4.10 Air Quality

Sections	Tables
4.10.1 Setting 4.10.2 Regulatory Framework 4.10.3 Impacts and Mitigation Measures	4.10-1 Salinas #3 Monitoring Station – Ambient Air Quality Monitoring Summary (2009-2013) 4.10-2 State and Federal Ambient Air Quality Standards and Attainment Status for North Central Coast Air Basin 4.10-3 Applicable Regional and Local Land Use Plans, Policies, and Regulations Pertaining to Air Quality 4.10-4 Summary of Impacts – Air Quality 4.10-5 Estimated Maximum Daily Construction Emissions (pounds/day) 4.10-6 Estimated Construction Emissions for Non-Typical Construction Equipment (Pounds/Day) 4.10-7 Proposed Project Operational Emissions (pounds/day)

This section evaluates the potential impacts on regional and local air quality that would result from construction and operation of the Monterey Peninsula Water Supply Project (MPWSP or proposed project). The analysis is based on estimates of project-related air pollutant emissions, review of existing air quality conditions in the region, and applicable air quality regulations and guidelines. Impacts specific to greenhouse gas (GHG) emissions and climate change are evaluated in Section 4.11, Greenhouse Gas Emissions.

4.10.1 Setting

Air quality is a function of both the amount and location of pollutant emissions under the influence of meteorological conditions and topographic features that affect pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, the presence of sunlight, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, all of which affects air quality.

4.10.1.1 Regional Topography, Meteorology, and Climate

Topography and meteorology greatly influence air quality. Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants. Marine breezes from Monterey Bay dominate the climate of this portion of the North Central Coast Air Basin (Air Basin); westerly winds predominate in all seasons, but are strongest and most persistent during the spring and summer.

The Air Basin covers an area of 5,159 square miles along the central coast of California and is generally bounded by the Monterey Bay to the west, the Santa Cruz Mountains to the northwest, the Diablo Range on the northeast, with the Santa Clara Valley between them. The southern part of the Santa Clara Valley extends into the northeastern tip of the Air Basin and transitions into the San Benito Valley, which runs northwest-southeast and is bounded on the west by the Gabilan Range. To the west of the Gabilan Range is the Salinas Valley, which extends from the city of

Salinas at the northwest end to King City at the southeast end. The western edge of the Salinas Valley is formed by the Sierra de Salinas, which is also the eastern edge of the Carmel Valley. The Santa Lucia Range along the Pacific coast defines the western edge of the Carmel Valley.

The mountain ridges in the Air Basin restrict and channel summer onshore air currents. Hot temperatures in the inland valleys warm the ground and intensify onshore airflow during the afternoon and evening. In the fall, the surface winds weaken and the marine layer becomes shallow and eventually dissipates. The airflow is occasionally reversed, creating weak offshore winds.

A semi-permanent high-pressure cell in the eastern Pacific Ocean is the basic controlling factor in the climate of the Air Basin. In the summer, the high-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific high-pressure cell (Pacific High), forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft can inhibit vertical air movement.

The stationary air mass held in place by the Pacific High pressure cell can allow pollutants to build up over a period of days. These conditions also occur when north or east winds cause pollutant transport from the San Francisco Bay Area or the Central Valley into the Air Basin. In the winter, the Pacific High moves south and has a lesser influence on the Air Basin; wind flows southeasterly from the Salinas and San Benito Valleys, especially during the night and morning. Northwest winds are still dominant in winter, but easterly winds are more frequent in the winter than the summer. Air quality usually remains good in the winter and early spring due to the absence of deep, persistent regional subsidence inversions and the presence of occasional storms. Typically, year-round marine airflow allows coastal areas to maintain good air quality.

The project area typically has average maximum and minimum winter (i.e., January) temperatures of 60 degrees Fahrenheit (ºF) and 43 ºF, respectively, while average summer (i.e., July) maximum and minimum temperatures are 68 ºF and 52 ºF, respectively. The warmest month is typically September, with an average maximum high of 72 ºF. Because of the moderating marine influence, which decreases with distance from the ocean, monthly and annual temperature variations are greatest inland and smallest at the coast. The project area is mostly along the coast with temperature variations that are relatively moderate. Precipitation in the project area averages approximately 20 inches per year (WRCC, 2015).

The presence and intensity of sunlight is another important factor that affects air pollution. Typically, ozone is formed at higher temperatures. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases (ROGs) and nitrogen oxides (NO_x) react to form secondary photochemical pollutants, including ozone. Since temperatures in many of the Air Basin inland valleys are so much higher than near the coast, these inland areas are much more prone to photochemical air pollution.

4.10.1.2 Existing Air Quality

Monterey Bay Unified Air Pollution Control District (MBUAPCD) operates a regional monitoring network that measures the ambient air quality in the Air Basin. Existing levels of air pollutants in the project area can generally be inferred from ambient air quality measurements conducted by MBUAPCD at its closest station, the Salinas #3 monitoring station located approximately 7 miles to the east of the MPWSP Desalination Plant site. The Salinas #3 monitoring station measures concentrations of ozone, respirable particulate matter equal to or less than 10 microns (PM_{10}), fine particulate matter less than 2.5 microns ($PM_{2.5}$), carbon monoxide (CO), and nitrogen dioxide (NO_2).

Ambient concentrations of air pollutants in a given area are determined by the quantity of pollutants emitted by local sources in the area and the atmosphere's ability to transport and dilute such emissions. Areas located close together and exposed to similar wind conditions typically have similar background pollutant concentrations. **Table 4.10-1** shows a five-year (2009–2013) summary of monitoring data collected at the Salinas #3 monitoring station. The data are compared with the applicable California Ambient Air Quality Standards (state standards) and National Ambient Air Quality Standards (federal standards). As indicated in the table, there were no recorded violations of the state or federal standards for 2009 through 2013. Following the table are summary descriptions of the criteria air pollutants.[1]

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

Carbon Monoxide

CO is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion

[1] Criteria air pollutants are air pollutants for which the federal and state governments have established ambient air quality standards or criteria, for outdoor concentration in order to protect public health.

TABLE 4.10-1
SALINAS #3 MONITORING STATION – AMBIENT AIR QUALITY MONITORING SUMMARY (2009–2013)

Pollutant	Standard	Monitoring Data by Year				
		2009	2010	2011	2012	2013
Ozone						
Maximum 1-hour concentration (ppm)	0.09 ppm	0.08	0.07	0.07	0.07	0.07
Days over State Standard		0	0	0	0	0
Maximum 8-Hour Average (ppm)	0.070 ppm	0.07	0.06	0.06	0.06	0.06
Days over State Standard		0	0	0	0	0
Respirable Particulate Matter (PM_{10})						
Maximum 24-Hour Average (µg/m^3)	50 µg/m^3	41	39	19	-	-
Estimated Days over State Standard		0	0	0	-	-
State Annual Average (µg/m^3)	20 µg/m^3	16.4	15.3	4.9	-	-
Fine Particulate Matter ($PM_{2.5}$)						
Maximum 24-Hour Average (µg/m^3)	35 µg/m^3	18.7	16.2	19.7	16.2	19.7
Estimated Days over National Standard		0	0	0	0	0
State Annual Average (µg/m^3)	12 µg/m^3	5.7	6.6	6.4	5.6	6.7
Nitrogen Dioxide (NO_2)						
Maximum Hourly Average (ppm)	0.18 ppm	0.04	0.04	0.04	0.04	0.04
Days over State Standard		0	0	0	0	0
Carbon Monoxide (CO)						
Maximum 8-Hour Average (ppm)	9.0 ppm	0.90	0.76	0.99	1.39	-
Days over State Standard		0	0	0	0	-

NOTES: "-" indicates that data are not available; ppm = parts per million; µg/m^3 = micrograms per cubic meter.

SOURCE: CARB, 2015.

of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. 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.

Particulate Matter

PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain absorbed gases (e.g., chlorides or ammonium) that can pose a health risk. Particulates can also damage materials and reduce visibility.

Other Criteria Pollutants

Sulfur dioxide (SO_2) is produced through combustion of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM_{10} and $PM_{2.5}$) and can contribute to sulfuric acid formation in the atmosphere that could precipitate downwind as acid rain. Lead has a range of adverse neurotoxin health effects, and was formerly released into the atmosphere primarily via leaded gasoline. The phase-out of leaded gasoline in California resulted in decreasing levels of atmospheric lead.

4.10.1.3 Sensitive Receptors

For the purposes of air quality and public health, sensitive receptors are generally defined as land uses with population concentrations that would be particularly susceptible to disturbance from air pollutants associated with project construction and/or operation. Sensitive receptor land uses generally include schools, day care centers, hospitals, and residential areas. Some sensitive receptors are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emission sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

Many locations along the various proposed pipeline segments would be adjacent to sensitive receptors, including residences. However, pipeline segments would be installed in a linear sequence and would progress at a rate of 150 feet to 250 feet per day, which would limit the duration of exposure for any given receptor to construction-related pollutants. In addition to the proposed pipelines, the MPWSP would include several facilities such as the MPWSP Desalination Plant, the aquifer storage and recovery (ASR) injection/extraction wells (ASR-5 and ASR-6 Wells), Terminal Reservoir, the ASR Pump Station, Valley Greens Pump Station, and the Highway 68 interconnection improvements. Several of the proposed facilities are located in close proximity to sensitive receptors. The following paragraphs provide summary descriptions of the sensitive receptors in the vicinity of the proposed project components.

Subsurface Slant Wells

The closest sensitive receptors to the proposed slant wells in the CEMEX active mining area are residences at the Marina Dunes RV Park on Dunes Drive located approximately 0.75 mile (4,000 feet) south of the site, and residences on Drew Street located approximately 0.8 mile (4,300 feet) southeast of the proposed slant wells.

Source Water Pipeline

The section of the proposed Source Water Pipeline located along Charles Benson Road would be approximately 0.2 mile (1,100 feet) south of two rural residences on Neponset Road.

MPWSP Desalination Plant

The closest sensitive receptors to the proposed MPWSP Desalination Plant site are the two rural residences on Neponset Road located approximately 0.4 mile (2,200 feet) and 0.75 mile (3,900 feet) west of the site, respectively. Residences off Monte Road on the north bank of the Salinas River, the second closest sensitive receptors, are approximately 0.95 mile (5,000 feet) from the MPWSP Desalination Plant site.

Desalinated Water Pipeline

The Desalinated Water Pipeline would extend east-to-west along Charles Benson Road, parallel to and south of the Source Water Pipeline, and would pass within 0.2 mile (1,100 feet) of two residences on Neponset Road. At Del Monte Boulevard, the Desalinated Water Pipeline would turn south and continue along the Monterey Peninsula Recreational Trail and the Transportation Authority for Monterey County (TAMC) right-of-way on the west side of Del Monte Boulevard for approximately 2.5 miles to a connection with the proposed Transmission Main at Reservation Road. The southern 0.65 mile (3,500 feet) of the Desalinated Water Pipeline alignment would be within 100 feet of residences and within 0.25 mile (1,350 feet) of Miss Barbara's Child Care Center at 266 Beach Road and the Marina Children's Center at 261 Beach Road.

Transmission Main

The Transmission Main would convey desalinated product water from Reservation Road along the Monterey Peninsula Recreational Trail and the TAMC right-of-way on the west side of Del Monte Boulevard to La Salle Avenue. The northernmost 0.5 mile (2,650 feet) of this pipeline alignment is within 100 feet of residences in Marina. The Crescita Early Education Center/Marina Child Development Center at 3066 Lake Drive in Marina is within 0.25 mile (1,300 feet) of the Transmission Main alignment. The proposed alignment then passes under Highway 1 where it parallels the west side of the highway and is 500 feet or more from the nearest sensitive land uses. In Sand City, the alignment crosses to the east side of Highway 1where it parallels Del Monte Boulevard to La Salle Avenue in a commercial area with few sensitive receptors.

Transfer Pipeline

The Transfer Pipeline would be used to convey water between the Transmission Main and Monterey Pipeline on Del Monte Boulevard and the Terminal Reservoir and ASR Pump Station located east of General Jim Moore Boulevard, in the former Fort Ord military base. The proposed Transfer Pipeline would be constructed in a neighborhood residential area, within the La Salle Avenue, Yosemite Street, and Hilby Avenue road rights-of-way. Sensitive receptors exist immediately adjacent to the pipeline alignment, including schools, residences, and a mobile home park.

Proposed ASR Improvements

The proposed improvements to the Seaside Groundwater Basin ASR system include: two new injection/extraction wells (ASR-5 and ASR-6 Wells) and an ASR Settling Basin at the intersection of General Jim Moore Boulevard and Ardennes Circle; three parallel pipelines (two

ASR Conveyance Pipelines and the ASR Pump-to-Waste Pipeline) extending between the ASR-5 and ASR-6 Wells and Coe Avenue; and the Terminal Reservoir and ASR Pump Station located east of General Jim Moore Boulevard, approximately 0.3 mile north of Watkins Gate Road (see **Figure 3-7**). The ASR-5 and ASR-6 Wells would be within 50 feet of residences in the Fitch Park military housing area on Ardennes Circle. The ASR Conveyance Pipelines and ASR Pump-to-Waste Pipeline would be aligned within 100 feet of residences in the Fitch Park military housing area and 300 feet east of Seaside Middle School. The Terminal Reservoir and ASR Pump Station would be located approximately 0.3 mile (1,600 feet) east of residences on Mescal Drive.

Monterey Pipeline

The Monterey Pipeline would convey water between Seaside and the Monterey Peninsula. Several residences exist within 50 feet of the pipeline route along Del Monte Boulevard, Figueroa Street, Franklin Street, High Street, Spencer Street, and Eardley Street. Other sensitive receptors along this pipeline route include hotels and motels, churches, and schools.

Valley Greens Pump Station

There are two site options for the proposed Valley Greens Pump Station, and both are located in unincorporated Monterey County. Site option 1 is located approximately 400 feet southeast of the intersection of Carmel Valley Road and Valley Greens Drive. The closest residence to site Option 1 is located 100 feet to the south. Site Option 2 for the Valley Greens Pump Station is located on the south side of Carmel Valley Road near Carmel Rancho Boulevard, in the northeast corner of the Carmel Rancho Shopping Center, approximately 100 feet west of the Cottages of Carmel senior assisted living facility. The senior assisted living facility is the closest sensitive receptor to site Option 2.

Interconnections with Highway 68 Satellite Systems

The proposed project would also improve existing interconnections at two satellite water systems in the unincorporated communities of Ryan Ranch and Hidden Hills located along the Highway 68 corridor. The Ryan Ranch-Bishop Interconnection Improvements would be located in a business park area with few sensitive receptors, with the exception of the Ryan Ranch Children's Center and York School, both of which are located approximately 0.2 mile (1,000 feet) from the proposed improvements.

The proposed Main System-Hidden Hills Interconnection Improvements would include installation of a 1,200-foot-long, 6-inch-diameter pipeline along Tierra Grande Drive, with a connection to the existing Upper Tierra Grande Booster Station. New pumps would be added to the Upper Tierra Grande Booster Station, and to Middle Tierra Grande Booster Station located on lower Casiano Drive. This project component is located in a residential neighborhood, with residences located as close as 50 feet of the proposed pipeline route.

4.10.2 Regulatory Framework

Federal, state, and regional regulations provide the framework for analyzing and controlling air pollutant emissions and thus general air quality. The United States Environmental Protection Agency (USEPA) is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the federal ambient air quality standards and reviewing State Implementation Plans (SIPs), described further below. However, the USEPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

In California, the California Air Resources Board (CARB) is responsible for establishing and reviewing the state ambient air quality standards, developing and managing the California SIP, securing approval of this plan from the USEPA, and identifying toxic air contaminants (TACs)[2]. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level. An air quality management district is primarily responsible for regulating stationary emission sources at facilities within its geographic areas and for preparing the air quality plans that are required under the federal Clean Air Act and the 1988 California Clean Air Act. The MBUAPCD is the regional agency with regulatory authority over emission sources in Monterey, Santa Cruz, and San Benito counties.

4.10.2.1 Federal and State Regulations

The federal Clean Air Act Amendments of 1970 established federal ambient air quality standards, and individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when federal standards were established, and because of the unique meteorological problems in California, there is considerable diversity between the state and federal standards. As shown in **Table 4.10-2**, the state standards tend to be at least as protective as federal standards, and are often more stringent.

Federal ambient air quality standards (federal standards) exist for seven criteria air pollutants: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. California has adopted more stringent ambient air quality standards (state standards) for most of these same seven criteria air pollutants. In addition, California has established state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

The ambient air quality standards are intended to protect public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, referred to as sensitive receptors, including

[2] TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including DPM emissions from diesel-fueled engines.

TABLE 4.10-2
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR NORTH CENTRAL COAST AIR BASIN

Pollutant	Averaging Time	State Standards		Federal Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8 Hour	0.070 ppm	N	0.075 ppm	U
	1 Hour	0.090 ppm	N	N/A	N/A
Carbon Monoxide	8 Hour	9.0 ppm	U	9 ppm	U
Nitrogen Dioxide	Annual Average	0.030 ppm	A	0.053 ppm	U
	1 Hour	0.18 ppm	A	0.100 ppm	U
Sulfur Dioxide	24 Hour	0.04 ppm	A	N/A	N/A
	3 Hour	N/A	N/A	0.5 $\mu g/m^3$	A
	1 Hour	0.25 ppm	A	0.075 ppm	A
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	N	N/A	N/A
	24 Hour	50 $\mu g/m^3$	N	150 $\mu g/m^3$	A
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	A	12 $\mu g/m^3$	U
	24 Hour	N/A	N/A	35 $\mu g/m^3$	U
Sulfates	24 Hour	25 $\mu g/m^3$	A	N/A	N/A
Lead	30-Day Average	1.5 $\mu g/m^3$	A	N/A	N/A
	3-Month Rolling Average	N/A	N/A	0.15 $\mu g/m^3$	U
Hydrogen Sulfide	1 Hour	0.03 ppm	U	N/A	N/A
Visibility Reducing Particles	8 Hour	Extinction of 0.23/km; visibility of 10 miles or more	U	N/A	N/A

NOTES: A = attainment; N = nonattainment; U = unclassified but attainment can be assumed; N/A = not applicable or no applicable standard; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter.

SOURCES: MBUAPCD, 2015; CARB, 2013a; CARB, 2013b, and USEPA, 2015.

people with asthma, the very young, elderly, people weak from other illness or disease, or people engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above the ambient air quality standards before adverse health effects are observed.

Federal Clean Air Act

The 1977 Clean Air Act (last amended in 1990; United States Code, Title 42, Section 7401 et seq.) requires that regional planning and air pollution control agencies prepare a regional air

quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled to achieve all standards within the deadlines specified in the Clean Air Act.

The USEPA is responsible for implementing programs developed under the federal Clean Air Act, such as establishing and reviewing the federal standards for CO, ozone, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The federal Clean Air Act also requires the USEPA to designate areas (counties or air basins) as attainment or non-attainment with respect to each criteria pollutant, depending on whether the area meets the federal standards. If an area is designated as non-attainment, it does not meet a federal standard and is required to create and maintain a SIP for achieving compliance with the applicable federal standard. Conformity to the SIP is defined under the 1990 Clean Air Act amendments as conformity with the plan's purpose in eliminating or reducing the severity and number of violations of the federal standards and achieving expeditious attainment of these standards.

The Clean Air Act General Conformity Rule helps states improve air quality in areas that do not attain the federal standards by ensuring that federal actions conform to the SIP. The MPWSP is not subject to the General Conformity Rule because it would be located in an area that meets federal standards and the area is not subject to a maintenance plan with conformity requirements.[3]

California Clean Air Act

CARB is the agency delegated responsibility for preparing and submitting the SIP to the USEPA. CARB also oversees air quality policies in California and has established state standards for NO_2, CO, PM_{10}, $PM_{2.5}$, SO_2, ozone, lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. The California Clean Air Act was approved in 1988 and requires each local air district in the state to prepare an air quality plan to achieve compliance with the state standards. Similar to the USEPA, CARB designates counties or air basins in California as attainment or non-attainment with respect to the state standards.

Regulations for Mobile Sources of Air Pollutants

The following air quality regulations apply to mobile sources and are directly relevant to the project. On road vehicles with a gross vehicular weight rating of 10,000 pounds or greater shall not idle for longer than 5 minutes at any location as required by Section 2485 of Title 13, Division 3, Chapter 10, Article 1 of the California Code of Regulations (CCR). This restriction does not apply when vehicles remain motionless during traffic or when vehicles are queuing. Off-road equipment engines shall not idle for longer than 5 minutes per CCR Section 2449(d)(3) of Title 13, Division 3, Chapter 9, Article 4.10. Exceptions to this rule include: idling when queuing; idling to verify that the vehicle is in safe operating condition; idling for testing,

[3] The Phase 1 final rule to implement the 8-hour Ozone standard was published on April 30, 2004. The anti-backsliding provisions in that rule set forth specific requirements for areas that are designated attainment for the 8-hour Ozone standard and that were at the time of the 8-hour designations (generally June 15, 2004) either attainment areas with maintenance plans for the 1-hour standard, such as the Air Basin; or nonattainment for the 1-hour standard. Specifically, 40 CFR part 51, section 51.905(a)(3) and (4) requires these areas to submit a maintenance plan under section 110(a)(1) of the Clean Air Act. That maintenance plan must demonstrate maintenance for 10 years post designation; however, this maintenance plan does not carry with it any conformity obligations (unlike maintenance plans required under section 175A of the Act).

servicing, repairing or diagnostic purposes; idling necessary to accomplish work for which the vehicle was designed (such as operating a crane); and idling required to bring the machine to operating temperature as specified by the manufacturer.

Attainment Status

Under amendments to the federal Clean Air Act, USEPA has classified air basins or portions thereof as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the federal standards have been achieved. The California Clean Air Act, which is patterned after the federal Clean Air Act, also requires areas to be designated as "attainment" or "non-attainment" for the state standards. Thus, areas in California have two sets of attainment / non-attainment designations: one set with respect to the federal standards and one set with respect to the state standards. **Table 4.10-2** shows the attainment status of the Air Basin with respect to the federal and state ambient air quality standards for different criteria pollutants. As indicated in the table, the Air Basin does not attain the state standards for ozone or PM_{10}; however, it attains (or is unclassified for) all federal standards.

4.10.2.2 Regional Regulations

Monterey Bay Unified Air Pollution Control District

The MBUAPCD is the regional agency responsible for air quality regulation within the North Central Coast Air Basin (Air Basin). The MBUAPCD regulates air quality through its planning and review activities. The MBUAPCD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, impose emission limits, set fuel or material specifications, and establish operational limits to reduce air emissions. The MBUAPCD regulates new or expanding stationary sources of toxic air contaminants.

State law assigns local air districts the primary responsibility for control of air pollution from stationary sources, under CARB's oversight. The MBUAPCD is responsible for developing regulations governing emissions of air pollution, permitting and inspecting stationary sources of air pollution, monitoring of ambient air quality, and air quality planning activities, including implementation of transportation control measures (MBUAPCD, 2008).

Air Quality Management Plan for the Monterey Bay Region

In 1991, the MBUAPCD adopted the *Air Quality Management Plan for the Monterey Bay Region* (AQMP) in response to the California Clean Air Act of 1988, which established specific planning requirements to meet the ozone standards. The California Clean Air Act requires that AQMPs be updated every 3 years. The MBUAPCD has updated the AQMP five times. The most recent update, the *Triennial Plan Revision 2009-2011* (2012 AQMP), was adopted in 2013 (MBUAPCD, 2013a). The 2012 AQMP relies on a multilevel partnership of federal, State, regional, and local governmental agencies. These agencies (USEPA, CARB, local governments, Association of Monterey Bay Area Governments [AMBAG]), and the MBUAPCD are the primary agencies that implement the AQMP programs. The 2012 AQMP documents the MBUAPCD's progress toward attaining the state 8-hour ozone standard, which is more stringent than the state 1-hour ozone standard. The 2012 AQMP

builds on information developed in past AQMPs and includes a review and update to the 2008 AQMP. The primary elements from the 2008 AQMP that were updated in the 2012 revision include the air quality trends analysis, emission inventory, and mobile source programs.

The MBUAPCD has jurisdiction over stationary emission sources, which continue to be the smallest portion of both the ROG and NO_x emissions inventories. Mobile sources are the main contributor to ROG and NO_x emissions in the region. The 2012 AQMP identifies a continued trend of declining ozone emissions in the Air Basin primarily related to lower vehicle miles traveled. Based on monitoring data for 2009-2011, there were fewer exceedance days in the time period 2009-2011 compared to 2006-2008. Therefore, the control measures presented in the 2008 AQMP have not been implemented because the MBUAPCD determined progress was continuing to be made toward attaining the 8-hour ozone standard (MBUAPCD, 2013a).

Rules for Stationary Sources

The MBUAPCD regulates new and modified stationary sources through its Rule 207, which incorporates state and federal requirements for new and modified stationary sources as well as MBUAPCD-specific regulations. When net emissions from a new or modified facility exceed State offset thresholds, the increase must be offset from an existing source, with certain exceptions, such as emergency internal combustion engines used during power outages or operated less than 60 hours per year for emergency pumping of water. The rule also requires application of Best Available Control Technology when a source would emit 25 pounds per day or more of ROG or NO_x emissions. All proposed stationary diesel engines would be subject to the MBUAPCD's air toxic control measures, which require emission controls and limits on testing and maintenance. In addition, pursuant to Rule 1010, the MBUAPCD requires permits for all emergency standby engines. Rule 1010, Subsection 3.2.1.3.1, requires the following operating requirements and diesel particulate emission standards for new stationary emergency standby diesel engines over 50 horsepower (hp) (MBUAPCD, 2010):

- Diesel particulate matter limit of less than 0.15 grams per brake horsepower-hour; or
- Off-road Engine Certification Standard for an off-road engine of the same hp rating; and
- Less than 50 hours per year for non-emergency operation.

4.10.2.3 Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Air Quality

Table 4.10-3 describes the state, regional, and local land use plans, policies, and regulations pertaining to air quality relevant to the MPWSP and that were adopted for the purpose of avoiding or mitigating an environmental effect. A general overview of these plan, policy, and regulatory documents is presented in Section 4.8, Land Use, Plan Use Planning, and Recreation. Also included in **Table 4.10-3** is an analysis of project consistency with such plans, policies, and regulations. Where the analysis concludes the proposed project would not conflict with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to Section 4.10.3, Impacts and Mitigation Measures, for additional discussion.

TABLE 4.10-3
APPLICABLE STATE, REGIONAL, AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO AIR QUALITY

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
Cities of Marina and Monterey (coastal zone)	California Coastal Act	Article 6, Development	Subsurface Slant Wells and Monterey Pipeline	***Section 30253: Minimization of adverse impacts.*** New development shall do all of the following: (c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.	This policy is intended to minimize adverse impacts of new development on air quality.	Potentially Inconsistent: Short-term construction activities in the cities of Marina and Monterey that would be associated with the proposed project would result in the generation of fugitive dust emissions that could exceed MBUAPCD's daily threshold for PM_{10}. This issue is addressed further in Impact 4.10-1, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency. Proposed project-related emissions of diesel particulate matter would not exceed-health based standards and NO_x emissions from non-typical construction equipment would not exceed the MBUAPCD's daily threshold for NO_x.
County of Monterey	Monterey County General Plan	Conservation and Open Space	Source Water Pipeline, MPWSP Desalination Plant, Desalinated Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, Valley Greens Pump Station (site Options 1 and 2), and Main System–Hidden Hills and Ryan Ranch–Bishop Interconnection Improvements	***Policy OS-10.6:*** The Monterey Bay Unified Air Pollution Control District's air pollution control strategies, air quality monitoring, and enforcement activities shall be supported.	This policy is intended to protect and enhance Monterey County's air quality.	Potentially Inconsistent: Short-term construction activities in Monterey County that would be associated with the proposed project would result in the generation of fugitive dust emissions that could exceed MBUAPCD's daily threshold for PM_{10}. This issue is addressed further in Impact 4.10-1, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency. Proposed project-related emissions of diesel particulate matter would not exceed-health based standards and NO_x emissions from non-typical construction equipment would not exceed the MBUAPCD's daily threshold for NO_x.
County of Monterey	Monterey County General Plan	Conservation and Open Space		***Policy OS-10.8:*** Air quality shall be protected from naturally occurring asbestos by requiring mitigation measures to control dust and emissions during construction, grading, quarrying, or surface mining operations. This policy shall not apply to Routine and Ongoing Agricultural Activities except as required by state and federal law.	This policy is intended to protect and enhance Monterey County's air quality with respect to naturally occurring asbestos.	Potentially Inconsistent: Short-term construction activities associated with project components proposed for Monterey County would result in the generation of fugitive dust emissions that could include naturally occurring asbestos. This issue is addressed further in Impact 4.10-1, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.
County of Monterey	Monterey County General Plan	Conservation and Open Space		***Policy OS-10.9:*** The County of Monterey shall require that future development implement applicable Monterey Bay Unified Air Pollution Control District control measures. Applicants for discretionary projects shall work with the Monterey Bay Unified Air Pollution Control District to incorporate feasible measures that assure that health-based standards for diesel particulate emissions are met. The County of Monterey will require that future construction operate and implement MBUAPCD PM_{10} control measures to ensure that construction-related PM_{10} emissions do not exceed the MBUAPCD's daily threshold for PM_{10}. The County shall implement MBUAPCD measures to address off-road mobile source and heavy duty equipment emissions as conditions of approval for future development to ensure that construction-related NO_x emissions from non-typical construction equipment do not exceed the MBUAPCD's daily threshold for NO_x.	This policy is intended to protect and enhance Monterey County's air quality with respect to criteria pollutants.	Potentially Inconsistent: Short-term construction activities in Monterey County that would be associated with the proposed project would result in the generation of fugitive dust emissions that could exceed MBUAPCD's daily threshold for PM_{10}. This issue is addressed further in Impact 4.10-1, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency. Proposed project-related emissions of diesel particulate matter would not exceed-health based standards and NO_x emissions from non-typical construction equipment would not exceed the MBUAPCD's daily threshold for NO_x.
City of Seaside	Seaside Municipal Code	Chapter 8.40 Air Pollution	Transmission Main, Transfer Pipeline, Monterey Pipeline, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR-5 and ASR-6 Wells, ASR Settling Basin, ASR Pump Station, and Terminal Reservoir	***Section 8.40.030 Prohibited Discharges.*** A. No person shall 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: 1. As dark or darker in shade as that designated as No. 2 on the Ringlemann Chart, as published by the United States Bureau of Mines; or 2. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subdivision 1 of this subsection. B. No person shall discharge into the atmosphere from any single source particulate matter in excess of 0.4 grains per cubic foot of gas at a gas temperature of sixty degrees Fahrenheit and a gas pressure of 14.7 pounds per square inch absolute. C. No person shall discharge into the atmosphere from any single source of emission whatsoever sulfur compounds exceeding 0.2 percent by volume calculated as sulfur dioxide (SO_2) at the point of discharge.	This section is intended to protect the people of the city from undesirable air contaminants.	Potentially Inconsistent: Short-term construction activities in the city of Seaside that would be associated with the proposed project would result in the generation of fugitive dust emissions that could conflict with this municipal code. This issue is addressed further in Impact 4.10-1, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.

TABLE 4.10-3 (Continued)
APPLICABLE STATE, REGIONAL, AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO AIR QUALITY

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Seaside	Seaside Municipal Code	Chapter 8.40 Air Pollution	Transmission Main, Transfer Pipeline, Monterey Pipeline, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR-5 and ASR-6 Wells, ASR Settling Basin, ASR Pump Station, and Terminal Reservoir	***Section 8.40.040: Nuisance declared – Abatement.*** No person shall discharge from any source whatsoever such quantities of air contaminants or other material as will: A. Cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or B. Endanger the comfort, repose, health, or safety of any such persons or public; or C. Cause or have a natural tendency to cause injury or damage to business or property. Such discharge is declared to be a public nuisance and shall be abated.	This section is intended to protect the people of the city from undesirable air contaminants.	Potentially Inconsistent: Short-term construction activities in the city of Seaside that would be associated with the proposed project would result in the generation of fugitive dust emissions that could conflict with this municipal code. This issue is addressed further in Impact 4.10-1, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.

SOURCE: Monterey County, 2010.

4.10.3 Impacts and Mitigation Measures

4.10.3.1 Significance Criteria

Appendix G of the CEQA Guidelines recommends the following significance criteria for the evaluation of air quality impacts. Implementation of the proposed project would have a significant impact related to air quality 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; or
- Create objectionable odors affecting a substantial number of people.

Based on the nature of the proposed project, no impacts related to the following significance criterion would result for the reasons described below:

> ***Conflict with implementation of the applicable air quality plan.*** Emissions associated with the proposed project could conflict with or obstruct implementation of the 2012 AQMP if emissions are not accounted for in the 2012 AQMP. Construction projects that use typical construction equipment such as dump trucks, scrappers, bulldozers, and front-end loaders that temporarily emit precursors of ozone (i.e., ROG and NO_x), are already accounted for in the emission inventories of state- and federally-required air quality plans (MBUAPCD, 2008). The proposed project would utilize such typical, accounted-for equipment during construction. In addition to typical construction equipment, the proposed project would also require some less common construction equipment such as drill rigs for well installation, and jack-and-bore rigs and horizontal boring machines or augers for trenchless pipeline installation at locations where it is not feasible or desirable to perform open-cut trenching. However, emissions associated with these equipment types would be minimal (see the discussion of Other Criteria Pollutants under Impact 4.10-1, below). Overall, emissions generated during construction of the proposed project would be consistent with applicable air plans.
>
> With regard to long-term operations, there would be no permanent stationary sources of air pollutant emissions associated with the proposed project, with the exception of emergency generator testing, and mobile sources would be limited to approximately 60 one-way light-duty truck trips per day associated with commuting workers and four heavy-duty one-way truck trips per day associated with hauling residual materials. In addition, any additional growth that could be served by the proposed project would be consistent with the adopted land use plans of jurisdiction in CalAm's Monterey District service area (see Chapter 8, Growth Inducement Potential and Secondary Effects of Growth). For these reasons, the

proposed project would not conflict with or obstruct implementation of the 2012 AQMP. No impacts would occur and this issue is not addressed further in this EIR.

4.10.3.2 Approach to Analysis

The following discussions provide specific guidance as to how the significance levels for air quality impacts were determined.

Violate a Standard or Contribute to a Violation

Construction Emissions

CEQA allows for significance criteria established by the applicable air pollution control district to be used to assess the impact of a project on air quality, subject to the discretion of the lead agency. The MBUAPCD has determined that construction activities that generate direct emissions of 82 pounds per day or more of PM_{10} could contribute substantially to an existing or projected exceedance of PM_{10} air quality standard, and would have a significant impact on local air quality. Although MBUAPCD does not have significance thresholds for construction-related emissions of ROG, NO_x, or $PM_{2.5}$, the MBUAPCD has recommended that these emissions be calculated and disclosed for the proposed project (MBUAPCD, 2013b). Given the low ambient levels of CO, SO_2, and lead in the Air Basin (see **Table 4.10-1**), short-term construction-related CO, SO_2, and lead emissions are not a concern associated with the proposed project and were not calculated.

Emissions associated with typical construction equipment such as dump trucks, scrappers, bulldozers, front-end loaders, and haul trucks are accounted for in the emission inventories of state- and federally-required air plans to control ozone emissions and therefore would not be considered to contribute to any exceedance of state or federal standards for ozone (MBUAPCD, 2008, 2014). However, project-related exhaust emissions associated with non-typical construction equipment such as drill rigs for well construction and horizontal boring machines or augers for trenchless construction activities[4] may not be accounted for in the emission inventories, and therefore could result in a significant impact relative to contributing to an exceedance of state and/or federal standards for ozone. To evaluate the significance of emissions from non-typical construction equipment relative to contributing substantially to an existing or projected exceedance of an air quality standard, the MBUAPCD recommends that the combined emissions that would be associated with the non-typical construction equipment be compared to the MBUAPCD's operational significance thresholds for ROG and NO_x, which is 137 pounds per day for both pollutants (MBUAPCD, 2013b).

For off-road equipment, emissions modeling, construction equipment inventories, equipment hp ratings, and construction activity scheduling, assumptions were developed by the CPUC's CEQA consultant (Environmental Science Associates) as part of this EIR effort. Emission factors for off-road vehicles were derived from emissions inventory data using CARB's off-road emissions inventory database model. It should be noted that the emissions inventories produced by the

[4] As described in Section 3.5.4.2 of Chapter 3, Project Description, where it is not feasible or desirable to perform open-cut trenching, trenchless methods such as jack-and-bore, drill-and-burst, horizontal directional drilling, and/or microtunneling would be employed.

CARB model are calculated using load factors for each equipment type; therefore, load factors are not included in the air quality calculations presented in **Appendix G**. It is assumed that each piece of equipment associated with construction of the proposed MPWSP Desalination Plant would operate for up to 12 hours per day, the drill rigs required to excavate the slant wells and ASR injection/extraction wells would operate for up to 24 hours per day, the other equipment required to construct the slant wells and associated facilities would operate for up to 12 hours per day, and construction equipment associated with all other proposed components (e.g., pipelines, pump stations, ASR facilities) would operate up to 8 hours per day. Emission factors for on-road trucks and worker vehicles were derived using CARB's EMFAC2014 Burden Model. The worst case daily trip rates for each project component are presented in **Table 4.9-4** of Section 4.9, Traffic and Transportation, of this EIR.

Emission factors and process information from *AP-42, Compilation of Air Pollutant Emission Factors* (USEPA, 2006) and the CalEEMod emissions model results were used to calculate fugitive dust emissions from project-related construction activities. Maximum daily fugitive dust emissions were evaluated for the following activities: general site preparation and earthmoving for the MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, and Terminal Reservoir/ASR Pump Station; soil handling associated with 650 feet of trenching for three pipeline segments (assuming pipeline installation rates of 150 to 250 feet per day); and travel on unpaved roads. For general site preparation and earth-moving activities, an emission rate of 20 pounds of PM_{10} per acre graded per day was used (CARB, 2002). Fugitive dust that would be associated with pipeline trench excavation activities was estimated using emission factors of 0.001 pound PM_{10} and 0.0002 pound per $PM_{2.5}$ per cubic yard material handled based on the truck loading emission factor formula used by CalEEMod (CAPCOA, 2013). $PM_{2.5}$ fractions for soil disturbance activities developed by the South Coast Air Quality Management District (SCAQMD) were used to estimate $PM_{2.5}$ emissions that would be associated with site preparation activities (SCAQMD, 2006). Fugitive dust in the form of PM_{10} and $PM_{2.5}$ resulting from travel on unpaved roads was estimated using USEPA methodology identified in *AP-42, Compilation of Air Pollutant Emission Factors* (USEPA, 2006). The MBUAPCD does not recommend that CEQA documents present quantification of entrained road dust from travel on paved roads (MBUAPCD, 2008).

Operational Emissions

Long-term emissions estimates for the proposed project were based on the proposed emergency generators at the MPWSP Desalination Plant site, ASR Pump Station, and the Valley Greens Pump Station, and vehicle trips associated with commuting workers and truck deliveries. Although the emergency generators would be relatively large (between 68 hp and 1,000 hp), it is anticipated that routine operation of the generators would be limited to 50 hours per year per generator and less than 5 hours per month for testing per generator. Emission factors for the emergency generators were obtained from the dealer specifications of standby diesel generator sets similar to the size of the proposed emergency generators, with an adjustment to particulate emissions limits per MBUAPCD Rule 1010. Emissions associated with vehicle trips were estimated using emission factors derived from CARB's EMFAC2014 Burden Model. Vehicle trips associated with operation of the proposed facilities project were estimated as part of the impact analysis presented in Section 4.9, Traffic and Transportation (see **Table 4.9-4**).

Impacts to Sensitive Receptors

Construction of the proposed project would also result in short-term diesel exhaust emissions from on-site heavy duty equipment and from material deliveries and hauling of excess spoils and debris. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by CARB in 1998. Construction of the MPWSP would result in the short-term generation of DPM emissions from the use of off-road diesel equipment and from construction material deliveries using on-road heavy-duty diesel trucks; therefore, the impacts to sensitive receptors analysis associated with the proposed project focuses on DPM in the form of $PM_{2.5}$.[5]

The dose to which receptors are exposed is the primary factor affecting health risk from TACs. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the health risk relative to exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period when assessing TACs (such as DPM) that have cancer or chronic non-cancer health effects (OEHHA, 2003). However, such health risk assessments should be limited to the duration of the emission-producing activities associated with the project. For the purpose of CEQA review, the MBUAPCD considers temporary emissions of a carcinogenic TAC that can result in a cancer risk greater than one incident per 100,000 population to be significant (MBUAPCD, 2008).

Operation of the proposed project would result in negligible long-term on-site TAC emissions, which would not be in the vicinity of any sensitive receptors and would not pose a public health risk; however, construction of several components of the proposed project would occur in the immediate vicinity (i.e., within 1,000 feet) of sensitive receptor locations for durations ranging from several days to 12 months. For short-term construction-related health risk analyses, the MBUAPCD typically recommends that lead agencies conduct a qualitative discussion that could include information such as quantifying and reporting the $PM_{2.5}$ exhaust emissions, the duration and location of the project construction activities, approximate distances of construction activities to sensitive receptors, and predominant wind direction (MBUAPCD, 2014). Therefore, the health risk analysis in this EIR is qualitative as recommended by the MBUAPCD.

4.10.3.3 Summary of Impacts

Evaluation of potential impacts to air quality from construction and operation of the proposed project included reviewing relevant regulatory guidelines, characterizing the existing air quality environment throughout the project area, and estimating pollutant emissions from construction and operation of project facilities. Impacts were assessed by comparing the MBUAPCD CEQA significance thresholds to estimated levels of pollutant emissions. **Table 4.10-4** provides a summary of air quality impacts for the MPWSP.

[5] $PM_{2.5}$ exhaust emissions are conservatively used here as a surrogate for DPM.

TABLE 4.10-4
SUMMARY OF IMPACTS – AIR QUALITY

Impacts	Significance Determinations
Impact 4.10-1: Generate emissions of criteria air pollutants and contribute to a violation of an ambient air quality standard during construction.	LSM
Impact 4.10-2: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during construction.	LS
Impact 4.10-3: Long-term increase of criteria pollutant emissions that could affect regional air quality during project operations.	LS
Impact 4.10-4: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.	LS

LS = Less than Significant impact, no mitigation required
LSM = Less than Significant impact with Mitigation

4.10.3.4 Construction Impacts and Mitigation Measures

Impact 4.10-1: Generate emissions of criteria air pollutants and contribute to a violation of an ambient air quality standard during construction. (*Less than Significant with Mitigation*)

Project construction would involve the use of a variety of off-road diesel-fueled equipment, including graders, backhoes, excavators, loaders, etc., that would emit exhaust that contain air pollutants at the construction sites. In addition, construction vehicles and workers' vehicles would generate exhaust emissions off-site, and fugitive dust would be generated by on-site ground disturbing and material handling activities as well as by truck travel on unpaved roads. Average daily emissions associated with the construction components that could occur simultaneously were combined to determine the "worst-case" scenario for daily emissions. The worst-case daily PM_{10} emissions scenario includes simultaneous construction of the proposed subsurface slant wells, MPWSP Desalination Plant, Desalination Water Pipeline, Monterey Pipeline, Terminal Reservoir, ASR Pump Station, the ASR-5 and ASR-6 Wells, and the ASR Settling Basin. Emissions summaries are presented below for off-road (e.g., tractors, graders, backhoes) and on-road (i.e., light duty trucks and heavy haul trucks) exhaust sources as well as for sources of fugitive dust (e.g., dust entrainment from travel on unpaved roads and earth moving activities such as grading and excavation). Assumptions and emission factors used to estimate construction emissions are summarized in Section 4.10.3.2, above, and are presented in detail in **Appendix G**. A summary of the estimated maximum daily emissions associated with construction of the proposed project is presented in **Table 4.10-5**.

Particulate Matter (PM_{10})

The majority of PM_{10} emissions that would be associated with construction of the proposed project would result from fugitive dust associated with earth moving activities and vehicle travel on unpaved roadways. The worst-case scenario assumes that a total of up to 4 acres would be disturbed daily by grading and other earthmoving site preparation activities at the proposed MPWSP

TABLE 4.10-5
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS (pounds/day)

Emission Source	ROG	NOx	PM_{10}	$PM_{2.5}$
Off-road Construction Equipment and On-road Vehicle Exhaust				
MPWSP Desalination Plant	8.63	131.67	5.04	4.25
Subsurface Slant Wells, Electrical Conduit, Electrical Control Panel, and Electrical Control Building	4.96	66.65	2.68	2.33
Desalinated Water Pipeline	3.36	43.40	1.89	1.65
Monterey Pipeline	3.45	44.63	1.92	1.68
Terminal Reservoir and ASR Pump Station	3.38	50.55	1.93	1.59
ASR-5 and ASR-6 Wells and ASR Settling Basin	4.50	63.26	2.45	2.08
Subtotal	**28.28**	**400.16**	**15.91**	**13.58**
Fugitive Dust	**N/A**	**N/A**	**217.64**	**30.60**
Total	**28.28**	**400.16**	**233.55**	**44.18**
MBUAPCD CEQA Significance Threshold	N/A	N/A	82	N/A
Exceeds Threshold Without Mitigation?	No	No	Yes	No
Exceeds Threshold With Mitigation?	No	No	No	No

NOTE: N/A = not applicable or no applicable threshold.

SOURCE: ESA, 2015. See **Appendix G**.

Desalination Plant site (2 acres per day), ASR-5 and ASR-6 Well sites (1 acre per day), and the Terminal Reservoir/ASR Pump Station site (1 acre per day). Regarding pipeline installation activities, it is assumed that a maximum of 2,311 cubic yards of soil material would be handled each day to excavate and backfill the pipeline trenches. For motor vehicle travel on unpaved roads, it is assumed that there would be a maximum of approximately 72 miles of vehicle travel on unpaved roads associated with construction of the subsurface slant wells and the Terminal Reservoir/ASR Pump Station.

As identified in **Table 4.10-5**, estimated maximum daily construction emissions of PM_{10} would be approximately 234 pounds per day, which would exceed the MBUAPCD's significance threshold of 82 pounds per day, resulting in a significant impact. Implementation of **Mitigation Measure 4.10-1a (Construction Fugitive Dust Control Plan)** would reduce PM_{10} emissions by requiring CalAm to implement a comprehensive construction dust control plan. It is estimated that implementation of this mitigation measure would decrease fugitive dust emissions during earth disturbance activities by 65 percent, and would decrease unpaved road travel fugitive dust emissions in the vicinity of the subsurface slant wells and the CEMEX active mining area by as much as 75 percent based on mitigation control efficiency factors published by SCAQMD (SCAQMD, 2007; see **Appendix G** for all mitigation reduction assumptions).

In addition, **Mitigation Measure 4.10-1b (Stabilize Dust on Terminal Reservoir/ASR Pump Station Access Road)** would provide a substantial reduction in fugitive dust PM_{10} emissions by

requiring the construction contractor to stabilize the unpaved access road to Terminal Reservoir and ASR Pump Station. This measure would decrease unpaved road travel dust emissions along this access road by 100 percent. It should be noted that implementation of **Mitigation Measure 4.10-1b (Stabilize Dust on Terminal Reservoir/ASR Pump Station Access Road)** would in itself result in minor short-term emissions of criteria pollutants associated with equipment that would be used to stabilize the road; however, these emissions would occur prior to the start of construction activities at the Terminal Reservoir/ASR Pump Station site. Therefore, implementation of this measure would not change the worst-case daily emissions scenario presented in **Table 4.10-5**. In addition to mitigation measures for fugitive dust, implementation of **Mitigation Measure 4.10-1c (Idling Restrictions)** would ensure that CalAm follows required equipment and vehicle idling restrictions to limit diesel particulate exhaust emissions. Because the emission estimates summarized in **Table 4.10-5** do not include emissions associated with idling vehicles, implementation of this measure would not reduce PM_{10} exhaust emissions calculated for the proposed project.

It is estimated that implementation of **Mitigation Measures 4.10-1a (Construction Fugitive Dust Control Plan)** and **4.10-1b (Stabilize Dust on Terminal Reservoir/ASR Pump Station Access Road)** (see below) would reduce maximum daily construction emissions of PM_{10} to approximately 63 pounds per day, which would be below the MBUAPCD PM_{10} significance threshold of 82 pounds per day. Therefore, with implementation of mitigation, it can be concluded that short-term emissions associated with construction of the MPWSP would not contribute to an exceedance of a PM_{10} state standard. Therefore, this impact would be mitigated to a less-than-significant level.

Other Criteria Pollutants

Estimated maximum daily emissions of other criteria pollutants (i.e., ROG, NO_x, and $PM_{2.5}$) that would be associated with the proposed project are identified in **Table 4.10-5**. The Air Basin is designated as attainment of CO and $PM_{2.5}$ standards, but non-attainment of the state standards for ozone; therefore, ozone precursor emissions (i.e., ROG and NO_x) are a special concern in the Air Basin. MBUAPCD has not identified construction significance criteria for ozone precursors because the emission inventories of State and federally-required air plans account for ROG and NO_x emissions associated with typical construction equipment, such as graders, bulldozers, loaders, and on-road vehicles. MBUAPCD has opined that temporary operation of typical construction equipment would not have a significant impact on the attainment and maintenance of ozone standards (MBUAPCD, 2008).

Because construction of the proposed project would include the use of non-typical construction equipment (i.e., drill rigs, jack-and-bore rigs, and horizontal boring machines or augers), the MBUAPCD has recommended that the CPUC compare maximum daily construction ROG and NO_x emissions from these sources to the MBUAPCD's ROG and NO_x operational significance thresholds of 137 pounds per day. For the maximum worst-case-day scenario, it is assumed that two slant well drill rigs would operate simultaneously for 24 hours per day on the same day that two horizontal boring machines or augers would operate for 8 hours per day. As presented in **Table 4.10-6**, it is estimated that ROG and NO_x daily emissions associated with these sources would be approximately 4 pounds and 62 pounds, respectively (see **Appendix G** for all

assumptions and emission factors). These emissions would be less than the MBUAPCD significance thresholds; therefore, it can be concluded that short-term emissions associated with construction of the MPWSP would not contribute to an exceedance of a state or federal standard for ozone. The impact would be less than significant.

TABLE 4.10-6
ESTIMATED CONSTRUCTION EMISSIONS FOR NON-TYPICAL CONSTRUCTION EQUIPMENT
(pounds/day)

Emissions Source	ROG	NO_x
Slant Drill Rigs	3.32	46.60
Jack-and-Bore Rigs	1.11	15.53
Total	**4.43**	**62.13**
MBUAPCD CEQA Significance Threshold	137	137
Exceeds Threshold Without Mitigation?	No	No

NOTE: Operational significance criteria for ROG and NO_x emissions are used to analyze emissions from non-typical construction equipment.

SOURCE: ESA, 2015. See **Appendix G.**

Consistency with Applicable Plans, Policies, and Regulations

In addition to the physical impacts described above, as noted in **Table 4.10-3**, construction of the Subsurface Slant Wells, MPWSP Desalination Plant, Source Water Pipeline, Desalinated Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, Transmission Main, Transfer Pipeline, Monterey Pipeline, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR-5 and ASR-6 Wells, ASR Settling Basin, ASR Pump Station, and Terminal Reservoir could conflict with applicable policies and regulations that were adopted for the purpose of avoiding or mitigating adverse air quality impacts. Specifically, project implementation could conflict with Coastal Act Section 30253, Monterey County General Plan Policies OS-10.6, OS-10.9; and Seaside Municipal Code Sections 8.40.030 and 8.40.040. Each of these policies and regulations is intended to protect air quality and minimize the generation of new air quality pollutants within their respective planning areas. As discussed in the preceding paragraphs, mitigation measures have been recommended that, if implemented, would bring the proposed project into conformity with applicable federal, state, and local air quality policies and regulations. Specifically, **Mitigation Measure 4.10-1a** (**Construction Fugitive Dust Control Plan)** would reduce fugitive dust PM_{10} emissions, including naturally occurring asbestos that can be found in the soil, by requiring CalAm to implement a comprehensive construction dust control plan. Similarly, **Mitigation Measure 4.10-1b (Stabilize Dust on Terminal Reservoir/ASR Pump Station Access Road)** would reduce dust emissions by requiring the construction contractor to stabilize the unpaved access road to Terminal Reservoir and ASR Pump Station. Therefore, with these measures implemented, the MPWSP would substantially reduce construction emissions and would be brought into conformance with the above-noted policies and regulations.

Impact Conclusion

Short-term emissions associated with construction of the proposed project could contribute to an exceedance of a state and/or federal standard for PM_{10} based on the estimated maximum daily mass emissions levels presented in **Table 4.10-5**, which would exceed the MBUAPCD significance threshold for PM_{10}. However, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1c**. Short-term construction emissions associated with other criteria pollutants, including ozone precursors (i.e., ROG and NO_x), would not be expected to contribute to an exceedance of an ambient air quality standard and the associated impact for all other criteria pollutants would be less than significant.

Mitigation Measures

Mitigation Measure 4.10-1a applies to all of the proposed project components.

Mitigation Measure 4.10-1a: Construction Fugitive Dust Control Plan.

CalAm shall require its construction contractor(s) to implement a dust control plan that includes, at minimum, the following dust control measures:

- Water all active construction areas at least twice daily;
- Cover all trucks hauling soil, sand, and other loose materials and require trucks to maintain at least 2 feet of freeboard;
- Apply water three times daily, or apply (non-toxic) soil stabilizers, on unpaved access roads, parking areas, and staging areas at construction sites;
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites;
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more);
- Enclose, cover, or water twice daily exposed stockpiles (dirt, sand, etc.);
- Limit traffic speeds on unpaved roads to 15 miles per hour;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways;
- Replant vegetation in disturbed areas as quickly as possible;
- Wheel washers shall be installed and used by truck operators at the exits of the construction sites to the MPWSP Desalination Plant, the slant wells, the ASR well facilities, and the Terminal Reservoir/ASR Pump Station; and
- Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District (MBUAPCD) shall also be visible to ensure compliance with MBUAPCD rules.

Mitigation Measure 4.10-1b applies to the Terminal Reservoir/ASR Pump Station access road.

Mitigation Measure 4.10-1b: Stabilize Dust on Terminal Reservoir/ASR Pump Station Access Road.

CalAm shall require its construction contractor(s) to gravel or pave the existing access road to the Terminal Reservoir/ASR Pump Station site. This access road shall be stabilized prior to the commencement of construction activities at the Terminal Reservoir/ASR Pump Station site.

Mitigation Measure 4.10-1c applies to all proposed project components.

Mitigation Measure 4.10-1c: Idling Restrictions.

On road vehicle idling time shall be minimized and shall not exceed a five minute maximum. Additionally, off-road engines shall not idle for longer than five minutes per Section 2449(d)(3) of Title 13, Article 4.10, Chapter 9 of the California Code of Regulations. Clear signage of this requirement shall be provided for construction workers at all access points to construction areas.

Impact 4.10-2: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during construction. (*Less than Significant*)

Construction of the proposed project would result in the short-term generation of DPM emissions from the use of off-road diesel equipment and from on-road heavy-duty trucks. These emissions could result in the short-term exposure of local sensitive receptors to TACs (i.e., DPM) and objectionable odors.

Sensitive Receptor Exposure to TACs

The dose to which receptors are exposed is the primary factor affecting health risk from TACs. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. According to OEHHA, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period when assessing TACs (such as DPM) that have only cancer or chronic non-cancer health effects.

For the proposed project, the highest DPM emissions would be from construction of the MPWSP Desalination Plant and the subsurface slant wells. $PM_{2.5}$ exhaust emissions from on-site construction activities at the MPWSP Desalination Plant and subsurface slant wells site would average approximately 3 pounds per day for 25 months and approximately 2 pounds per day for 18 months, respectively. The closest sensitive receptors to these sites are at distances well over 2,000 feet. In addition, the predominant wind direction in the project area is to the west. The closest sensitive receptors are not downwind of these sites. Construction activities that would occur closest to sensitive receptors would be associated with installation of the pipelines, ASR injection/extraction wells, and Valley Greens Pump Station, which would each generate an

average of less than 2 pounds per day of $PM_{2.5}$ emissions within 50 to 100 feet of sensitive receptor locations. However, construction of these project components in the vicinity of any one sensitive receptor location would be limited in duration to several days for pipeline construction,[6] up to 2 months for construction of the Valley Greens Pump Station, and up to 18 months for construction of the ASR injection/extraction wells. Therefore, limiting the duration of exposure to a small fraction of the 70-year exposure period used in health risk assessments, DPM emissions would not result in an exceedance of the MBUAPCD TAC significance threshold (i.e., the proposed project would not result in a cancer risk greater than 1 incident per 100,000 population).

Sensitive Receptor Exposure to Odors

Construction activities that would be associated with the proposed project could result in temporary odors from use of diesel-fueled equipment. These odors would be temporary and would dissipate quickly, and would be unlikely to create objectionable odors that would affect a substantial number of people.

Impact Conclusion

Short-term construction activities that would be associated with the MPWSP would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors that would affect a substantial number of people. The associated impact would be less than significant.

Mitigation Measures

None required.

4.10.3.5 Operational Impacts and Mitigation Measures

Impact 4.10-3: Long-term increase of criteria pollutant emissions that could affect regional air quality during project operations. (*Less than Significant*)

This EIR assumes operation of the proposed project would rely on electrical power supplied from Pacific Gas and Electric Company (PG&E)'s existing regional power grid. It is generally not possible to determine the exact generation source(s) of electricity on the power grid that would supply the proposed project, or whether or not the electricity would even be generated within the Air Basin. Therefore, indirect emissions of criteria pollutants associated with electricity use from the regional power grid are not addressed in this air quality analysis.

MPWSP Desalination Plant, Valley Greens Pump Station, and ASR Pump Station

Direct emission sources that would be associated with the proposed project include on-road vehicles and emergency generators at the MPWSP Desalination Plant, Valley Greens Pump Station, and ASR Pump Station. Mobile emission sources would include the daily commute trips of up to 30 facility operators and support personnel and three daily delivery truck trips that would be

[6] Pipeline construction would progress at an average linear rate of 150 to 250 feet per day, limiting potential for exposure at any one location to less than a week.

required to operate the desalination facilities. It is estimated that these activities would result in approximately 60 light-duty one-way truck trips and 6 heavy-duty one-way truck trips each day. Estimated mobile source emissions associated with the operations of the proposed project are presented below in **Table 4.10-7**. Refer to **Appendix G** for the calculation sheets that were used to estimate the operational emissions that would be associated with the proposed project.

TABLE 4.10-7
PROPOSED PROJECT OPERATIONAL EMISSIONS (POUNDS/DAY)

Source	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
On-road Vehicle Exhaust	0.10	1.73	2.73	0.10	0.05
Emergency Generator Testing	0.80	43.90	2.78	1.28	1.18
Total	**0.89**	**45.63**	**5.51**	**1.38**	**1.23**
MBUAPCD CEQA Significance Threshold	137	137	550	82	N/A
Exceeds Threshold Without Mitigation?	No	No	No	No	No

NOTE: N/A = no applicable threshold.

SOURCE: ESA, 2015. See **Appendix G**.

The only on-site sources that would be associated with the proposed project would be stand-by emergency diesel generators that would be installed at the MPWSP Desalination Plant, ASR Pump Station, and the Valley Greens Pump Station to provide emergency back-up power. Securing permits from the MBUAPCD for the emergency standby generators would ensure less-than-significant operational impacts related to the use of such generators through adherence to MBUAPCD Rule 1010. Estimated emissions that would be associated with emergency generator testing are presented above in **Table 4.10-7**.

All Other Proposed Project Components

None of the other proposed project components would result in the direct emissions of criteria pollutants during operations and maintenance. Therefore, no impact would result.

Impact Conclusion

As identified in **Table 4.10-7**, combined operational emissions that would be associated with the MPWSP Desalination Plant, Valley Greens Pump Station, and ASR Pump Station would not exceed any of the significance thresholds; therefore, operational emissions would not be expected to result in or contribute to an exceedance of an ambient air quality standard and the associated impact would be considered to be less than significant. No impact would result from operation and maintenance of all other project components.

Mitigation Measures

None required.

Impact 4.10-4: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations. (*Less than Significant*)

Sensitive Receptor Exposure to TACs

MPWSP Desalination Plant, Terminal Reservoir/ASR Pump Station, and Valley Greens Pump Station. The only on-site DPM emissions sources that would be associated with the MPWSP would be the emergency generators at the MPWSP Desalination Plant, ASR Pump Station, and the Valley Greens Pump Station. DPM emissions (in the form of $PM_{2.5}$) from routine testing and maintenance of these emergency generators would be less than 1 pound per day and would average up to 0.03 pound per day on an annual basis. Given the negligible amount of emissions that would be generated, long-term operations of the emergency generators would not exceed the MBUAPCD TAC significance threshold (i.e., the proposed project would not result in a cancer risk greater than one incident per 100,000 population). Therefore, overall, the increased health risk from long-term project DPM emissions would be negligible and this impact would be less than significant.

All Other Proposed Facilities. None of the other proposed project facilities would include on-site DPM emissions sources, or emission sources of other TACs. Therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result from operation of all other project facilities.

Objectionable Odors

MPWSP Desalination Plant and ASR Wells. The chemical storage and chemical feed facilities at the MPWSP Desalination Plant and ASR-5 and ASR-6 wells would be closed systems. Ventilation units would be equipped with odor control scrubbers. For open-air facilities, such as the backwash treatment facilities and residuals handling systems, including the sludge drying beds, odors would generally be managed through operational controls. CalAm facility operators could opt to reduce detention times in basins, use a technique known as "enclosure, capture, and treatment," and/or use chemical stabilization to control odors of residuals. The air would be "captured" through the ventilation system and treated with a scrubber. Operators could also use chemical stabilization techniques to control odor. For example, they could apply chemicals such as lime directly to the sludge drying bed and prevent odors from releasing to the atmosphere. Additionally, the MPWSP Desalination Plant would be co-located with the MRWPCA Regional Treatment Plant and the Monterey Regional Environmental Park, which are currently sources of odors in the area. The MPWSP Desalination Plant would not be expected to substantially increase the odors that already exist in the vicinity of the site.

Due to the specifications and odor control features of the MPWSP Desalination Plant as described above, the lack of nearby sensitive receptors in the immediate vicinity, and the location of the site within an industrialized area, odors that would be associated with the proposed project would not be expected to affect a substantial number of people.

All Other Proposed Facilities. None of the other proposed project facilities would include on-site odor sources. Therefore, no impact related to the objectionable odors affecting a substantial number of people would result from operation of all other project facilities.

Impact Conclusion

Long-term operations that would be associated with the MPWSP would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors that would affect a substantial number of people. The impact would be less than significant.

Mitigation Measures

None required.

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