

3.13 Greenhouse Gases

3.13.1 ENVIRONMENTAL SETTING

The most prominent greenhouse gases (GHGs) that have been identified as contributing to global warming are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Emissions of GHGs contributing to global climate change are attributable largely to human activities associated with the industrial/manufacturing, utility, residential, and agricultural sectors. The transportation sector is the largest emitter of GHGs in California, followed by electricity generation. CO₂ is a byproduct of the fossil fuel combustion associated with both the transportation and the utility sectors. CH₄, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills. GHGs from the residential sector are primarily related to energy consumption. Processes that absorb and accumulate CO₂, often called CO₂ “sinks,” include uptake by vegetation and dissolution into the ocean. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California is the 12th to 16th largest emitter of CO₂ in the world and produced 492 million gross metric tons of CO₂ equivalents in 2004 (Sapphos 2007).

3.13.2 REGULATORY SETTING

Federal Regulations

There are no federal regulations regarding greenhouse gases.

State Regulations

Executive Order S-3-05

Signed by the Governor of California in 2005, Executive Order S-3-05 asserts that California has vulnerability to the impacts of climate change. The Executive Order puts forth that increased temperatures could reduce the Sierra snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas (GHG) emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to initiate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary is responsible for submitting biannual reports to the governor and State legislature that outline: (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) measures and adaptation plans to mitigate these impacts. To comply with the Executive Order, the Secretary of CalEPA created a Climate Act Team (CAT) comprised of members from various state agencies and commission. CAT released its first report in March 2006. The report proposed to achieve the targets via building on voluntary actions of California businesses, local government and community actions, in addition to state incentive and regulatory programs.

Global Warming Solutions Act of 2006

The State of California adopted the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) on September 27, 2006 to address the threat of global warming caused by the increase in GHG emissions. AB 32 requires sources within the state to reduce carbon emissions to 1990 levels by the year 2020. The 1990 CO₂ equivalent emissions are estimated to be 427 million metric tons. The CARB has estimated CO₂ equivalent emissions to be 596.4 million metric tons in 2020 if no

actions are taken to reduce greenhouse gas emissions. Emission sources in the State would need to reduce emissions by approximately 28 percent (or 169 million tons) before 2020 to meet this goal. The primary sources of greenhouse gas emissions include on-road transportation, electric power generation, and industrial facilities.

CARB recently developed mandatory reporting rules for significant sources of GHGs as a result of AB 32 (Subchapter 10, Article 1, sections 95100 to 95133, Title 17, California Code of Regulations). CARB developed and approved a scoping plan that indicates how GHG emission reductions would be achieved from significant GHG sources. CARB also intends to adopt regulations to achieve maximum technologically feasible and cost-effective GHG emission reductions.

CARB has proposed draft regulations to limit GHG emissions from electric power plants and other specific source categories. The proposed regulations do not include sources such as municipal wastewater treatment plants. This type of source is also not subject to mandatory GHG emission reporting. This project would not currently be subject to any requirements under the California Climate Change Regulatory Program. The GHG emissions from this project have nevertheless been estimated to evaluate the potential GHG impacts of the project, and several recommended measures to reduce GHG emissions have been reviewed for feasibility.

Local Regulations

City of Lone General Plan

The City of Lone Draft General Plan (City of Lone 2009) Environmental Management Element's goals and policies relevant to air quality are listed below:

- Goal CO-6: Conserve the natural resources and quality of life within the community by reducing local and global air impacts.
- Policy CO-6.5: The City supports local, regional, and statewide efforts to reduce the emission of greenhouse gases linked to climate change.
- Policy CO-6.6: The City shall collaborate and coordinate with regional organizations and local jurisdictions within the City to reduce greenhouse gas emissions.

3.13.3 THRESHOLDS OF SIGNIFICANCE

The proposed project would result in a significant impact if it would:

- 1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance
- 2) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases

3.13.4 IMPACTS AND MITIGATION

Potential Impact 3.13-1: Potential to generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance

Overview of Impacts

The ACAPCD has not established significance criteria for GHG emissions; therefore, the significance of project GHG impacts was evaluated using the CARB Preliminary Draft Staff

Proposal for setting significance thresholds for GHG (October 24, 2008). CARB has proposed significance thresholds for industrial and residential/commercial projects. This project would belong to the industrial category; therefore, this project was reviewed using the CARB proposed thresholds for industrial projects. The project would not result in any direct environmental impacts from the emissions of GHGs. The potentially adverse impacts of GHG emissions from the proposed project would be the result of the cumulative impact of global GHG emissions.

Construction. This project analyzed in this EIR consists of three types of elements, including:

- Existing elements - construction and operation of Pond 7;
- Project-level elements
 - Phase One elements include:
 - Partial lining or fill Ponds 5 and 6,
 - Construction of a new activated sludge system,
 - Demolition of the existing secondary treatment facilities,
 - Closure of Ponds 1-4,
 - Construction of pipelines between the secondary and tertiary WWTP,
 - Expansion of the existing tertiary WWTP or the construction of a new tertiary WWTP adjacent to the new activated sludge system, and
 - Construction of Pond 8.
 - Phase Two elements include:
 - Expansion of the new activated sludge system from a capacity of 0.80 MGD to 1.60 MGD, and
 - Expansion of the new tertiary WWTP from a capacity of 0.80 MGD to 1.60 MGD.
- Programmatic-level elements
 - Construction of Pond 9,
 - Construction of pipelines to Unimin and Charles Howard Park,
 - Construction of pipelines to other end users for disposal of tertiary treated wastewater,
 - Construction of pipelines to existing or proposed treated wastewater storage reservoirs, and
 - Construction of new treated wastewater storage reservoirs.

The discussion below regarding project GHG emissions and their impacts would be the same for each of these three types of project elements. The GHG emissions from the existing element occurred prior to the requirement to evaluate the significance of GHGs. Nevertheless, construction of Pond 7 was evaluated using the criteria that would apply if the Pond had not yet been constructed.

The use of construction equipment and the transportation of construction workers to and from the site would result in emissions of combustion-related pollutants, including GHGs. The draft CARB proposal presumes that there would be a less than significant impact related to climate change if interim CARB performance standards are implemented for construction- and transportation-related activities. These interim CARB performance standards are included as the following mitigation measures:

GHG-1: Construction workers living outside the City of Lone shall meet at staging areas and be transported (in carpools) to jobsites.

GHG-2: Unnecessary construction vehicle and equipment idling shall be minimized. Construction foremen shall include briefing to crews on vehicle use as part of pre-construction conferences. These briefings shall include discussion of “common sense” vehicle use.

GHG-3: All off-road construction diesel engines shall meet Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines.

It is likely that the measures described above would be similar to interim CARB performance standards, and that the GHG emissions from this project would result in a less than significant impact.

GHG emission impacts from the construction of the programmatic-level elements would likely be similar to those impacts described for the project-level elements, but determination of significance is speculative at this time and would need to be evaluated in a subsequent environmental analysis should the City of Lone choose to pursue such elements in the future.

Operation. The operation of the proposed wastewater treatment system would result in two potential sources of GHG emissions. The aerobic treatment process itself would result in the emission of GHGs, as would the combustion-related emissions from the operation of natural gas-fired emergency generators.

The primary GHG emitted from the aerobic wastewater treatment process is CO₂. The amount of GHGs emitted would be dependent on the size of the treatment plant and the amount of chemical oxygen demand (COD) removed during treatment. The aerobic process used to treat the sanitary wastewater is a biological process of organic waste, and would be defined as *biogenic*. CO₂ emissions from biogenic sources are considered to be carbon neutral and would not contribute to global warming.

The GHG emissions calculations are included in Appendix E and are summarized in Table 3.13-1.

Total annual GHG emissions during project operation would be approximately 806 tons per year (tpy) CO₂-equivalent. The majority of the emissions would not contribute to global warming because most of the emissions would be from a biogenic, carbon-neutral source. The total GHG emissions would also be below the CARB proposed significance threshold of 7,000 metric tons/year; therefore, the GHG emissions impact of project operations would be less than significant, and no mitigation would be required.

GHG emission impacts from the operation of the programmatic-level elements would likely be similar to the GHG impacts from the project-level elements. Determination of significance is speculative at this time and would need to be evaluated in a subsequent environmental analysis should the City of Lone choose to pursue such elements in the future.

Potential Impact 3.13-2: Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases

The state and local regulatory programs for GHG emissions and climate change are described under 3.13.2, Regulatory Setting, above. There are no existing GHG plans, policies, or regulations that have been adopted by CARB or the ACAPCD that would apply to this type of emissions source. It is possible that CARB may develop performance standards for construction- and transportation-related activities prior to or during the execution of this project. These performance standards would be implemented and adhered to, and there would be no conflict with any applicable plan, policy, or regulation. Project construction and operation impacts on GHG emission plans, policies, or regulations would be less than significant, and no mitigation would be required.

Table 3.13-1: Annual GHG Emissions from Operation of Wastewater Treatment Plant

Equipment	Device Quantity	Job Hours	Total Hours	CO₂ (tons)	CH₄ (tons)	N₂O (tons)	Total CO₂-equivalent (tons)
400kW Generator ¹	1	100	100	9.33	0.00000	0.00067	-
200kW Generator ¹	1	100	100	4.67	0.00000	0.00034	-
Aerobic Treatment	1	8760	8,760	974.7	0.00000	0.00000	-
Total (tons)			-	988.7	0.0000	0.001	-
CO₂-equivalent (tons)				989	0	0.3	989

Notes:

¹ The emergency generators would operate no more than 100 hours per year

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