

3.8 AIR QUALITY AND ODORS

3.8.1 AFFECTED ENVIRONMENT

AMBIENT AIR QUALITY STANDARDS

The federal Clean Air Act Amendments of 1970 established national ambient air quality standards, and individual states retained the option to adopt more stringent standards and to include other pollutants. California had already established its own air quality standards when federal standards were established, and because of the unique meteorological conditions and associated air quality problems in the state, there is considerable diversity between state and federal standards currently in effect in California.

The ambient air quality standards incorporate a margin of safety and are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, such as asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels somewhat above the ambient air quality standards before adverse health effects are observed.

AIR QUALITY MONITORING DATA

Federal, state, and local agencies operate a network of monitoring stations throughout California to provide data on ambient concentrations of air pollutants. Recent monitoring data from monitoring stations in San Francisco indicate occasional exceedances of state standard for PM₁₀. All other criteria air quality standards have not been exceeded in San Francisco over the past five years.

AIR QUALITY PLANS

The federal Clean Air Act requires nonattainment and maintenance areas to prepare air quality plans that include strategies for attaining and maintaining the national standards. The state California Clean Air Act also requires plans for nonattainment areas. Thus, just as areas in California have two sets of designations, many – including the Bay Area – also have two sets of air quality plans: one to meet federal requirements relative to the national standards and another to meet state requirements relative to the state standards.

State Implementation Plan

Regional air quality plans developed under the federal Clean Air Act are included in an overall program referred to as State Implementation Plans (SIPs). Plans have been prepared for the Bay Area to address nonattainment and maintenance issues related to the national (one-hour) ozone standard and the national carbon monoxide standard.

A new Bay Area ozone SIP, the *Ozone Attainment Plan* (Association of Bay Area Governments 1999), has recently been approved by U.S. EPA. This 2001 Ozone Attainment Plan replaces the previous Bay Area ozone SIP (i.e., the *Ozone Maintenance Plan*) in conjunction with the approved portions of the 1999 Plan.

The *Carbon Monoxide Maintenance Plan* (Association of Bay Area Governments 1994) was developed to ensure continued attainment of the national carbon monoxide standard in the Bay Area.

Clean Air Plan

The Bay Area Air Quality Management District (2000) developed the *Bay Area 2000 Clean Air Plan* to meet planning requirements under the state California Clean Air Act. This plan was developed to address the nonattainment designation of the Bay Area with respect to the state ozone standard.

CONFORMITY WITH ADOPTED AIR QUALITY PLANS

U.S. EPA also has developed criteria and procedures for determining the conformity of federal actions to the applicable SIPs. The General Conformity Rule is used to assess conformity with an applicable SIP. Section 93.158 (a)(5)(v) of the 1990 amendments to the Clean Air Act (the General Conformity Rule) states that an action will be considered to conform to the applicable SIP if “a federal action involves regional water and/or wastewater projects, such projects are sized to meet only the needs of the population projections that are in the applicable SIP.” The rule defines a regional water and/or wastewater project as one that affects a large portion of a nonattainment or maintenance area. Because of the relatively small scale of the proposed project and because there would be no operational emissions of criteria air pollutants, the proposed project would have emissions below the “de minimus” threshold, and therefore would be presumed to be in conformance with the General Conformity Rule, as it relates to wastewater treatment plants (Lo 2002).

OTHER REGULATORY REQUIREMENTS

California Air Resources Board (CARB), the State’s air quality management agency, is responsible for establishing and reviewing the state ambient air quality standards, compiling the California SIP and securing approval of that plan from U.S. EPA. CARB also oversees the activities of air quality management districts, which are organized at the county or regional level. As a general matter, U.S. EPA and CARB regulate emissions from mobile sources, and the air districts regulate emissions from stationary sources associated with industrial and commercial facilities.

In the Bay Area, the Bay Area Air Quality Management District (BAAQMD) is the regional agency empowered to regulate air pollutant emissions from stationary sources. BAAQMD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review activities. Even though the proposed project is located on

federal land, stationary sources of air pollution proposed by the project would be subject to the permit authority of the BAAQMD.

The BAAQMD also monitors odors through its Regulation 7, which requires the District to take certain enforcement actions after receiving 10 or more complainants over a 90 day period. Once review under Regulation 7 is initiated, the BAAQMD would collect air samples and determine the dilution threshold necessary to render the odor to an undetectable level. If the measured dilution rate exceeds a 4:1 ratio at the property line or the standard for the given height of the emission source, then the operator must reduce odor emissions to below the threshold.

SENSITIVE RECEPTORS

Some land uses are considered more sensitive than others to odors and air pollution. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions source, 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 infections and other air quality-related health problems than the general public. Residential areas are also sensitive to poor air quality.

Treatment Facilities

Sensitive receptors within the vicinity of the proposed treatment facilities and new storage reservoirs consist of residential dwellings in Building 1029, approximately 300 feet west of the project site, and residential dwellings on Lyon Street and the Marina, which are one-quarter mile to the east. Additionally, Crissy Field is a recreation area located approximately 1,000 feet north of the subject site, and can be considered as a sensitive use.

Pipeline Construction

Sensitive receptors within the vicinity of the pipeline construction consist of those identified for the treatment facilities and, in particular, residential dwellings along Lyon Street, which are approximately 200 feet from the Gorgas Gate discharge point. Other receptors include residential uses along Sibert Loop (west of Arguello Boulevard) and Sumner Street (west of Presidio Boulevard). The Alternative 1 alignment would pass by a residential area along Ruckman Avenue. The Alternative 2 pipeline alignment would pass by the Hitchcock Street residential area and a residential area along Amatory Loop (east of Park Boulevard).

3.8.2 ENVIRONMENTAL CONSEQUENCES AND MITIGATION

ALTERNATIVE 1 (CENTRALIZED STORAGE)

Construction Emissions

Construction of the project would generate fugitive dust (including PM₁₀) and other criteria air pollutants from exhaust emissions. A large portion of the total construction dust emissions would

result from trenching and excavation (for underground storage tank) activities. Dust emissions would vary from day to day, depending on the phase of construction, the silt content of the soil, and the weather. Daily emissions would depend greatly upon whether construction of the various project components (e.g., excavation of underground storage tank and associated pipelines) would occur simultaneously.

BAAQMD considers carbon monoxide and ozone precursor emissions as part of its emissions inventory and as such are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area. For this reason, emissions of carbon monoxide (CO), ROG and NO_x from construction equipment are not typically quantified, and are considered a less-than-significant impact.

In regards to PM₁₀ emissions, BAAQMD indicates that if control measures are implemented, then PM₁₀ emissions from construction activities would be considered a less-than significant impact. The dust control measures identified in Section 2.3 (BMP-2: Dust Control) are considered to be part of the project and, as such, would serve to reduce dust emissions. Because these measures include those identified by the BAAQMD, project-related construction dust emissions are considered to be less-than significant.

Construction-related emissions of ROG, NO_x, CO and PM₁₀ would be less-than significant, and no mitigation is recommended or required.

Operational Emissions

The BAAQMD has established thresholds for assessment of project impacts on air quality that are commonly employed in determining the significance of potential air quality impacts and these thresholds are used for this analysis. For operational impacts, emissions of 80 pounds per day of reactive organic gases, nitrogen oxides, and particulate matter are considered significant. Sensitive receptors (facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effect of air pollution) are evaluated by their proximity to potential sources of air pollution.

Proposed pumps and blower equipment would be electrically powered, and would not generate on-site emissions. Because no solids treatment is proposed for the project, there would be no flaring of digester waste gas or sludge heating required. Back-up diesel generators are not proposed as part of the project. Because no sources of criteria air pollutants would be generated by the project, the potential operational effects on air quality would be considered less-than significant.

Operation-related emissions of ROG, NO_x, CO and PM-10 would be less-than significant, and no mitigation is recommended or required.

Odors

Although there is a potential for odor generation wherever wastewater is handled, the proposed water recycling facility would not be expected to generate substantial odors for several reasons, as summarized below.

- All wastewater associated with the project would be generated at the Presidio and would involve a short transit time in the local sewer system, thereby minimizing the potential for the development of anaerobic conditions (which can create odors).
- Based on a raw wastewater sampling conducted for the proposed project, wastewater at the Presidio can be characterized as a weak domestic wastewater with no sulfides detected, which further reduces the potential for odor generation (as compared to strong wastewater, which is common in municipal systems).
- There would be no solids handling at the proposed recycled water facility (solids handling and treatment can be a major source of odor generation).
- The proposed project would entail a multiple barrier approach (redundancy) to odor control, whereby the headspace of the screening and process units would be vented to an odor control device, and, in addition, the entire building interior would be ventilated through another odor control device. These odor control devices would consist of a series of biofilter scrubbers to control odors from the facility.
- Odors are perceived based on their concentrations. The proposed facility would be located in an area with strong westerly prevailing winds, and in the unlikely event of upset conditions or equipment malfunction, these conditions would provide for a rapid dissipation of any potential odors that escape the plant.

The BAAQMD identifies a two step process for determining potential odor impacts. The first step is to determine whether the project is located within a given screening distance of a sensitive receptor; for conventional wastewater treatment plants, this screening distance is one mile. [Because the proposed treatment building locations are within 300 feet of dwelling units in Building 1029 and 1,300 feet of residences on Lyon Street, they are within the BAAQMD screening distance.] The second step for analysis of odor impacts from a new facility is to assess the extent of odor complaints from existing similar facilities. The Enforcement Division of the BAAQMD was contacted to review the potential for odor complaints from similarly-sized facilities using similar technology. BAAQMD is not aware of any plants that use the same technology as that proposed by the project (Boemher 2001). Most of the plants under BAAQMD purview are large municipal plants that handle sludge (e.g., San Francisco, Pacifica, Daly City, and San Mateo), and as such are not directly comparable to the proposed project, which would be a relatively small plant with no solids handling facilities. Although no comparable water recycling facilities exist in the Bay Area, similar facilities are operating elsewhere (with no odor problems), as described below.

Existing plants that use the treatment technology proposed are currently operating in Anthem, Arizona, Arapahoe County, Colorado and Viejas, California. The Anthem, Arizona plant has been in operation for three years, and currently has a throughput of 0.4 MGD, which recycles wastewater from a mix of residential and commercial sources from the Del Webb residential/golf course development. An on-site scrubber abates odors from the treatment process and the headworks. The nearest residence to the plant is located approximately one-quarter mile away. The plant currently has no history of odor complaints (Moore, 2001). A review of air quality complaints for the community showed no history of odor complaints (www.maricopa.gov).

The Arapahoe County, Colorado plant has been in operation for three and a half years, and currently has a throughput of 1.1 MGD from a mix of residential and commercial sources; the plant currently has no odor control equipment. The plant has no history of odor complaints (Stigmiller 2002). The nearest residence to the plant is located approximately one-quarter mile away.

The Viejas plant is operated for an Indian casino on Indian lands, over which the San Diego Air Quality Management District has no enforcement jurisdiction. Consequently, the operator of the Viejas Plant was contacted to establish if the facility has any odor complaint history. The plant operator stated that the plant has been in operation since May 2000 and currently has a throughput of 0.125 MGD of commercial wastewater from the Indian casino. An on-site scrubber abates odors from the treatment process, while the open basin headworks is treated with magnesium hydroxide. The plant has no history of odor complaints (the closest residence is approximately 0.5 mile from the plant) (Fromath 2001).

Available data indicate that treatment facilities of the size and technology proposed for the Presidio have not resulted in nuisance odor emissions. As with any wastewater treatment process, there is a potential for short-term odor emissions, particularly during upset or maintenance conditions. However, as discussed in the Affected Environment Section, the BAAQMD regulates odor emission, including wastewater treatment plants, under its Regulation 7, and the BAAQMD has established a mechanism to respond to odor emissions should they become objectionable to the community at large (1-800-334-ODOR[6367]). Given that the raw wastewater at the park is weak, would have a short residence time in the local sewers, that the proposed facility would be of modern, state-of-the-art design and construction that would not handle solids, and that similar plants have no history of nuisance odors, the potential impact from odor emissions is considered to be less-than significant.

Operation-related odor emissions would be less-than significant, and no additional mitigation is recommended or required.

ALTERNATIVE 2 (MULTIPLE STORAGE SITES)

General Air Quality and Odor Effects

Since the primary difference under this alternative relates to storage and distribution facilities, operational effects related to the alternative treatment plant sites would be the same as described above. Alternative 2 would include more construction activities from rehabilitation of the existing storage reservoir and installation of approximately 10 percent (in length) more pipeline. This would result in a slight increase in air pollutant emissions. However, these impacts are expected to be less-than significant, with implementation of mitigation measures under Alternative 1.

Alternative 2 would have no significant impacts on air quality and odor, with implementation of mitigation measures under Alternative 1.

ALTERNATIVE 3 (NO ACTION)

General Air Quality and Odor Effects

Under the No Action alternative, there would be no construction-related dust impacts as discussed above. Because wastewater would not be treated on-site, there would also be no impacts regarding pollutant or odor emissions associated with the No Action alternative.

The No Action Alternative would not generate air quality or odor emission impacts, and no mitigation is recommended or required.