3.16 CLIMATE CHANGE

3.16.1 Affected Environment

Climate change refers to long-term fluctuations in temperature, precipitation, wind, and other elements of Earth's climate system. Natural processes such as solar-irradiance variations, variations in Earth's orbital parameters, and volcanic activity can produce variations in climate. The climate system can also be influenced by changes in the concentration of various gases in the atmosphere, which affect Earth's absorption of radiation. California law defines these greenhouse gases (GHG) to include the following: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Health and Safety Code, Section 38505(g)). The most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide (OPR 2008)..

The BAAQMD has prepared a GHG emissions inventory using 2002 as the base year. The BAAQMD estimated that 85.4 million tons of CO_2-equivalent GHGs were emitted from anthropogenic sources in the Bay Area in 2002. Fossil-fuel consumption in the transportation sector (on-road motor vehicles) accounted for approximately 43 percent (BAAQMD 2006). Comparable information is not available for the San Joaquin Air Basin.

3.16.2 Regulatory Setting

There currently is no federal, state, or local regulatory guidance for determining whether a project advances or hinders California's GHG reduction goals, and no standards of significance for GHG impacts have been established. Via Executive Order S-3-05 California established GHG emission reduction targets as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. The Global Warming Solutions Act of 2006 (AB 32) established California's goal of reducing statewide emissions of GHGs to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased-in starting in 2012 to achieve maximum technologically feasible and cost-effective GHG reductions. In order to effectively implement the cap, AB 32 directs the CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor GHG emissions.

3.16.3 Environmental Consequences

3.16.3.1 No Action Alternative

The No Action alternative would not affect climate change because no development would occur.

3.16.3.2 Proposed Action

This analysis addresses the generation of GHG emissions and the potential for the Proposed Actin to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions.

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During facilities construction and removal, the Proposed Action would temporarily cause direct GHG emissions from the combustion of fossil fuels (i.e., diesel, gasoline) used to run

construction equipment and vehicles, both onsite and offsite. Over its lifetime, the Proposed Action would directly and indirectly cause negligible GHG emissions from occasional maintenance and personal vehicle use, the periodic use of diesel-powered generators, and/or the use of electric power used to run hydraulic pumps on an intermittent basis. Therefore, this analysis focuses on construction impacts (impacts from removal activities would be far less because less time and equipment use would be required and are not calculated).

Table 3.16-1 shows estimated GHG gas emissions for the Proposed Action based on the EPA's published emission factors and CARB's Emission Factors model (EMFAC) for diesel and gasoline fuel internal combustion.

Table 3.16-1 Estimated Total GHG Emissions During Construction

Project Emissions	tons	tonnes
Carbon Dioxide (GHG - CO_2)	1,232	1,117
Nitrous Oxide (GHG - N_2O)	0.031	0.028
Methane (GHG - CH_4)	0.068	0.062
Carbon Dioxide Equivalents (CO_2eq)	1,243	1,127

Sources: EPA 2006, CARB 2006a, EPA 2009
Notes:
tons – short tons (2,000 pounds)
tonnes – metric tons (1,000 kilograms or 2,204.6 pounds)

As shown in Table 3.16-1, the entire Proposed Action would emit approximately 1,243 tons of CO_2–equivalent GHG. This amount is very small (0.0015 percent) in comparison to the 85.4 million tons of CO_2 equivalents emitted per year in the Bay Area alone. The generation of direct onsite and offsite GHG emissions would be intermittent and would terminate following completion of installation and removal activities. Additionally, in order to minimize emissions to the extent feasible, construction contractors would be required to implement the following measures:

- On-road and off-road vehicle tire pressures would be maintained to manufacturer specifications. Tires shall be checked and reinflated at regular intervals
- Construction equipment engines would be maintained to manufacturer's specifications
- Any onsite vegetation would be preserved or replaced (if removal is necessary for proposed activities) as a means of providing carbon sequestration

Due to the very small quantities involved and the temporary nature of the construction and removal activities, the Proposed Action would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions, and impacts would be considered minor.

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