Wilshire Boulevard and Veteran Avenue. When added to the existing background CO concentrations, the screening values would be

8.7 ppm (1-hour average) and 5.6 ppm (8-hour average). As the proposed project would add at a nominal amount of trips through any intersection within the project area, CO impacts are discussed qualitatively in this analysis.

TAC Emissions

The greatest potential for TAC emissions during construction would be related to diesel particulate matter emissions associated with heavy-duty equipment during demolition, excavation and grading activities. Construction activities associated with the proposed project would be sporadic, transitory, and short term in nature. The OEHHA is responsible for developing and revising guidelines for performing health risk assessments (HRAs) under the State's the Air Toxics Hot Spots Program Risk Assessment (AB 2588) regulation. In March 2015, OEHHA adopted revised guidelines that update the previous guidance by incorporating advances in risk assessment with consideration of infants and children using age-sensitivity factors (ASF) (OEHHA 2015). The analysis of potential construction TAC impacts considers the OEHHA revised guidelines as well as the duration of construction, level of construction activity, scale of the proposed project, and compliance with regulations that would minimize construction TAC emissions.

A qualitative analysis of TAC emissions from operational activities is also included since the proposed project could include stationary sources of TACs, such as pumps. Some types of stationary sources would be subject to SCAQMD's rules, regulations and permitting. Thus, during the permitting process SCAQMD would analyze such sources (e.g., health risk assessment) based on their potential to emit TACs. If it is determined that the sources would emit TACs in excess of SCAQMD's applicable significance threshold, the SCAQMD would deny the operating permit.

Odors

Potential odor impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis as necessary. The screening-level analysis consists of reviewing the proposed project's site plan and project description to identify new or modified odor sources. If it is determined that the proposed project would introduce a potentially significant new odor source, or modify an existing odor source, then downwind sensitive receptor locations are identified and a site-specific analysis is conducted to determine impacts.

3.2.4.3 Impact Evaluation

Impact AQ-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant)

An air quality assessment must discuss any inconsistencies between the proposed project and applicable General Plans and regional plans (*CEQA Guidelines* Section 15125). Regional plans that apply to the proposed project include the SCAQMD AQMP. In this regard, this section discussed inconsistencies between the proposed project and the AQMP. The purpose of the consistency discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the project would interfere with the region's ability to comply with federal and State air quality standards.

A proposed project would be considered consistent with the plan if it furthers one or more policies and does not obstruct other policies. The *CEQA Air Quality Handbook* identifies two key indicators of consistency (SCAQMD 1993):

1. Whether the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
2. Whether the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1: Increase in the Frequency or Severity of Existing Air Quality Violations

Based on the air quality modeling analysis contained in this report, with mitigation the project would result in significant short-term construction impacts of NO_X emissions on a regional scale; however, construction would not result in exceedances of the SCAQMD LSTs; therefore, local concentrations of NO_X would not exceed the ambient air quality standards, and local air quality impacts would be less than significant. Therefore, short-term construction activities would not increase the frequency or severity of existing air quality violations.

The proposed project operation would increase regional emissions, but the increase would be less than the SCAQMD regional thresholds except for NO_X. The operational LST analysis indicates that operation of the project would not result in exceedances of the SCAQMD LSTs; therefore, local concentrations of NO_X would not exceed the ambient air quality standards, and local air quality impacts would be less than significant. Because the project is not projected to impact the local air quality, the project is found to be consistent with the AQMP for the first criterion.

Additionally, the project is proposing to use an energy-efficient microgrid system. The microgrid would control the integration of multiple energy sources and uses to maximize efficiency, environmental benefits, cost savings, and reliability. The energy source components would include a SCE grid connection, four 4.5 megawatts (MW) gas turbines (e.g., Solar Turbines Mercury 50) with heat recovery steam generators for cogeneration with potential generation of 18 MW, and solar photovoltaic with generation potential of 158 kilowatts (kW). The microgrid system would provide the energy needed for the facilities including drilling rigs and supporting equipment, pumps, two electric vehicle charging stations, and other equipment.

Criterion 2: Exceedance of Assumptions in the AQMP

Consistency with the AQMP assumptions is determined by performing an analysis of the project with the assumptions in the AQMP. Thus, the emphasis of this criterion is to ensure that the analyses conducted for the project are based on the same forecasts as the AQMP. The Regional Comprehensive Plan and Guide (RCP&G) consist of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the core chapters of the document. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA.

Since the SCAG forecasts are not detailed, the test for consistency of this project is not specific. The AQMP assumptions are based upon projections from local general plans. Projects that are consistent with the local

general plan are consistent with the AQMP assumptions. The emission projections for the project (see discussion under Impact AQ-2 below) show that the project would not impact local air quality significantly in excess of the ambient air quality standards, and therefore, would not represent a significant adverse change in air quality levels. Therefore, the second criterion is met for consistency with the AQMP.

Additionally, the project would comply with any new requirements specified in the 2016 AQMP. The project would result in the replacement of old facilities that tend to leak VOC at flanges, valves, pumps, and other equipment with newer equipment that would essentially eliminate these leaks. Measure CMB-03 of the AQMP calls out for replacing flares with turbines or other equipment that make use of any natural gas generated. The proposed project would be consistent with this measure. Therefore, the project in terms of its design and operation appear to be consistent with the control measures contained in the 2016 AQMP.

Mitigation Measures: None required.

Significance Determination: Less than Significant.

Impact AQ-2a: The project would violate the air quality standard and contribute substantially to an existing or projected air quality violation for construction-related VOC and NO_X emissions. (Significant and Unavoidable with Mitigation)

Construction

The construction emissions were estimated for the construction activities and phases discussed previously, which are described in further detail in the *Air Quality Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (2017), prepared by Greve & Associates and provided in Appendix B1 of this EIR. Construction impacts would be short-term and limited to the period when construction activities are taking place. The maximum daily emissions generated by each component of the proposed project and the combined sum from potential overlapping activities are shown in **Table 3.2-6, Unmitigated Regional Construction Emissions**. As shown in Table 3.2-6, none of the individual phases of construction would exceed the SCAQMD regional thresholds; however, some of the phases of construction could overlap with other phases of construction. If all phases of construction occurred simultaneously, then the emissions for VOC and NO_X would exceed the thresholds. The emissions for CO, SO_X, PM_{10}, and $PM_{2.5}$ would not be exceeded even if all of the phases of construction occurred at the same time.

The likely worst-case overlap for VOC and NO_X emissions is during a time when five construction phases are underway; specifically, well cellars, process equipment, tank construction, off-site construction, and office/warehouse construction. The VOC emissions during this period would total approximately 124 pounds per day and represent the actual worst case for the project. Mitigation Measure AQ-1 would be recommended to reduce the VOC impacts. Implementation of the VOC Mitigation Measure AQ-1 would reduce VOC impacts to a less-than-significant level. The NO_X emissions during this period would total 224.5 pounds per day and represent the actual worst case for the project. Mitigation Measure AQ-2 is recommended to reduce the emissions; however, there are no reasonable and feasible measures that can reduce the emissions to below 100 pounds per day. Therefore, construction of the project would result in a significant and unavoidable regional air quality impact due to regional NO_X emissions. Mitigation measures would also be recommended to reduce the VOC impacts. Implementation of the VOC mitigation measures would reduce VOC impacts to a less-than-significant level.

Table 3.2-6 Unmitigated Regional Construction Emissions

Construction Phase	Maximum Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
1. Demolition/Site Prep	6.6	130.2	52.7	0.3	9.9	4.5
2. Well Cellars	7.2	57.8	43.1	0.1	3.9	3.7
3. Process Equipment	7.8	63.8	49.4	0.1	4.2	3.8
4. Tank Construction	26.4	13.1	10.0	0.0	0.9	0.8
5. Off-Site Construction	7.7	65.8	47.5	0.1	5.4	4.2
6. Office/Warehouse	74.8	24.0	19.5	0.0	2.0	1.5
7. Wetlands Restoration	8.9	99.8	74.8	0.1	11.9	7.9
8. Turbine Commissioning	12.3	16.5	65.9	3.1	10.4	10.4
Phases 1–8 Combined	**151.7**	**471.0**	**362.9**	**3.8**	**48.6**	**36.8**
Landfill Excavation [a]	4.5	129.5	30.5	0.4	13.4	6.4
Phases 1–9 Combined	**156.2**	**600.5**	**393.4**	**4.2**	**62.0**	**43.2**
SCAQMD Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?[b]	**Yes**	**Yes**	No	No	No	No

SOURCE: Greve & Associates, 2017.

a. It is uncertain whether the landfill excavation activities would be needed and the timing of the activity, if necessary. It is possible that the landfill may be excavated and filled prior to any other construction activities.

b. Mitigation measures are discussed later in this section to reduce the significant VOC and NO_X emissions.

Mitigation Measures

The following mitigation measures shall be implemented.

Mitigation Measure AQ-1 would require the use of low-VOC paints to reduce VOC emissions to below the significance threshold:

> **Mitigation Measure AQ-1: Construction-Period Use of Low-VOC Paints.** The proposed project shall use paints with a VOC content of 75 grams per liter or less.

Mitigation Measure AQ-1 would reduce the VOC emissions to 21.9 pounds per day during the office/warehouse construction phase, and 7.7 pounds per day for the tank construction phase. This would also ensure that even when combined with other phases the emissions would be below the 75 pounds per day threshold for VOC. The total VOC emissions for all construction phases would be a maximum of 71.3 pounds per day, conservatively assuming that construction phases would overlap. In reality, all phases would likely not overlap and the maximum daily mitigated VOC emissions would be less than 71.3 pounds per day. Therefore, with implementation of this mitigation measure, the short-term emissions of VOC would be reduced to a level of less than significant.

Mitigation Measure AQ-2 would be aimed at reducing NO_X emissions. Mitigation Measure AQ-2 requires the use of construction equipment that meet the most stringent emissions standards for off-road equipment; however, even with implementation of this measure, the NO_X emissions for construction would still exceed the construction regional NO_X threshold. This analysis assumes that construction phases would overlap. In reality, all phases would likely not overlap and the maximum daily mitigated NO_X emissions would be lower than shown below. Nonetheless, conservatively assuming overlapping construction phases, regional NO_X emissions for construction of the proposed project would be significant and unavoidable.

Mitigation Measure AQ-2: Construction NO_X Reduction Measures.

- Require all off-road diesel-powered construction equipment greater than 50 hp (e.g., excavators, graders, dozers, scrappers, tractors, loaders, etc.) to comply with EPA-Certified Tier IV emission controls where commercially available. Documentation of all off-road diesel equipment used for this project, including Tier IV certification, or lack of commercial availability if applicable, shall be maintained and made available by the contractor to the City for inspection upon request. In addition, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by CARB such as certified Level 3 Diesel Particulate Filter or equivalent. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.
- Eliminate the use of all portable generators. Require the use of electricity from power poles rather than temporary diesel or gasoline power generators.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Provide dedicated turn lanes for movement of construction trucks and equipment on and off site.
- Reroute construction trucks away from congested streets or sensitive receptor areas.

Table 3.2-7, Mitigated Regional Construction VOC Emissions, applies the construction mitigation measures to the estimated unmitigated emissions and compares the new mitigated emissions to the SCAQMD's significance threshold.

Table 3.2-7 Mitigated Regional Construction VOC Emissions

Construction Phase	VOC (pounds per day)	Percent Reduction from Unmitigated Emissions
1. Demolition/Site Prep	3.5	47%
2. Well Cellars	4.9	32%
3. Process Equipment	5.5	29%
4. Tank Construction	7.7	71%
5. Off-Site Construction	7.7	0%
6. Office/Warehouse	24.4	67%
7. Wetlands Restoration	1.6	82%
8. Turbine Commissioning	12.3	0%
Phases 1–8 Combined	**67.6**	**55%**
Landfill Excavation	3.7	18%
Phases 1–9 Combined	**71.3**	**54%**
SCAQMD Threshold	*75*	
Exceeds Threshold?	No	

SOURCE: Greve & Associates, 2017.

Table 3.2-8, Mitigated Regional Construction NOX Emissions, applies the construction mitigation measures to the estimated unmitigated emissions and compares the new mitigated emissions to the SCAQMD's significance threshold.

Table 3.2-8 Mitigated Regional Construction NO_X Emissions

Construction Phase	NO_X (pounds per day)	Percent Reduction from Unmitigated Emissions
1. Demolition/Site Prep	93.7	28%
2. Well Cellars	39.9	31%
3. Process Equipment	46.2	28%
4. Tank Construction	0.9	93%
5. Off-Site Construction	65.8	0%
6. Office/Warehouse	24.0	0%
7. Wetlands Restoration	12.9	87%
8. Turbine Commissioning	16.5	0%
Phases 1-8 Combined	**299.9**	**36%**
Landfill Excavation	118.9	8%
Phases 1-9 Combined	**418.8**	**30%**
SCAQMD Threshold	*100*	
Exceeds Threshold?	**Yes**	

SOURCE: Greve & Associates, 2017.

Significance Determination: Significant and Unavoidable with Mitigation.

Impact AQ-2b: The project would not violate the air quality standard and contribute substantially to an existing or projected air quality violation for operational-related NO_X emissions. (Less than Significant with Mitigation)

Operation

Operational air pollutant emissions were estimated using CalEEMod Version 2016.3.1. The operational emissions calculations are provided in the *Air Quality Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (2017), prepared by Greve & Associates and provided in Appendix B1 of this EIR. Emissions from operational activities would occur at various sites and during various phases of the proposed project. The Pumpkin Patch site would generate emissions primarily from vehicle travel, natural gas for space heating, and a diesel-powered drilling rig. Most of the site's electricity would be generated by the turbines located at the LCWA site. One drilling rig would be operated at both the LCWA and Pumpkin Patch sites but would be electrically powered. Additionally, both sites would have diesel-powered workover drilling rigs that would operate during the daytime hours for approximately 50 hours per week.

There would be four turbines at the LCWA site to combust natural gas (which is naturally co-located with crude oil deposits) to produce electricity. The turbines are expected to provide the majority of energy to the Pumpkin Patch and LCWA sites with occasional support from the Southern California Edison (SCE) grid. The turbines would be subject to the SCAQMD BACT standards which would include emission control features such as lean-premix and selective catalytic reduction (SCR). SCR is capable of reducing NO_X emissions by up to 87 percent and is the assumed level of reduction required by the SCAQMD. The office and visitors center at the Synergy Oil Field site would generate emissions mainly from vehicle travel and natural gas for heating. All sites would be subject to routine painting (i.e., for maintenance, etc.) that would also contribute to VOC emissions.

The operational emissions for the proposed project are expressed in three different scenarios: the first 20 years of operation, 20 to 40 years of operations, and 40-plus years of operation. The reasoning for this is the gradual phasing out of existing oil production facilities and practices. Upon issuance of building permits, 75 percent of existing oil production would cease. After 20 years, 87.5 percent of the oil operations would cease, and existing production at the Synergy Oil Field and City Property sites are expected to be phased out by the end of 40 years. The different time frames are represented in **Table 3.2-9, Unmitigated Regional Operational Emissions—First 20 Years, through Table 3.2-11, Unmitigated Regional Operational Emissions—After 40 Years**.

Table 3.2-9 Unmitigated Regional Operational Emissions—First 20 Years

Site	Maximum Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Pumpkin Patch	5.0	19.4	11.6	0.0	1.3	0.8
Visitors Center	1.3	2.7	10.8	0.0	1.9	0.5
LCWA Site	8.4	18.6	8.5	0.0	0.7	0.6
Turbines at LCWA	54.2	78.0	94.9	14.7	25.0	25.0
Total Project Emissions	**68.9**	**118.7**	**125.8**	**14.7**	**28.9**	**26.9**
Phase out of 75% of Existing	28.0	42.9	17.9	0.1	2.3	1.3
Net Daily Regional Emissions	**41**	**76**	**108**	**15**	**27**	**26**
SCAQMD Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Significant Impact? [a]	No	**Yes**	No	No	No	No

SOURCE: Greve & Associates, 2017.
a. Mitigation measures are discussed later in this section to reduce the significant NO_X emissions.

Table 3.2-10 Unmitigated Regional Operational Emissions—20 to 40 Years

Site	Maximum Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Pumpkin Patch	5.0	19.4	11.6	0.0	1.3	0.8
Visitors Center	1.3	2.7	10.8	0.0	1.9	0.5
LCWA Site	8.4	18.6	8.5	0.0	0.7	0.6
Turbines at LCWA	54.2	78.0	94.9	14.7	25.0	25.0
Total Project Emissions	**68.9**	**118.7**	**125.8**	**14.7**	**28.9**	**26.9**
Phase out of 87.5% of Existing	32.6	47.1	20.3	0.1	2.5	1.5
Net Daily Regional Emissions	**36**	**72**	**106**	**15**	**26**	**25**
SCAQMD Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Significant Impact? [a]	No	**Yes**	No	No	No	No

SOURCE: Greve & Associates, 2017.
a. Mitigation measures are discussed later in this section to reduce the significant NO_X emissions.

Table 3.2-11 Unmitigated Regional Operational Emissions—After 40 Years

Site	Maximum Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Pumpkin Patch	5.0	19.4	11.6	0.0	1.3	0.8
Visitors Center	1.3	2.7	10.8	0.0	1.9	0.5
LCWA Site	8.4	18.6	8.5	0.0	0.7	0.6
Turbines at LCWA	54.2	78.0	94.9	14.7	25.0	25.0
Total Project Emissions	**68.9**	**118.7**	**125.8**	**14.7**	**28.9**	**26.9**
Complete Phase Out of Existing Operations	37.2	51.4	22.6	0.1	27	1.6
Net Daily Regional Emissions	**32**	**67**	**103**	**15**	**2**	**25**
SCAQMD Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Significant Impact? [a]	No	**Yes**	No	No	No	No

SOURCE: Greve & Associates, 2017.
a. Mitigation measures are discussed later in this section to reduce the significant NO_X emissions.

The data for operational emissions in Table 3.2-9 through Table 3.2-11 show that the change in project emissions would be below the SCAQMD thresholds for all pollutants except regional operational NO_X emissions. The primary emission source for this pollutant would be the turbines. The diesel drilling rigs at the Pumpkin Patch and LCWA sites would be secondary contributors. Mitigation Measure AQ-3 would be recommended to reduce the NO_X. With the implementation of operational mitigation measures, the operational NO_X emissions would be reduced to below the SCAQMD threshold. Therefore, operational impacts would be mitigated to a less-than-significant level.

Mitigation Measures

The following mitigation measures shall be implemented as appropriate by all future project components that are unable to demonstrate that operational emissions would be below the applicable SCAQMD thresholds without implementation of mitigation.

Mitigation Measure AQ-3 requires the use of diesel-powered drilling rigs that meet the most stringent emissions standards for off-road equipment. With implementation of this measure, the NO_X emissions for operations would be reduced to below the operational regional NO_X threshold. Therefore, regional NO_X emissions for operation of the proposed project would be mitigated to a less-than-significant level.

> **Mitigation Measure AQ-3: Operational NO_X Reduction Measures.** Require all diesel-powered drilling rigs located at the Pumpkin Patch and LCWA sites to comply with EPA-certified Tier IV emission controls. This drilling rig equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by CARB.

Table 3.2-12, Mitigated Regional Operational Emissions—First 20 Years, through **Table 3.2-14, Mitigated Regional Operational Emissions—After 40 Years**, show the emissions reductions with Mitigation Measure AQ-3 implemented. The use of Tier IV emissions controls on the drilling rigs would mitigate the NO_X emissions to a less-than-significant level based on the SCAQMD's thresholds.

> **Significance Determination:** Less than Significant with Mitigation.

Table 3.2-12 Mitigated Regional Operational Emissions—First 20 Years

Site	Maximum Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Pumpkin Patch	4.3	6.5	17.7	0.0	0.9	0.4
Visitors Center	1.3	2.7	10.8	0.0	1.9	0.5
LCWA Site	7.8	5.6	14.6	0.0	0.3	0.2
Turbines at LCWA	54.2	78.0	94.9	14.7	25.0	25.0
Total Project Emissions	**67.6**	**92.8**	**138.0**	**14.7**	**28.1**	**26.1**
Phase out of 75% of Existing	28.0	42.9	17.9	0.1	2.3	1.3
Net Daily Regional Emissions	**39.6**	**49.9**	**120.1**	**14.6**	**25.8**	**24.8**
SCAQMD Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No

SOURCE: Greve & Associates, 2017.

Table 3.2-13 Mitigated Regional Operational Emissions—20 to 40 Years

Site	Maximum Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Pumpkin Patch	4.3	6.5	17.7	0.0	0.9	0.4
Visitors Center	1.3	2.7	10.8	0.0	1.9	0.5
LCWA Site	7.8	5.6	14.6	0.0	0.3	0.2
Turbines at LCWA	54.2	78.0	94.9	14.7	25.0	25.0
Total Project Emissions	**67.6**	**92.8**	**138.0**	**14.7**	**28.1**	**26.1**
Phase out of 87.5% of Existing	32.6	47.1	20.3	0.1	2.5	1.5
Net Daily Regional Emissions	**35.0**	**45.7**	**117.7**	**14.6**	**25.6**	**24.6**
SCAQMD Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No

SOURCE: Greve & Associates, 2017.

Table 3.2-14 Mitigated Regional Operational Emissions—After 40 Years

Site	Maximum Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Pumpkin Patch	4.3	6.5	17.7	0.0	0.9	0.4
Visitors Center	1.3	2.7	10.8	0.0	1.9	0.5
LCWA Site	7.8	5.6	14.6	0.0	0.3	0.2
Turbines at LCWA	54.2	78.0	94.9	14.7	25.0	25.0
Total Project Emissions	**67.6**	**92.8**	**138.0**	**14.7**	**28.1**	**26.2**
Complete Phase Out of Existing Operations	37.2	51.4	22.6	0.1	27	1.6
Net Daily Regional Emissions	**30.4**	**41.4**	**115.4**	**14.6**	**1.1**	**24.6**
SCAQMD Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No

SOURCE: Greve & Associates, 2017.

Impact AQ-3a: The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) during construction. (Significant and Unavoidable with Mitigation)

The project area is located within the SCAB, which is considered the cumulative study area for air quality. Because the SCAB is currently classified as nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, cumulative development consisting of the proposed project along with other reasonably foreseeable future projects in the SCAB as a whole could violate an air quality standard or contribute to an existing or projected air quality violation. Based on SCAQMD's cumulative air quality impact methodology, SCAQMD recommends that if an individual project results in air emissions of criteria pollutants (VOC, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.

The proposed project would exceed regional significance thresholds for construction-related VOC and NO_X emission. Implementation of Mitigation Measure AQ-1 would reduce construction-related VOC emissions to a less-than-significant level. Mitigation Measure AQ-2 would reduce construction-related NO_X emissions; however, the NO_X emissions would still exceed the threshold. Since Mitigation Measure AQ-2 requires the use of construction equipment that meet the most stringent emissions standards, there are no feasible measures to reduce the construction NO_X emissions to less than the threshold. Therefore, the short-term construction NO_X emissions would result in a cumulatively considerable net increase and impacts would be significant and unavoidable.

Mitigation Measures: Mitigation Measures AQ-1 and AQ-2 would apply.

Significance Determination: Significant and Unavoidable with Mitigation.

Impact AQ-3b: The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) during operations. (Less than Significant with Mitigation)

Operation

As discussed under Impact AQ-3a, the project area is located within the SCAB, which is currently classified as nonattainment area for ozone, PM_{10}, and $PM_{2.5}$. Based on SCAQMD's cumulative air quality impact methodology, SCAQMD recommends that if an individual project results in air emissions of criteria pollutants (VOC, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.

The proposed project would exceed regional significance thresholds for operational-related NO_X emissions. Implementation of Mitigation Measure AQ-3 would reduce operational-related NO_X emissions to below the threshold. Therefore, the long-term operational NO_X emissions would be mitigated to a less-than-significant level.

Mitigation Measures: Mitigation Measure AQ-3 would apply.

Significance Determination: Less than Significant with Mitigation.

Impact AQ-4: The project would not expose sensitive receptors to substantial pollutant concentrations in excess of the localized significance thresholds and would not result in CO hotspot impacts. (Less than Significant with Mitigation)

Construction

Localized Construction Air Quality Impacts—Criteria Air Pollutants

The localized impacts of the project were assessed using the SCAQMD's methodology and LSTs. The nearest sensitive receptors were identified and impacts were analyzed based on the receptor's distance from the source and size (in acres) of the proposed project area. Of the four sites, the Synergy Oil Field and Pumpkin Patch sites represent the worst-case emissions scenarios for the proposed project and were, therefore, the sites analyzed using LSTs. The Synergy Oil Field site is the closest site to any sensitive receptor and, together, the Synergy Oil Field and Pumpkin Patch sites account for the greatest levels of construction and operational activity. **Table 3.2-15, On-Site Construction Emissions for Synergy Oil Field Site**, and **Table 3.2-16, On-Site Construction Emissions for Pumpkin Patch Site**, represent the on-site construction emissions for the Synergy Oil Field and Pumpkin Patch sites compared to the applicable SCAQMD's LSTs.

Table 3.2-15 On-Site Construction Emissions for Synergy Oil Field Site

Activity	Daily Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Wetlands Restoration	91	65	11	7
LST Threshold	*126*	*2,622*	*58*	*18*
Exceeds Threshold?	No	No	No	No

SOURCE: Greve & Associates, 2017.

Table 3.2-16 On-Site Construction Emissions for Pumpkin Patch Site

Activity	Daily Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Well Cellars	39.7	27.4	2.6	2.5
Process Equipment	45.1	31.7	2.6	2.5
Tank Construction	13.0	9.6	0.9	0.8
Office/Warehouse	23.3	17.0	1.5	1.4
Maximum Daily On-Site Emissions	**121**	**86**	**8**	**7**
LST Threshold	*148*	*5,246*	*109*	*53*
Exceeds Threshold?	No	No	No	No

SOURCE: Greve & Associates, 2017.

As shown in Table 3.2-15 and Table 3.2-16, the on-site construction emissions generated by the proposed project would not exceed the applicable SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$. Therefore, construction of the project would not expose sensitive receptors to substantial criteria pollutant concentrations, and localized construction air quality impacts would be less than significant.

Operation

Operational LSTs, like construction LSTs, are evaluated for the on-site emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$ from stationary, area, and energy sources, such as building heating and cooling units, landscaping equipment and consumer products. The primary source of emissions generated from operation of the proposed facilities would be from the turbines located on the LCWA site. Electrical operation of the facilities would be constantly producing energy to power the on-site facilities and the increase in energy usage would increase greatly on site. Furthermore, localized air impacts were analyzed at the LCWA site because its emissions represent the overwhelming majority of operational emissions between the four individual sites. The LCWA effectively represents the worst-case scenario of operational emissions on any given day. **Table 3.2-17, On-Site Operation Emissions for Los Cerritos Wetlands Authority (LCWA) Site**, summarizes the operational emissions from the LCWA site compared to the applicable SCAQMD LSTs.

Table 3.2-17 On-Site Operation Emissions for Los Cerritos Wetlands Authority (LCWA) Site

	Daily Emissions (lbs/day)			
Activity	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
On-Site Emissions	18.6	8.5	0.7	0.6
Turbine Emissions	78.0	94.9	25.0	25.0
Maximum Daily On-Site Emissions	**96.6**	**103.4**	**25.7**	**25.6**
LST Threshold	*186*	*11,326*	*51*	*33*
Exceeds Threshold?	No	No	No	No

SOURCE: Greve & Associates, 2017.

As shown in Table 3.2-17, the on-site operational emissions generated at the LCWA site would not exceed the SCAQMD's LSTs for the criteria pollutants studied; therefore, emissions associated with on-site operational activities would result in a less-than-significant impact.

CO Hotspots

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. Projects may worsen air quality if they increase the percentage of vehicles in cold start modes by 2 percent or more; significantly increase traffic volumes (by 5 percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at level of service (LOS) E or F or causing an intersection that would operate at LOS D or better without the proposed project, to operate at LOS E or F. While construction-related traffic on the local roadways would occur during construction, the net increase of construction worker vehicle trips to the existing daily traffic volumes on the local roadways would be relatively small and would not result in CO hotspots. Additionally, the construction-related vehicle trips would only occur in the short term, and would cease once construction activities have been completed. During operation, truck trips would occur to transport crude oil from the site to off-site refinery locations. Worker trips and visitors would also travel to and from the site; however, the number of trips would not be expected to cause a substantial change in the LOS of roadway intersections. Furthermore, as shown in Table 3.2-2, CO concentrations in the project area are relatively low up to approximately 3 ppm for a 1-hour average compared to the ambient air quality standard of 20 ppm and up to approximately 2 ppm for an 8-hour average compared to the ambient air quality standard of 9.0 ppm.

Project construction or operation would not generate sufficient traffic to cause a substantial change in the CO levels. Therefore, CO hotspot impacts would be less than significant.

Toxic Air Contaminants

The purpose of this health risk assessment is to determine whether a significant health risk impact would result from continued exposure to TAC emissions emitted during project construction and operation. According to CARB, Assembly Bill (AB) 1807 defines TACs as "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." TACs are usually found in very small amounts in ambient air, most often in urban environments. TAC emissions would be emitted from various sources throughout construction and operation of the project, as described in further detail below.

Construction Health Impacts

Removal of the existing facilities and construction of the new facilities would expose members of the public to diesel exhaust, which contains a variety of gaseous and solid particulate chemical compounds, many of which have been identified by CARB as TACs. During construction, diesel exhaust would be generated by off-road diesel-powered equipment, such as loaders, drill rigs, dozers, rollers, backhoes, forklifts, etc. and by on-road heavy duty hauling trucks traveling to and from the site. Of the TACs found in diesel exhaust, the primary TAC of concern is DPM, which is generated from the combustion of diesel fuel. According to CARB, DPM is estimated to contribute to 70 percent of total known cancer risk related to air toxics in California. Similarly, according to supporting CARB studies, DPM represents 50 to 90 percent of the risk of mutations that lead to cancer from exposure to diesel exhaust. Due to these reasons, DPM is generally used as a surrogate to identify the potential risks from diesel emissions. Consistent with CARB and other health risk assessments conducted within the Los Angeles Air Basin, the analysis evaluates the health risk impacts from exposure to diesel exhaust by using DPM as a surrogate, as the main sources of toxic emissions associated with construction include the use of diesel-powered engines.

According to CARB, "More than 90% of DPM is less than 1 µm in diameter … and thus is a subset of particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles." For this reason, DPM emissions from project construction were estimated using the values of exhaust $PM_{2.5}$ found in the CalEEMod output files provided in the *Air Quality Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (2017), prepared by Greve & Associates LLC and provided in Appendix B1 of this EIR.

The California OEHHA is responsible for developing and revising guidelines for performing health risk assessments (HRAs) under the State's the Air Toxics Hot Spots Program Risk Assessment (AB 2588) regulation. In March 2015, OEHHA adopted revised guidelines that update the previous guidelines by incorporating advances in risk assessment with consideration of infants and children using ASFs. These changes also take into account the sensitivity of children to TAC emissions, different breathing rates, and time spent at home. Children have a higher breathing rate per unit body mass compared to adults. On June 5, 2015, SCAQMD incorporated these guidelines in to relevant rules designed for permitting of stationary sources. Although construction would be temporary, construction impacts associated with TACs are addressed quantitatively in a refined HRA, with detailed calculation worksheets provided in the *Health Risk Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (2017), prepared by Soil/Water/Air

Protection Enterprise (SWAPE) and provided in Appendix B2 of this EIR. The HRA was performed in accordance with the revised OEHHA Guidance (OEHHA 2015).

Operational Health Impacts

Project operations would also produce harmful emissions of TACs, which may adversely impact the health of the surrounding communities. Unlike project construction, toxic emissions associated with future operations of the project are not exclusively limited to diesel exhaust emissions. Rather, toxic emissions associated with future operations would vary based on the emission source, details of which are described in further detail below.

Turbines

The project proposes to install four gas-powered turbines to generate electricity on site, which can result in hazardous air pollutant (HAP) emissions such as formaldehyde, acetaldehyde, and benzene that can contribute to increased cancer and non-cancer risks; however, the project applicant proposes, as part of the project design, to install a CO oxidation catalyst on the turbines to reduce these harmful pollutant emissions. According to a memorandum by the USEPA, the CO catalyst would reduce CO emissions emitted by these gas turbines, and would also reduce HAP emissions such as formaldehyde, acetaldehyde, and benzene by 85 to 90 percent. Since the emissions from operation of the proposed gas turbines are approximately 85 to 90 percent less than potential turbine emissions without a CO oxidation catalyst, the carcinogenic and non-carcinogenic health risk impact from these turbines would be significantly reduced; however, in an effort to provide the most conservative analysis possible, this analysis evaluated the health risk impact that operation of these gas-powered turbines would result in when equipped with the CO catalyst. Formaldehyde is the most significant HAP emitted from combustion turbines and accounts for about two-thirds of the HAP emissions. Therefore, an evaluation of the project's formaldehyde emissions is sufficient at determining the health risk impact from these turbines.

Drilling and Workover Rigs

Well stimulation activities, including the use of drill rigs and workover rigs, also produce emissions of TACs. Specifically, the use of drilling and workover rigs would generate emissions of DPM, formaldehyde, benzene, and 1,3-butadiene, which are all known TACs. One drilling rig would be in operation on a regular basis at both the Pumpkin Patch and LCWA sites as part of the proposed project for a total of two drilling rigs; however, these two drilling rigs would be electric (not diesel powered); therefore, emissions of TACs from these rigs would be negligible; however, at both the Pumpkin Patch and LCWA sites, diesel-powered workover drilling rigs would be in operation periodically, and would contribute to the project's health risk impact. Therefore, an evaluation of the project's DPM, formaldehyde, benzene, and 1,3-butadiene emissions is sufficient at determining the health risk impact from these workover rigs.

Fugitive Emission Sources

Fugitive emissions from pipes, storage tanks, and process losses would also contribute to the project's TAC emissions. The TACs of concern from fugitive emission sources include benzene, toluene, ethyl benzene, xylene, and hexane; however, tanks at both Pumpkin Patch and LCWA sites would be fixed-roof gas blanket design, and are designed to be both liquid- and vapor-tight, thus reducing the fugitive TAC emissions emitted by these tanks. A breather valve (pressure-vacuum valve), which is commonly installed on many fixed-roof tanks, allows the tank to operate at a slight internal pressure or vacuum. Because this valve prevents the release of vapors during only very small changes in temperature, barometric pressure, or liquid level, fugitive

emissions from a fixed-roof tank can occur and, thus, are included in this analysis. These oil-containing tanks would be permitted through the SCAQMD and equipped with BACT.

Off-Road Equipment and On-Road Mobile Sources

Finally, the use of on-site equipment and mobile sources, including heavy-duty diesel trucks visiting the site, would also generate emissions of DPM, which is the primary TAC found in diesel exhaust. During operation, diesel exhaust would be generated by off-road diesel-powered equipment and by on-road heavy duty hauling trucks traveling to and from the site. As previously stated, DPM represents 50 to 90 percent of the risk of mutations that lead to cancer from exposure to diesel exhaust, and $PM_{2.5}$ accounts for more than 90 percent of DPM. Therefore, DPM emissions from project operations were estimated using the values of exhaust $PM_{2.5}$ found in the CalEEMod output files provided in the AQ Assessment.

The refined HRA for operational impacts considers these sources and was conducted in accordance with the OEHHA Guidance (OEHHA 2015). A detailed discussion of the operational HRA modeling and calculation worksheets are provided in the *Health Risk Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (2017), prepared by SWAPE and provided in Appendix B2 of this EIR.

Air Dispersion Modeling

Air dispersion modeling was conducted using AERMOD, the EPA's preferred air dispersion modeling system to model ambient air concentrations during project construction and operation. AERMOD is a steady-state Gaussian plume model that requires project-specific input parameters including meteorological and topographic data, as well as emission data for all pollution sources.

For this health risk assessment, the model used the EPA executable's standard regulatory options for modeling $PM_{2.5}$ and VOC concentrations. The most recent year of surface and upper-air meteorological data (November 1, 2015, through October 31, 2016) was obtained from BREEZE Trinity Consultants, which specialize in processing AERMOD-ready data. The surface-air data came from the Los Alamitos Army Airfield (KSLI), which is approximately 6.2 kilometers from the project site. The upper-air data came from the Miramar Marine Corps Air Station (KNKX), which is approximately 152 kilometers from the project site. There are only approximately 100 upper air stations in North America, so this distance is typical.

Terrain data was downloaded in the form of digital elevation model (DEM) files. Two 7.5-minute tiles with 30-meter resolution were imported into AERMOD's AERMAP feature, which enables the model to estimate exact elevations for all sources and receptors points. A uniform Cartesian receptor grid with 200-meter spacing was used to evaluate ambient air for project construction and operations. The grid spanned approximately 6 square kilometers, centered over the project site and including potential sensitive receptors surrounding the project site.

In addition to the receptor grid, seven discrete receptors were placed at the locations of the potential sensitive receptors. These locations include six residential receptors in neighborhoods surrounding the project, as well as Rosie the Riveter Charter High School. According to the SCAQMD's Risk Assessment Guidelines:

> *For new facilities, the rule requires the facility-wide cancer risk to be less than one in one million at any school or school under construction within 500 feet of the facility. If there are no schools within 500 feet, the same risk levels must be met at any school or school under*

> *construction within 500 to 1,000 feet unless there is a residential or sensitive receptor within 150 feet of the facility.*[25]

Rosie the Riveter Charter High School is located approximately 1,475 feet north of the project site and is, therefore, exempt from the aforementioned SCAQMD rule.

AERMOD polygon area sources require input parameters including elevation (meters), release height (meters), initial vertical dimension (meters), and emission rate (pounds per hour by square foot). Area source elevations were determined using DEMs and the AERMAP feature. A release height of 4.572 meters (15 feet) was used, which is the approximate average height of truck and construction equipment exhaust pipes as defined by the Port of Los Angeles.[26] The initial vertical dimension parameter is optional and was set to zero for all AERMOD models. AERMOD point sources require input parameters including elevation (meters), stack height (meters), stack temperature (degrees Celsius), stack velocity (meters per second), stack diameter (meters), and emission rate (tons per year). Point source elevations were determined using DEMs and the AERMAP feature. All other point source input parameters were obtained from SPEC Services, Inc. For this assessment, AERMOD was used to determine ambient air concentrations of TACs for both existing emissions and future emissions.

Health Risk Assessment Results

Health Risk for Existing Emissions

Of the 53 wells on the Synergy Oil Field, City Property, and Pumpkin Patch sites, there are approximately 33 wells currently in production. A minimal amount of TAC emissions is generated by the operation of these wells, including DPM and VOC emissions associated with diesel workover rigs, oil truck trips, and employee travel. The operation of these existing oil wells have a combined health risk impact of approximately 92.8 in one million (see **Table 3.2-18, Existing Emissions Health Risk Assessment Results**).

Table 3.2-18 Existing Emissions Health Risk Assessment Results

Receptor	Cancer Risk (per million)	Chronic Risk (HI)	Acute Risk (HI)
Infant	42.67	0.02889	0.01511
Child	45.15	0.02889	0.01511
Adult	5.01	0.02889	0.01511
MEIR Lifetime Total	**92.83**	**N/A**	**N/A**

SOURCE: SWAPE, 2017.

Once the proposed project has a certified EIR and has received the necessary building permits to begin construction of the new oil facilities, the project would reduce current operations and oil production of these 53 existing wells by 75 percent to facilitate their removal. Therefore, by reducing existing oil production by 75 percent once the first building permits are issued and eventually plugging and abandoning all existing wells

[25] SCAQMD, "Risk Assessment Procedures for Rules 1401, 1401.1, and 212," June 2015. Available at http://www.aqmd.gov/docs/default-source/planning/risk-assessment/riskassprocjune15.pdf?sfvrsn=2.
[26] Los Angeles Harbor Department, "Appendix C2 Dispersion Modeling of Criteria Pollutants for the Southern California International Gateway Project," September 2011. Available at https://www.portoflosangeles.org/EIR/SCIG/DEIR/APPENDIX_C2.pdf.

over a period of 40 years, implementation of the project would substantially reduce the health risk impact to nearby sensitive receptors.

Health Risk for Unmitigated Future Emissions

The Hotspots Analysis and Reporting Program Version 2 (HARP2) modeling results for unmitigated future project emissions are shown below in **Table 3.2-19, Unmitigated Health Risk Assessment Results**. Overall, the worst-case health risk associated with project construction and operation exceeds the applicable health risk criteria for infant, child, adult, and lifetime cancer risk of 10 per one million. Furthermore, the cancer burden was calculated because, according to SCAQMD guidelines, the MICR is greater than one 1 in one million. Cancer burden is the product of the lifetime MICR multiplied by the area in which the MICR is greater than one 1 in one million multiplied by the population density in the census tracts surrounding the project. Using these guidelines, the cancer burden associated with future project emissions was calculated to be 0.958, which exceeds the SCAQMD significance threshold of 0.50.

Table 3.2-19 Unmitigated Health Risk Assessment Results

Receptor	Cancer Risk (per million)	Chronic Risk (HI)	Acute Risk (HI)
Infant	114.76	0.06709	0.00000
Child	14.58	0.00991	0.05028
Adult	1.62	0.00993	0.05028
MEIR Lifetime Total	**130.96**	**N/A**	**N/A**
Health Risk Threshold	*10*	*1.0*	*1.0*
Exceeds Threshold?	**Yes**	No	No

SOURCE: SWAPE, 2017.

Based on the health risk assessment modeling results, health risks would be considered potentially significant. Sources that contribute the greatest to high health risk levels mainly include diesel engines associated with short-term construction equipment and on-road hauling trucks. Therefore, additional construction- and operation-related mitigation should be identified and incorporated in order to reduce the project's health risk impact.

Mitigation Measures for Toxic Air Contaminants

Mitigation measures have been identified as part of the AQ Assessment for both short-term (construction) and long-term (operational) impacts. Mitigation Measures AQ-2 and AQ-3 identified above would reduce NO_X emissions and effectively reduce emissions of DPM and other TACs emitted during project construction and operations, respectively. In order to reach acceptable levels of public health risk, Mitigation Measure AQ-2 must be applied to each phase of construction and Mitigation Measure AQ-3 must be applied to drilling operations.

Health Risk for Mitigated Future Emissions

To evaluate the effectiveness of the proposed mitigation measures, the HARP model was rerun using mitigated DPM and VOC emissions. The HARP2 modeling results for mitigated future project emissions are presented in **Table 3.2-20, Mitigated Health Risk Assessment Results**. The health risk associated with project construction and operations, when these mitigation measures are implemented, are all well below the applicable health risk criteria for infant, child, adult, and lifetime risk at the MEIR.

Table 3.2-20 Mitigated Health Risk Assessment Results

Receptor	Cancer Risk (per million)	Percent Reduction in Cancer Risk from Unmitigated TAC Emissions
Infant	3.40	97%
Child	3.69	75%
Adult	0.41	75%
MEIR Lifetime Total	**7.50**	**94%**
Health Risk Threshold	*10*	—
Exceeds Threshold?	No	—

SOURCE: SWAPE, 2017.

With implementation of the mitigation measures listed above, the project's lifetime maximum individual cancer risk (MICR) of 7.50 in one million would be reduced to below the significance threshold of 10 in one million. Additionally, the chronic and acute non-cancer risks are below the significance threshold of 1.

Furthermore, the mitigated cancer burden was calculated because, according to SCAQMD guidelines, the MICR is greater than 1 in one million. the mitigated cancer burden associated with future project emissions was calculated to be 0.004, which is well below the SCAQMD significance threshold of 0.50.

Conclusion

As evident in **Table 3.2-21, Mitigated Health Risk Assessment Results and Significance Thresholds**, the MICR, cancer burden, chronic non-cancer risk, and acute non-cancer risk are all below their respective significance thresholds when mitigation is applied to the project. Therefore, the project's health risk impacts would be less than significant with mitigation.

Table 3.2-21 Mitigated Health Risk Assessment Results and Significance Thresholds

Criteria Description	Health Risk	Threshold Value	Exceedance?
Cancer Risk, per million	7.50	10	No
Cancer Burden	0.004	0.5	No
Chronic HI, maximum	0.009	1	No
Acute HI, maximum	0.089	1	No

SOURCE: SWAPE, 2017.

To provide the most conservative analysis possible, several assumptions were made in the modeling process that likely overestimate the project's cancer risks and non-cancer hazards. In AERMOD, the construction phases were modeled separately, and then the resulting ambient air concentrations were added together as if every phase was happening simultaneously. In reality, construction would take place over a 2- to 4-year period, so this method greatly overestimates the annual ambient air concentrations surrounding the project during construction. Additionally, the most conservative method was used to determine ambient air concentrations at sensitive receptor locations. As mentioned in the Air Dispersion Modeling section, seven potential sensitive receptor locations were identified near the project site. Instead of using the closest individual receptor for the basis of the health risk analysis, the analysis selected the receptor with the highest ambient air concentration separately for construction and operation. Therefore, the highest exposures estimated by AERMOD were input into HARP to estimate the health risk.

Furthermore, the analysis relied upon SCAQMD's most recent health risk guidance document, "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," to determine the project's health risk impact. This guidance document, which was published in June of 2015, was prepared as a supplement to OEHHA's most recent health risk guidelines entitled, "Air Toxics Hot Spots Program Risk Assessment Guidelines" (referred to as the OEHHA Guidelines), and is intended to be more health protective of infants and children exposed to cancer causing substances. As stated in the OEHHA Guidelines, studies have shown that young animals are more sensitive than adult animals to exposure to many carcinogens. Therefore, in an effort to take into account the increased sensitivity to carcinogens during early-in-life exposure, OEHHA developed updated risk assessment methodologies, such as the use of higher breathing rates and ASFs for infants and children, and the inclusion of multiple exposure pathways, including inhalation, as well as dermal absorption, soil ingestion, home grown produce, and mother's milk. Consistent with these updated guidelines, the analysis used high end breathing rates (95th percentile) for children from the 3rd trimester through age 2, and 80th percentile breathing rates for all other ages for residential exposures, and we applied an ASF of 10 for the third trimester to age 2 years, and an ASF of 3 for ages 2 through 15 years to account for potential increased sensitivity to carcinogens during childhood. Finally, the report accounted for exposure via multiple pathways including inhalation, dermal absorption, soil ingestion, home grown produce, and mother's milk.

Due to these reasons, the project's health risk impact is most likely much lower than what was estimated herein, as the assessment relies upon the maximum construction and operational ambient air concentrations and relies upon exposure assumptions that are very conservative, and tend to err on the side of health protection for early-in-life exposures.

Mitigation Measures: Mitigation Measures AQ-2 and AQ-3 would apply.

Significance Determination: Less than Significant with Mitigation.

Impact AQ-5: The project would not create objectionable odors affecting a substantial number of people. (Less than Significant with Mitigation)

Construction

During the construction of the project, exhaust from construction equipment may produce discernible odors typical of most construction sites; however, such odors would be temporary. The proposed project would comply with the applicable provisions of the CARB ATCM regarding idling limitations for diesel trucks. Construction of the project would require the use of architectural coatings. Implementation of Mitigation Measure AQ-1 would minimize VOC emissions to a less-than-significant level. In addition, Mitigation Measure AQ-2 would minimize diesel emissions. Through mandatory compliance with SCAQMD rules and implementation of Mitigation Measures AQ-1 and AQ-2, construction activities are not expected to create objectionable odors affecting a substantial number of people. Therefore, construction odors would be considered less than significant.

Operation

Odors are considered significant if they produce a nuisance. The determination of a significant odor impact is based on creating a nuisance per SCQMD Rule 402. Rule 402 states that "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment,

nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." The SCAQMD has an established Public Nuisance Investigation Policies and Procedures to guide the SCAQMD inspectors in determining whether to issue a Notice of Violation (NOV) for a nuisance. The procedures direct SCAQMD investigators to interview complainants and observe, identify, or otherwise establish evidence odorous emissions. An NOV is issued if a "multiple complaint condition" is documented, defined as six or more complainants.

There are an estimated 400 oil and gas production facilities operating within Los Angeles County (per the SCAQMD Board meeting June 6, 2014). The agency's current odor complaint identification and investigation practices are effective but, in some cases, odors are elusive. The SCAQMD receives thousands of complaints about odor from the public each year. Odors are the single largest source of complaints reported by residents of the SCAB and comprise almost half of the total air quality complaints received annually. Facilities frequently reported as suspected sources of odors include waste transfer and recycling stations, wastewater treatment plants, landfills, composting operations, petroleum operations, food and byproduct processes, factories, and agricultural activities, such as livestock operations (per the SCAQMD Board meeting June 6, 2014). While most oil and gas production facilities operate without generating NOVs, NOVs have occurred at oilfields in the Los Angeles area, with two recent high-profile odor releases occurring at the Baldwin Hills Oilfield (which generated a drilling moratorium, an EIR, and the development of a Community Standards District in 2008) and the Allenco Facility, which generated over 270 odor complaints between 2010 and 2013 per the SCAQMD.

Odor complaints are expected not to be an issue with the proposed facilities. The oil production facilities that are being replaced are old with minimal emission controls at well heads, flanges, pumps, and other equipment that has seen many years of use. The proposed facility would use new equipment that must meet all of the latest SCAQMD regulations. For example, tanks used at other facilities may have been open or had floating roofs. All of the tanks for this project would have fixed roof tanks that drastically reduce fugitive emissions and would be expected to virtually eliminate off-site odors. Second, the Pumpkin Patch and LCWA sites are located at some distance from residential areas (830 feet from the Pumpkin Patch site and 1,825 feet from the LCWA site) and are separated from residential areas with either other industrial development (such as the Plains All American Pipeline property) or arterials, such as Pacific Coast Highway (PCH) or Westminster Avenue. This distance and the intervening uses help to disperse any odorous material that might accidentally be released from the facility. Finally, the facilities must comply with SCAQMD Rule 402, which requires that the facilities cannot be a nuisance and must modify operations to comply. Therefore, operational odor impacts would be less than significant.

Mitigation Measures: Mitigation Measures AQ-1 and AQ-2 would apply.

Significance Determination: Less than Significant with Mitigation.

Consistency with the Long Beach General Plan Air Quality Element

The consistency of the project with the Long Beach General Plan Air Quality Element is assessed in **Table 3.2-22, Consistency Analysis with Long Beach General Plan Air Quality Element**. As discussed, the project would be consistent with applicable Long Beach General Plan Air Quality Element goals and policies.

Table 3.2-22 Consistency Analysis with Long Beach General Plan Air Quality Element

Goals and Policies	Consistency Determination	Consistency Analysis
City of Long Beach General Plan Air Quality Element		
Goal 6.0: Minimize particulate emissions from the construction and operation of roads and buildings, from mobile sources, and from the transportation, handling and storage of materials.	Consistent	The proposed project would minimize particulate matter emissions from construction by implementing Mitigation Measure AQ-2 during construction and Mitigation Measure AQ-3 during operations. Implementation of these measures would result in substantial reductions in particulate matter (diesel particulate matter) from heavy-duty construction equipment and from the drill rigs. In addition, the project would comply with the particulate matter (fugitive dust) control requirements of SCAQMD Rule 403, which requires the use of best available control measures as listed in the Rule. Therefore, the project would be consistent with this goal.
Policy 6.1: Control Dust. Further reduce particulate emissions from roads, parking lots, construction sites, unpaved alleys, and port operations and related uses.	Consistent	The proposed project would minimize fugitive dust particulate matter emissions by complying with the fugitive dust control requirements of SCAQMD Rule 403, which requires the use of best available control measures as listed in the Rule. Therefore, the project would be consistent with this policy.
Goal 7.0: Reduce emissions through reduced energy consumption.	Consistent	The sources of criteria pollutant and greenhouse gas emissions include construction of the proposed project, operation of the turbines at the LCWA site, electric-powered and diesel-fueled drilling rigs, building electricity, and natural gas demand from the visitors center, and vehicles traveling to and from the site and the visitors center. The proposed project would consider GHG reduction measures that would be in line with the City of Long Beach Sustainable City Action Plan initiatives, which would include designing the Synergy Office Building and warehouse on the Pumpkin Patch site to meet or exceed the California Green Building Standards (CALGreen) Code Tier 1 requirements for energy efficiency, water demand, and cool roofs (unless solar photovoltaic pans are installed) and/or meet or exceed the USGBC LEED Silver Certification requirements or equivalent green building standards. The proposed project would also include the installation of solar photovoltaic panels on the Synergy Office Building and warehouse on the Pumpkin Patch site and would maximize the planting of native and/or drought-tolerant trees and vegetation on the site where appropriate to sequester GHG emissions on the project site.

3.2.4.4 Cumulative Impacts

Construction

With respect to the project's construction-period air quality emissions and cumulative basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the 2012 AQMP pursuant to federal CAA mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements, and implement all feasible mitigation measures. In addition, the proposed project would comply with adopted AQMP emissions control measures. Per SCAQMD rules and mandates as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects basin-wide.

As indicated above, the incremental increase in emissions from construction of the project would not exceed SCAQMD regional daily mass emission significance thresholds for CO, SO_X, PM_{10}, and $PM_{2.5}$ and the localized daily mass emission significance thresholds for NO_X, CO, PM_{10}, and $PM_{2.5}$, but would exceed the SCAQMD regional daily mass emission thresholds for VOC and NO_X during construction. For VOC emissions, implementation of Mitigation Measure AQ-1 would reduce VOC emissions to below the

significance threshold of 75 pounds per day threshold. Therefore, with implementation of this mitigation measure the short-term emissions of VOC would be reduced to a level of less than significant.

Implementation of Mitigation Measure AQ-2 would reduce the construction NO_X emissions; however, construction would still potentially exceed the regional threshold of 100 pounds per day. Since Mitigation Measure AQ-2 requires the use of construction equipment that meets the most stringent emissions standards, there are no feasible measures to reduce the construction NO_X emissions to less than the threshold. As such, short-term cumulative impacts to air quality during proposed project construction would be significant and unavoidable.

Operation

The SCAQMD's approach for assessing cumulative impacts related to operations or long-term implementation is based on attainment of ambient air quality standards in accordance with the requirements of the federal and state CAAs. As discussed earlier, the SCAQMD has developed a comprehensive plan, the AQMP, which addresses the region's cumulative air quality condition.

A significant impact may occur if a project's incremental effect would contribute to a violation of a federal or state non-attainment pollutant. The Los Angeles County portion of the air basin is currently in nonattainment for ozone, NO_2, PM_{10}, and $PM_{2.5}$, and lead. Cumulative impacts to air quality are evaluated under two sets of thresholds for CEQA and the SCAQMD. In particular, *CEQA Guidelines* Section 15064(h)(3) provides guidance in determining the significance of cumulative impacts. Specifically, Section 15064(h)(3) states in part that:

> *A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency …*

For purposes of the cumulative air quality analysis with respect to *CEQA Guidelines* Section 15064(h)(3), the project's cumulative air quality impacts are determined not to be significant based on its consistency with the SCAQMD's adopted 2012 AQMP, as discussed above. As discussed above, operation of the project would not conflict with or obstruct implementation of the 2012 AQMP, and is would also affirmatively consistent with the AQMP, as the project has incorporated into its design appropriate control strategies set forth in the AQMP for achieving its emission reduction goals and the project is consistent with the demographic and economic assumptions upon which the plan AQMP is based.

The SCAQMD has also provided guidance on addressing the cumulative impacts issue for air quality based on the SCAQMD's project-level significance thresholds as discussed below (SCAQMD 2003):

> *As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the*

cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.

As discussed previously, operation of the project would not exceed the SCAQMD regional thresholds for VOC, CO, SO_X, PM_{10}, and $PM_{2.5}$ and the localized daily mass emission significance thresholds for NO_X, CO, PM_{10}, and $PM_{2.5}$, but would exceed the SCAQMD regional daily mass emission thresholds for NO_X during operation. Implementation of Mitigation Measure AQ-3 would reduce operational NO_X emissions to below the significance threshold. Therefore, operational impacts would be mitigated to a less-than-significant level, and long-term operational cumulative impacts of the project would be less than significant.

With respect to emissions of TACs, the unmitigated project would potentially exceed the health risk significance threshold, assuming the project incremental contribution to health risk is all net new. With the implementation of Mitigation Measures AQ-2 and AQ-3, the project would be mitigated t to a less-than-significant level. The project's non-cancer health impacts would be less than significant without mitigation. Based on the SCAQMD's guidance on addressing the cumulative impacts (SCAQMD 2003), as the project would not exceed the project-level health risk thresholds, the project would also result in a cumulatively less-than-significant impact for TAC emissions.

With respect to odors, as discussed previously, of the estimated 400 oil and gas production facilities operating within Los Angeles County (as per the SCAQMD Board meeting June 6, 2014), while most oil and gas production facilities operate without generating NOVs, NOVs have occurred at oilfields in the Los Angeles area, with two recent high profile odor releases occurring at the Baldwin Hills Oilfield and the Allenco Facility; however, the project is not expected to generate odors that would be cumulatively considerable. The project would replace the existing oil production facilities with new equipment that would meet all of the latest CARB and SCAQMD regulations for minimizing fugitive emissions that cause odors. For example, the project would use tanks equipped with fixed roofs which drastically reduces fugitive emissions. In addition, the Pumpkin Patch and LCWA sites would be located at some distance from residential areas (830 feet from the Pumpkin Patch site and 1,825 feet from the LCWA site) and are separated from residential areas with either other industrial development (such as the Plains All American Pipeline property) or arterials, such as PCH or Westminster Avenue. This distance and the intervening uses would help to disperse any odorous emissions that might accidentally be released from the facility. The project would also close the existing oil production facilities that are currently equipped with minimal emission controls at well heads and flanges, pumps, and other equipment relative to current standards for new facilities. As discussed previously, upon issuance of building permits, the project's oil production levels will be reduced by 75 percent. After 20 years, 50 percent of the 53 existing oil wells would be abandoned, and the remaining 50 percent of existing production wells at the Synergy Oil Field, City Property, and Pumpkin Patch sites would be phased out by the end of 40 years from the New Occupancy Date. Therefore, the project would reduce the potential for odors from the site as the existing oil production equipment that uses less stringent fugitive controls would be closed with project implementation. Finally, the project and other cumulative facilities must comply with SCAQMD Rule 402

which requires that the facilities cannot be a nuisance and must modify operations to comply. Therefore, the project would result in cumulative odor impacts that would be less than significant.

3.2.5 References

California Air Resources Board (CARB). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October. Available at https://www.arb.ca.gov/diesel/documents/rrpfinal.pdf, accessed July 2017.

———. 2004. *Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas*, July. Available at https://www.arb.ca.gov/planning/sip/co/final_2004_co_plan_update.pdf, accessed July 2017.

———. 2005. *Particulate Matter—Overview*. Available at http://www.arb.ca.gov/research/aaqs/caaqs/pm/pm.htm, accessed July 2017.

———. 2009a. *Carbon Monoxide*. Available at https://www.arb.ca.gov/research/aaqs/caaqs/co/co.htm, accessed July 2017.

———. 2009b. *History of Sulfur Dioxide Air Quality Standard*. Available at https://www.arb.ca.gov/research/aaqs/caaqs/so2-1/so2-1.htm, accessed July 2017.

———. 2011. *Nitrogen Dioxide—Overview*. Available at http://www.arb.ca.gov/research/aaqs/caaqs/no2-1/no2-1.htm, accessed July 2017.

———. 2015. *Ozone and Ambient Air Quality Standards*. Available at https://www.arb.ca.gov/research/aaqs/caaqs/ozone/ozone.htm, accessed July 2017.

———. 2016a. *Ambient Air Quality Standards*. Available at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

———. 2016b. Area Designations Maps/State and National. Available at http://www.arb.ca.gov/desig/adm/adm.htm, accessed April 2016.

———. 2016c. *Toxic Air Contaminants Monitoring*. Available at https://www.arb.ca.gov/aaqm/toxics.htm, accessed July 2017.

———. 2017. iADAM Air Quality Data Statistics. Available at https://www.arb.ca.gov/adam/index.html, accessed July 2017.

Greve & Associates. 2017. *Air Quality Assessment for the Los Cerritos Wetlands and Oil Consolidation and Restoration Project*. May 2017.

Office of Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Available at http://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0, accessed December 2016.

South Coast Air Quality Management District (SCAQMD), 1993. *California Environmental Quality Act (CEQA) Air Quality Handbook.*

———. 2003. *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution*. Appendix D. Available at http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4, accessed May 2017.

———. 2008. Final Localized Significance Threshold Methodology. Available at http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds, accessed December 2016.

———. 2013. *Final Air Quality Management Plan*. Available at http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan. February 2013.

———. 2015. *Final Report—Multiple Air Toxics Exposure Study in the South Coast Air Basin, ES-2, 2-11, 6-1*. Available at http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv, accessed December 2016.

———. 2016. *Draft 2016 Air Quality Management Plan*. Available at http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan, accessed December 2016.

———. 2017a. *Final 2016 Air Quality Management Plan*, March. Available at http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan, accessed July 2017.

———. 2017b. Historical Data by Year. Available at http://www.aqmd.gov/home/library/air-quality-data-studies/historical-data-by-year, accessed July 2017.

Soil/Water/Air Protection Enterprise (SWAPE). 2017. *Health Risk Assessment for the Los Cerritos Wetlands Oil Consolidation and Restoration Project*, March 2017.

U.S. Environmental Protection Agency (USEPA). 2016. The Green Book Non-attainment Areas for Criteria Pollutants. Available at http://www.epa.gov/oaqps001/greenbk/index.html, accessed April 2016.

———. 2017a. Outdoor Air Quality Data Reports. Available at https://www.epa.gov/outdoor-air-quality-data/monitor-values-report, accessed July 2017.

———. 2017b. Treatment of Air Quality Data Influenced by Exceptional Events. Available at http://www.epa.gov/oaqps001/greenbk/index.html, accessed July 2017.

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