CHAPTER 16

AIR QUALITY AND ODOR

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The setting section below provides region-specific information related to climate and topography, followed by an overview of the regulatory context (plans, policies, and regulations), and finally, existing air quality conditions. The air pollutants of concern in the MDAB are primarily ozone and particulate matter. Construction and operational impacts to air quality associated with the proposed project are analyzed in this section. Estimated construction and operational air emissions were developed in compliance with AVAQMD, CEQA, and Federal Conformity Guidelines.[1]

ENVIRONMENTAL SETTING

Climate and Meteorological Conditions

The PWRP and Initial Study Area are located within the MDAB. The MDAB encompasses approximately 21,480 square miles and includes the desert portions of San Bernardino County, Palo Verde Valley, and the Antelope Valley. The MDAB is bordered by the South Coast Air Basin (SCAB) to the southwest, Salton Sea Air Basin to the south, the Great Basin Unified Air Basin to the north, and the Arizona and Nevada borders to the east.

The MDAB is characterized by a dry, hot desert climate. The intervening mountain ranges block cool, moist coastal air and create hot, dry summers and cool winters. On average, 20 to 30 frontal systems move into the MDAB each winter, although only a few of these produce measurable precipitation. In summer, the area is primarily influenced by a Pacific subtropical high-pressure system which sits off the coast blocking cloud formation and encouraging daytime solar heating. Summer high temperatures in Palmdale approach 100 degrees Fahrenheit, while winter high temperatures range from the high 50s to low 60s.

The inversion conditions in the MDAB are not particularly favorable for the build-up of high ozone concentrations. When inversions occur, they are generally 6,000 to 8,000 feet above the desert surface, allowing much greater vertical mixing than along the coast where the inversion base is much lower. As a result, meteorology in the MDAB is less favorable for the chemical mixing characteristic of typical ozone formation than the coastal areas of Southern California.

The MDAB experiences high prevailing winds primarily from the southwest and west (see Figure 16-1). As a result, smog is transported from the SCAB through mountain passes to the MDAB. The exchange of lower and upper air tends to accelerate surface winds during the warm part of the day when convection is at a minimum. During the winter, the rapid cooling of the surface layers at night retards this exchange of momentum, which often results in calm conditions.[2]

Existing Air Quality Conditions

California Air Resources Board (CARB) and local management districts operate a regional air quality-monitoring network in the MDAB that provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. Table 16-1 shows a summary of monitoring data collected at the Lancaster monitoring station over the past five years for the pollutants of concern in the MDAB.

It is important to note that the Antelope Valley is downwind of the SCAB, and to a lesser

[1] *AVAQMD, May 2002.*

[2] *Southern California Association of Governments, Regional Transportation Plan, Environmental Impact Report, June 2001.*

Table 16-1
Summary of Lancaster Air Monitoring Station Data, 2000-2004

POLLUTANT	STATE STANDARD	NATIONAL STANDARD	POLLUTANT CONCENTRATION BY YEAR [A]				
			2000	2001	2002	2003	2004
Ozone							
Highest 1-hour average, ppm [b]	0.09	0.12	**0.141**	**0.146**	**0.157**	**0.156**	**0.121**
Days over State Standard			**35**	**37**	**46**	**50**	**37**
Days over National Standard			**2**	**3**	**5**	**4**	0
Highest 8-hour average, ppm [b]	NA	0.08	**0.117**	**0.102**	**0.107**	**0.120**	**0.101**
Days over National Standard			**28**	**24**	**38**	**33**	**24**
Respirable Particulate Matter (PM_{10})							
Highest 24-hour average, µg/m^3 [b]	50	150	**110**	**64**	**74**	**57**	NA
Days over State Standard [c]			**6**	**5**	**1**	**2**	NA
Days over National Standard [c]			0	0	0	0	NA
Highest annual arithmetic mean (National), µg/m^3 [b]	20	50	NA	NA	**30**	**25**	NA

Source: Antelope Valley Air Quality Management District Air Quality (AVAQMD), 2004, Antelope Valley Air Quality Management District Air Quality Data - Lancaster Site, http://www.avaqmd.ca.gov/airquality.shtml, assessed on January 25, 2005 and California Air Resources Board (CARB), 2004, Air Quality Data Statistics 1999-2003; http://www.arb.ca.gov/adam, assessed on January 25, 2005.

*Note: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.*

a All ozone data and highest annual arithmetic mean PM_{10} data are from CARB (2004). Data for 2000-2001 are from the Lancaster-W Pondera Street monitoring station; data from 2002 - 2004 are from the Lancaster-43301 Division Street monitoring station. Only national (i.e., no state) annual PM_{10} data are available. Highest 24-hour average PM_{10} data are from AVAQMD (2004).

b ppm, parts per million; g/m^3, micrograms per cubic meter.

c Since PM_{10} is measured every sixth day (rather than daily as ozone is), actual exceedances are likely to be higher.

extent, the San Joaquin Valley Air Basin. CARB has recognized that prevailing winds transport ozone and ozone precursor emissions from both regions into and through the Antelope Valley during the summer ozone season. While local Antelope Valley emissions contribute to exceedances of both the national and state standards for ozone, the Antelope Valley would be in attainment of both standards without the influence of this transported air pollution from upwind regions.[3]

REGULATORY BACKGROUND

More detail regarding air quality regulations can be found in Chapter 3, Laws and Regulations. Some of the more pertinent regulations are discussed below.

Regulation of air pollution is achieved through both national and state ambient air quality standards and emissions limits for individual sources of air pollutants. The CAA requires the EPA to identify NAAQS to protect public health and welfare. National standards have been established for the following seven pollutants: (1) ozone, (2) carbon monoxide, (3) nitrogen dioxide, (4) sulfur dioxide, (5) PM_{10}, (known as respirable particulate matter), (6) suspended particulate matter of 2.5-micron diameter or less ($PM_{2.5}$ known as fine particulate matter), and (7) lead. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants (referred to as State Ambient Air Quality Standards or state standards). Table 16-2 presents both

[3] *AVAQMD, 2004, Antelope Valley Air Quality Management District 2004 Ozone Attainment Plan (State and Federal), April 2004.*

Table 16-2
State and National Criteria Air Pollutant Standards, Effects, and Sources

POLLUTANT	AVERAGING TIME	STATE STANDARD	NATIONAL STANDARD	POLLUTANT HEALTH AND ATMOSPHERIC EFFECTS	MAJOR POLLUTANT SOURCES
Ozone	1 hour 8 hours	0.09 ppm ---	0.12 ppm 0.08 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO_X react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 hour 8 hours	20 ppm 9 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 hour Annual Arithmetic Mean	0.25 ppm ---	--- 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm --- 0.04 ppm ---	--- 0.5 ppm 0.14 ppm 0.03 ppm	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.
PM_{10}	24 hours Annual Arithmetic Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 50 µg/m^3	May irritate eyes and respiratory tract, decreases lung capacity, cause 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).
$PM_{2.5}$	24 hours Annual Arithmetic Mean	--- 12 µg/m^3	65 µg/m^3 15 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.
Lead	Monthly Quarterly Average	1.5 µg/m^3 ---	--- 1.5 µg/m^3	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.

Source: California Air Resources Board, 2003, Ambient Air Quality Standards, http://www.arb.ca.gov/aqs/aaqs2.pdf, July 9, 2003.
Note: ppm = parts per million, µg/m^3 = micrograms per cubic meter.

sets of ambient air quality standards (i.e., national and state) and provides a brief discussion of the related health effects and principal sources of each pollutant.

Senate Bill 700

Senate Bill (SB) 700 was signed into law on September 22, 2003, to reduce emissions from the

agricultural sector. Under SB 700 requirements, agricultural operations are no longer exempt by state law from air quality permitting and these sources are also required to implement Best Available Control Measures (BACM) to reduce fine particulate matter also referred to as fugitive dust or PM_{10}.[4]

SB 700 requires each district that is designated as a serious federal non-attainment area for PM_{10} to adopt a rule or regulation requiring BACM for agricultural practices. These agricultural practices include, but are not limited to, tilling, discing, cultivation, and raising of animals, and for fugitive emissions from these agricultural practices. The rules or regulations requiring BACM for agricultural operations are to be implemented by the earliest feasible date, but no later than January 1, 2006.[5]

Existing Regional and Local Air Quality

Existing Emissions Sources

Existing emissions sources in the vicinity of the PWRP include USAF Plant 42 and vehicular traffic emissions from local roads. Local agricultural activities also contribute to air emissions in the Antelope Valley. The PWRP has been issued five air emissions permits by the AVAQMD. These permits cover (1) the general sewage treatment and water reclamation system, (2) three digester gas flares, (3) one emergency generator, (4) one hot water pressure washer, and (5) one above-ground gasoline dispensing facility.

Existing emissions from the PWRP include fuel burning, organics volatilization, and process emissions. Table 16-3 summarizes existing criteria pollutant emissions from the PWRP. Table 16-4 includes a summary of toxic emissions.[6]

Sensitive Receptors

Sensitive receptors include residences, schools, playgrounds, childcare centers, convalescent homes, hospitals, retirement homes, rehabilitation centers, and athletic facilities. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases. Residential areas are also considered to be sensitive to air pollution because residents tend to be home for extended periods of time, resulting in sustained exposure to any pollutant present.

Table 16-3
Existing Criteria Pollutant Emissions from the Palmdale Water Reclamation Plant

AIR POLLUTANT	EXISTING EMISSIONS (lbs/day)	EXISTING EMISSIONS (tpy)
CO	0.80	0.147
VOC*	3.14	0.573
NO_x	7.01	1.280
SO_2**	0.50	0.092
PM_{10}	1.17	0.214

Source: County Sanitation District No. 20 of Los Angeles County, Comprehensive Emissions Inventory for year 2000, submitted to AVAQMD July 2004.
** VOC = Volatile Organic Compounds*
*** SO_2 = Sulfur Dioxide*

The PWRP is located in a rural setting near the City of Palmdale in the Antelope Valley. The PWRP is completely surrounded by property owned by LAWA. Surrounding land uses include rural residential, agricultural, and vacant land. The Initial Study Area encompasses sparsely inhabited desert landscape, rural residential, and agriculture. The closest residential area to the PWRP is 3,000 feet south in the City of Palmdale. The closest commercial facility is 1,800 feet from the PWRP. The closest school is located 3,900 feet south of the PWRP.[7]

[4] *South Coast Air Quality Management District Preliminary Draft Staff Report for PAR 403.*
[5] *South Coast Air Quality Management District.*
[6] *Emissions summary provided by District No. 20.*
[7] *District No. 20, Comprehensive Emissions Inventory Report (CEIR) for the Palmdale and Lancaster Water Reclamation Plants, letter report, July 8, 2004.*

Table 16-4
Air Contaminant Emissions Inventory from the PWRP

TOXIC AIR CONTAMINANT	EXISTING EMISSIONS[1]
1,3- Butadiene	3.790E-05
Acetaldehyde	2.857
Acrolein	0.435
Ammonia	129.00
Benz [a] anthracene	3.900E-04
Benzene	6.011
Benzo [a] pyrene	2.170E-05
Benzo [b] fluoranthene	1.140E-05
Chloroform	37.500
Chrysene	1.130E-02
Dibenz [a,h] anthracene	6.700E-05
Diesel engine exhaust, particulate matter	71.400
Ethyl benzene	50.496
Formaldehyde	64.385
Hexane	1.103
Idenol [1,2,3-cd] pyrene	4.320E-05
Methyl chloroform [1,1,1-TCA]	6.040E-06
Methyl tert-butyl ether	0.585
Methylene chloride [Dichloromethane]	5.360
Napthalene	0.419
p-Dichlorobenzene	27.270
Perchloroethylene [Tetrachloroethene]	2.370E-03
Propylene	0.911
Toluene	10.356
Total Organic Gases	5.913E-02
Xylenes	11.277

Source: District No. 20, Comprehensive Emissions Inventory for year 2000, submitted to AVAQMD July 2004.

[1] *Emissions in LBS/YR for toxics, TONS/YR for Criteria pollutants, Curries/YR for radionuclides. For example, NOx, Sox, PM and TOG are in TONS/YR, while VOC and ammonia are in LBS/YR.*

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Thresholds of Significance

The CEQA Guidelines checklist provides the following thresholds for determining significance with respect to air quality. Air quality impacts would be considered significant if the project would:

- Conflict with or obstruct the implementation of the applicable air quality plan;
- Violate any air quality standards or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; and
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under any applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O_3 precursors).

In addition, the AVAQMD has adopted air quality thresholds of significance for construction and operational emissions, shown in Table 16-5.

Table 16-5
AVAQMD Air Quality Thresholds of Significance

AIR POLLUTANT	PROJECT OPERATION AND CONSTRUCTION (lbs/day)
CO	548
VOC	137
NO_x	137
SO_x	137
PM_{10}	82

Source: AVAQMD, 2002, CEQA and Federal Conformity Guidelines, May 2002.

Impact 16-1: Construction activities would result in a temporary increase in air pollutant emissions. Emissions of NO_x and PM_{10} could exceed AVAQMD thresholds of significance.

Construction activities would generate fugitive dust and other criteria pollutants through excavation activities, construction equipment exhaust, haul truck trips, and construction workers' vehicle emissions. These

emissions would be temporary, lasting for the duration of the construction activities. Construction emissions were calculated using methods recommended in SCAQMD's *CEQA Air Quality Handbook* and emissions factors approved by CARB (EMFAC2002). Emissions calculation worksheets are included in Appendix P. Table 16-6 shows emissions estimates for the various types of construction activities of the proposed project. A description of the assumptions made for each construction activity is provided below.

Construction of Storage Reservoirs

Storage reservoirs would be constructed to accommodate winter flows. It is assumed that one loader, two bulldozers, two scrapers, and one backhoe would work for approximately 18 months with an estimated 25 employees to complete the storage reservoirs. It is further assumed that the 25 employees would drive an average of 60 miles round trip per day commuting to the work site. Additionally, it is estimated that two haul trucks per day would be required, and that those trucks would travel an estimated 30 miles per day.

On-road vehicle exhaust emissions were calculated using EMFAC2002 emissions factors. Construction vehicle exhaust emissions were calculated using CARB Emissions Inventory Publication Number MO99_32.3, Table 13, released in 2000. Fugitive dust emissions were calculated using emissions factors found in the EPA AP-42 Compilation of Emissions Factors. A 50 percent reduction of fugitive dust emission rates was applied assuming that on site watering would be conducted three times per day during construction of the storage reservoirs.[8] The estimated emissions associated with construction of the storage reservoirs are shown in Table 16-6.

[8] *Smith, Steve, SCAQMD, personal communication, October 23, 2001.*

Construction of Activated Sludge Treatment Facility

It is assumed that one grader and one bulldozer, one scraper, one forklift, one backhoe, and one loader, along with 30 employees, would work for approximately 24 months for eight hours per day to complete construction of an activated sludge treatment facility. It is further assumed that the 30 employees would drive an average of 30 miles each direction for commuting to and from the work site. Additionally, it is estimated that 20 haul trucks per day, including concrete trucks, would be required, and that those trucks would travel an estimated 30 miles round trip per day. The estimated emissions associated with construction of an activated sludge treatment facility are shown in Table 16-6.

Pipeline Construction

A distribution network would be constructed to convey recycled water to and from the storage reservoirs and the selected agricultural areas. Air emissions for this portion of the project would include fugitive dust emissions from trenching activities, construction vehicle emissions, and workers' vehicle emissions.

Approximately nine to 14 miles of pipeline would be constructed, with approximately 100 feet of pipe being installed daily. It is also assumed that trenching and pipe installation activities would occur continuously for eight hours per day. It is estimated that one excavator and one backhoe, one loader and five dump trucks to dispose of excavated soil would operate eight hours per day along with 15 employees for approximately 18 months to complete the pipeline. It is further assumed that the 15 employees would drive an average of 60 miles round trip per day commuting to the work site. Additionally, it is estimated that three work trucks per day would be required, and that those trucks would travel an estimated 30 miles per day. Dump trucks to dispose of excavated soil would travel 30 miles round trip three times per day. Vehicle emissions were calculated using EMFAC2002 emissions factors.

Table 16-6
Estimated Construction Emissions

AIR POLLUTANT	STORAGE RESERVOIRS (lbs/day)	ACTIVATED SLUDGE (lbs/day)	PIPELINE (lbs/day)	DEMOLITION FOR AGRICULTURE CONVERSION (lbs/day)	TOTAL CONSTRUCTION EMISSIONS (lbs/day)*	AVAQMD THRESHOLD (lbs/day)	SIGNIFICANT?
CO	23	26	17	23	89	548	No
ROC	24	21	22	26	93	137	No
NO_x	104	34	67	135	340	137	Yes
PM_{10}	57	31	37	44	169	82	Yes

Source: SCAQMD, CEQA Air Quality Handbook, 1993; EMFAC2002, AVAQMD CEQA Guidelines.
* *Total emissions during periods when all construction activities would be occurring on the same day.*

Construction vehicle emissions were calculated using CARB Emissions Inventory Publication Number MO99_32.3, Table 13, released in 2000. The estimated emissions associated with construction of the necessary pipelines are shown in Table 16-6.

Agricultural Conversion

The proposed project would require conversion of land into agricultural use. The conversion could entail the removal of existing structures followed by grading and tilling the area. The demolition portion, if required, was assumed to require demolition of up to 12 houses and was estimated to take 60 construction days. It is estimated that four bulldozers, four loaders, and one demolition crane along with 15 employees would work for approximately three weeks to demolish the existing structures. It is further assumed that the 15 employees would drive an average of 60 miles round trip per day commuting to the work site. Additionally, it is estimated that ten work trucks per day would be required to haul demolition debris from the site, traveling an estimated 30 miles round trip twice per day. The estimated demolition emissions associated with this land conversion are shown in Table 16-6.

It should be noted that the AVAQMD Fugitive Dust Rule 403, Subsection H, exempts agricultural activities in the Antelope Valley from dust emission restrictions. The AVAQMD is currently in the process of revising Rule 403 to include agricultural practices. Under the revised rule, agricultural operations that emit a certain amount of PM_{10} per year would be required to obtain a permit from the AVAQMD that proscribes dust emission reduction measures.

Construction Air Emissions Summary

Construction of the proposed expansion would result in temporary air emissions associated with construction equipment, haul truck trips, and construction workers' vehicles. Table 16-6 shows that as a result of the large amount of heavy duty diesel construction equipment used, construction of the proposed project would cause a significant, although temporary, release of NO_x and PM_{10}.

Mitigation Measures

Mitigation Measure 16-1: Construction crews shall maintain equipment engines in proper tune and operate construction equipment so as to minimize exhaust emissions.

Mitigation Measure 16-2: Construction equipment shall be shut off to reduce idling when not in direct use.

Mitigation Measure 16-3: Active construction areas shall be watered up to three times daily as needed to reduce fugitive dust emissions.

Mitigation Measure 16-4: Prior to the demolition of houses, District No. 20 shall inspect structures for the presence of asbestos-containing materials (ACM) and lead-based paint (LBP). District No. 20 shall ensure that ACM and LBP are removed and disposed of prior

to demolition in accordance with EPA air quality protection regulations.

Significance after Mitigation

Significant and unavoidable. Although the impact from construction emissions would be temporary and Mitigation Measures 16-1, 16-2, 16-3, and 16-4 would help to minimize the emissions, construction would generate NOx and PM_{10} emissions above AVAQMD significance criteria.

Impact 16-2: While operation of the expanded PWRP would increase air emissions, these emissions would be less than the AVAQMD thresholds of significance.

Operation of the expanded plant would result in increased air emissions from several sources including stationary and mobile sources. In addition, agricultural operations would generate air emissions. Emissions calculation worksheets are included in Appendix P. A description of the assumptions made for each operational activity is provided below.

Stationary Sources

The proposed treatment and storage facilities would increase stationary source emissions associated with wastewater treatment processes commensurate with the increased wastewater flow. The PWRP is currently permitted for five stationary sources. Table 16-7 summarizes criteria pollutant emissions from stationary sources for the existing permitted stationary sources as reported to AVAQMD in 2004 for the year 2000. For purposes of this analysis, the increased operational throughput of the plant would result in the increased production of sludge digester gas burned in the flares or micro-turbines used to generate electricity. Therefore, future emissions from stationary sources are calculated assuming an increase in emissions commensurate with the increased wastewater flow. Table 16-8 summarizes future emissions estimates.

Table 16-7
Criteria Emissions from Permitted Stationary Sources at PWRP (Year 2000)

CRITERIA EMISSIONS FACTORS FOR PERMITTED STATIONARY SOURCES AT PWRP (UNITS PER FUEL BURNED)				
	FLARE	BOILER	ICE*	PRESSURE WASHER
	Lbs/MMscf	Lbs/MMscf	Lbs/1000 Gal	Lbs/1000 Gal
CO	2	0.6	130.18	5
NOX	39.1	23.9	604.3	20
PM_{10}	8.3	8.9	42.48	3.3
TOG**	3	4.1	58.9	7.1
	MMscf	**MMscf**	**gal**	**gal**
Fuel Burned in 2000	34.85	7.63	1680	25.6
CRITERIA EMISSIONS INVENTORY FOR 2000 FROM PERMITTED STATIONARY SOURCES AT PWRP (lbs/day)				
	FLARE	BOILER	ICE*	PRESSURE WASHER
	Lbs/day	Lbs/day	Lbs/day	Lbs/day
CO	0.190	0.012	0.599	0.0004
NOX	3.733	0.499	2.781	0.0014
PM_{10}	0.792	0.186	0.195	0.0002
TOG	0.286	0.086	0.271	0.0005

Source: County Sanitation District No. 20 of Los Angeles County, Comprehensive Emissions Inventory for year 2000, submitted to AVAQMD in July 2004.

Lbs/MMscf = pounds per million cubic feet
Gal = gallons
* *ICE = internal combustion engine*
** *TOG = total organic gases*

Table 16-8
Estimated Air Emissions from Operation of Expanded PWRP 2025

Air Pollutant	Stationary Source Emissions (lbs/day)[a]	Mobile Source Emissions (lbs/day) [b]	Agricultural Emissions (lbs/day)[c]	Total Operational Emissions (lbs/day)	AVAQMD Threshold (lbs/day)	Significant?
CO	1.20	11.10	6.62	18.92	548	No
ROG	1.60	2.15	1.71	5.46	137	No
NO_x	17.46	49.74	32.92	100.12	137	No
SO_2	1.27	0.03	--	1.3	137	No
PM_{10}	2.92	2.37	58.72	64.01	82	No

Sources: LWRP, AVAQMD CEQA Guidelines, February 2000, SCAQMD, CEQA Air Quality Handbook, 1993; EMFAC2002, AVAQMD CEQA Guidelines, February 2000.

a Assumes linear increase in emissions based on increased wastewater flow.

b Mobile emissions include emissions from energy use.

c Fugitive dust emissions factors for unplanted fields use emissions factors from EPA (AP-42) for aggregate batch (Aggregate Batch Equation 13.2.4-3 AP-42). Assumes 15 percent silt content, 7.9 percent soil moisture content.

It is assumed that at least one new flare would be required to handle the increase in gas production. As shown in Table 16-8, the increased air emissions associated with the increase in digester gas production would be less than the AVAQMD significance thresholds. In addition, the decommissioning of the oxidation ponds would reduce emissions of volatile organics from the exposed secondary treatment ponds. As such, there would be no significant impacts to regional air quality anticipated from operations of the proposed project.

Mobile Sources

The proposed treatment facility expansion would result in increased emissions due to an increase in truck traffic and employee commute trips to and from the plant. Likewise, the expansion of the plant's capacity would increase the number of daily haul trucks.

For this analysis, it was assumed that ten employees would drive an average of 30 miles round trip per day commuting to the PWRP. Service and maintenance of the facilities would require 30 round trips per day traveling five miles on local roadways. Biosolids would be transported to the San Joaquin Composting facility in Kern County to be processed into a soil amendment and fertilizer. As a worst-case scenario for the year 2025, it was assumed that the facility's biosolids production would require approximately 208 truck trips per year (four trips per week) traveling 276 miles round trip. An additional 208 truck trips (four truck trips per week) is estimated to transport grit and screenings to the Lancaster Landfill and Recycling Center, which is approximately 16 miles away. It is estimated that one chemical truck would drive 70 miles from Los Angeles each day. Vehicle emissions were calculated using EMFAC2002 emissions factors.

Agricultural Operations

The proposed project would require conversion of up to approximately 5.14 acres of land into agricultural use for the application of recycled water at agronomic rates. Agricultural operations would result in emissions of criteria pollutants and fugitive dust during grading and planting operations. To assess potential air emissions, the following assumptions were made: (1) grading and planting operations would be conducted approximately three times per year for each productive area, and (2) approximately one tractor working 8 hours per 25 acres would be required. Under these assumptions, production would require approximately 2,210 tractor hours per year (17 hours per day for 130 days per year) or the equivalent of two or three tractors working for eight hours every other week day over the course of a year. The tractors would be spread out over approximately nine square miles. Once the fields are planted, irrigation and plant growth would minimize

dust emissions. However, during periods of high wind dust emissions for brief periods of time could result from recently tilled land. Avoiding long periods between tilling and irrigating would minimize fugitive dust from recently tilled land. The emissions estimates include calculations for fugitive dust for unplanted fields based on emissions factors adapted from EPA AP-42.

Operational Air Emissions Summary

Table 16-8 summarizes estimated criteria pollutant emissions associated with each of these elements as well as total emissions associated with the expanded plant. The implementation of the PWRP 2025 Plan would result in air emissions from mobile and stationary sources as well as emissions from agricultural production. However, as shown in Table 16-8, the estimated air emissions associated with operation of the upgraded and expanded PWRP would not exceed thresholds of significance. The calculations assume implementation of the mitigation measures identified below.

Mitigation Measures

Mitigation Measure 16-5: Limit off-road traffic speeds for maintenance vehicles to 15 miles per hour or less.

Mitigation Measure 16-6: Service vehicles shall be maintained in proper tune to minimize exhaust emissions.

Significance After Mitigation

Less than significant.

Impact 16-3: Sewage treatment plant operations have the potential to cause significant odor impacts.

The PWRP has received no odor complaints in recent years. With decommissioning of the oxidation ponds, a significant potential odor source will be eliminated. However, the treatment plant has the potential to emit odors due to open air sludge drying, uncovered primary treatment process facilities, and general operations of the sewage treatment plant. The area is sparsely populated, surrounded primarily by open space. Moreover, as part of the project, District No. 20 would install odor control systems. Recycled water used for agriculture would not emit odors. Therefore, the proposed project is not expected to present nuisance odor conditions.

Mitigation Measure

No mitigation measures are required.

Significance of Impact

Less than significant.