

1 **3.7 GREENHOUSE GAS EMISSIONS**

GREENHOUSE GAS EMISSIONS -Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 **3.7.1 Environmental Setting**

3 Greenhouse Gases (GHGs), are defined as any gas that absorbs infrared radiation in
 4 the atmosphere, include, but are not limited to, water vapor, CO₂, methane (CH₄),
 5 nitrous oxide (N₂O), and fluorocarbons. These GHGs lead to the trapping and buildup of
 6 heat in the atmosphere near the earth’s surface, commonly known as the Greenhouse
 7 Effect. The atmosphere and the oceans are reaching their capacity to absorb CO₂ and
 8 other GHGs without significantly changing the earth’s climate. Unlike criteria pollutants
 9 and TACs, which are pollutants of regional and local concern; GHGs and climate
 10 change are a local, regional, and global issue.

11 As stated on California’s Climate Change Portal (www.climatechange.ca.gov):

12 *Climate change is expected to have significant, widespread impacts on California's*
 13 *economy and environment. California's unique and valuable natural treasures -*
 14 *hundreds of miles of coastline, high value forestry and agriculture, snow-melt fed*
 15 *fresh water supply, vast snow and water fueled recreational opportunities, as well as*
 16 *other natural wonders - are especially at risk.*

17 In addition, the Intergovernmental Panel on Climate Change (IPCC), in the section of its
 18 Fifth Assessment Report by Working Group II, Climate Change 2014: Impacts,
 19 Adaptation, and Vulnerability (IPCC 2014) specific to North America (Chapter 26),
 20 stated in part:

21 *North American ecosystems are under increasing stress from rising temperatures,*
 22 *CO₂ concentrations, and sea-levels, and are particularly vulnerable to climate*
 23 *extremes (very high confidence). Climate stresses occur alongside other*
 24 *anthropogenic influences on ecosystems, including land-use changes, non-native*
 25 *species, and pollution, and in many cases would exacerbate these pressures (very*
 26 *high confidence). [26.4.1; 26.4.3]. Evidence since the Fourth Assessment Report*

1 *(IPCC 2014) highlights increased ecosystem vulnerability to multiple and interacting*
2 *climate stresses in forest ecosystems, through wildfire activity, regional drought, high*
3 *temperatures, and infestations (medium confidence) [26.4.2.1; Box 26-2]; and in*
4 *coastal zones due to increasing temperatures, ocean acidification, coral reef*
5 *bleaching, increased sediment load in run-off, sea level rise, storms, and storm*
6 *surges (high confidence) [26.4.3.1].*

7 California has already been affected by climate change: sea level rise, increased
8 average temperatures, more extreme hot days and increased heat waves, fewer shifts
9 in the water cycle, and increased frequency and intensity of wildfires. Higher sea levels
10 can result in increased coastal erosion, more frequent flooding from storm surges, and
11 increased property damage. Additionally, loss of wetland habitats, weakened ecosystem
12 services and reduced waterfront public access options is also anticipated. Projected
13 climate change impacts on California include: decreases in the water quality of surface
14 water bodies, groundwater, and coastal waters; sea level rise and increased coastal
15 erosion, increased flooding and fire events; decline in aquatic ecosystem health;
16 lowered profitability for water-intensive crops; changes in species and habitat
17 distribution; and impacts to fisheries (California Regional Assessment Group 2002).
18 These effects are expected to increase with rising GHG levels in the atmosphere.

19 According to the IPCC, the concentration of CO₂, the primary GHG, has increased from
20 approximately 280 ppm in pre-industrial times to well over 380 ppm. The current rate of
21 increase in CO₂ concentrations is about 1.9 ppm/year; present CO₂ concentrations are
22 higher than any time in at least the last 650,000 years. To meet the statewide GHG
23 reduction target for 2020, requiring California to reduce its total statewide GHG
24 emissions to the level they were in 1990 (Health & Saf. Code, § 38550), and the 2050
25 goal of 80 percent below 1990 levels (Executive Order S-3-05), not only must projects
26 contribute to slowing the increase in GHG emissions, but, ultimately, projects should
27 contribute to reducing the State's output of GHGs. To reach California's GHG reduction
28 targets, it is estimated that per capita emissions would need to be reduced by slightly
29 less than 5 percent per year during the 2020 to 2030 period, with continued reductions
30 required through midcentury.

31 In its 2008 "Report on Climate Change: Evaluating and Addressing Greenhouse Gas
32 Emissions from Projects Subject to the California Environmental Quality Act," the
33 California Air Pollution Control Officers Association (CAPCOA 2008) stated:

34 *[w]hile it may be true that many GHG sources are individually too small to make any*
35 *noticeable difference to climate change, it is also true that the countless small*
36 *sources around the globe combine to produce a very substantial portion of total*
37 *GHG emissions.*

1 The quantification of GHG emissions associated with a project can be complex and
 2 relies on a number of assumptions. GHG emissions are generally classified as direct
 3 and indirect. Direct emissions are associated with the production of GHG emissions
 4 from the immediate Project area. These include the combustion of natural gas as well
 5 as the combustion of fuel in engines and construction vehicles used on the site. In
 6 addition, direct emissions include fugitive emissions from valves and connections of
 7 equipment used during implementation or throughout the project life. Indirect emissions
 8 include the emissions from vehicles (both gasoline and diesel) delivering materials and
 9 equipment to the site (e.g., haul trucks).

10 For the purposes of this assessment, the Project site is located within the jurisdictions of
 11 the BAAQMD and SMAQMD.

12 **3.7.2 Regulatory Setting**

13 3.7.2.1 Federal and State

14 Federal and State laws and regulations pertaining to this issue area and relevant to the
 15 Project are identified in Table 3.7-1.

Table 3.7-1. Laws, Regulations, and Policies (GHGs)

U.S.	Federal Clean Air Act (FCAA) (42 USC 7401 et seq.)	In 2007, the U.S. Supreme Court ruled that carbon dioxide (CO ₂) is an air pollutant as defined under the FCAA, and that the USEPA has authority to regulate GHG emissions.
CA	California Global Warming Solutions Act of 2006 (AB 32)	Under AB 32, CARB is responsible for monitoring and reducing GHG emissions in the State and for establishing a statewide GHG emissions cap for 2020 that is based on 1990 emissions levels. CARB (2009) has adopted the AB 32 Climate Change Scoping Plan (Scoping Plan), which contains the main strategies for California to implement to reduce CO ₂ equivalent (CO ₂ e) emissions by 169 million metric tons (MMT) from the State's projected 2020 emissions level of 596 MMT CO ₂ e under a business-as-usual scenario. The Scoping Plan breaks down the amount of GHG emissions reductions the CARB recommends for each emissions sector of the State's GHG inventory, but does not directly discuss GHG emissions generated by construction activities.
CA	Senate Bills (SB) 97 and 375	Pursuant to SB 97, the State Office of Planning and Research prepared and the Natural Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. Effective as of March 2010, the revisions to the CEQA Environmental Checklist Form (Appendix G) and the Energy Conservation Appendix (Appendix F) provide a framework to address global climate change impacts in the CEQA process; State CEQA Guidelines section 15064.4 was also added to provide an approach to assessing impacts from GHGs. SB 375 (effective January 1, 2009) requires CARB to develop regional reduction targets for GHG emissions, and prompted the creation of regional land use and transportation plans to reduce emissions from passenger vehicle use throughout the State. The targets apply to the regions covered by California's 18

Table 3.7-1. Laws, Regulations, and Policies (GHGs)

		metropolitan planning organizations (MPOs). The 18 MPOs must develop regional land use and transportation plans and demonstrate an ability to attain the proposed reduction targets by 2020 and 2035.
CA	Executive Orders	Executive Order B-30-15 (Governor Brown, April 2015) established a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It additionally directed all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve GHG emissions reductions to meet the 2030 and 2050 targets.
		Executive Order S-01-07 (Governor Schwarzenegger, January 2007) established a low carbon fuel standard for California, and directed the carbon intensity of California’s transportations fuels to be reduced by at least 10 percent by 2020.
		Executive Order S-3-05 (Governor Schwarzenegger, June 2005) directed the state to reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 level by 2050.

1 3.7.2.2 Local

2 **Sacramento Metropolitan Air Quality Management District (SMAQMD)**

3 On October 23, 2014, the SMAQMD adopted a recommended GHG threshold of
 4 significance meeting the requirements of section 15064.7 of the State CEQA Guidelines
 5 to address the issues of growth and climate change. The SMAQMD has implemented a
 6 recommended GHG threshold of significance for the construction phase of a project at
 7 1,100 metric tons (MT) of CO₂ equivalent per year.

8 **Bay Area Air Quality Management District (BAAQMD)**

9 On June 2, 2010, the BAAQMD’s Board of Directors unanimously adopted thresholds of
 10 significance to assist in the review of projects under CEQA. These thresholds are
 11 designed to establish the level at which the District believed air pollution emissions
 12 would cause significant environmental impacts under CEQA and are included in the
 13 District’s updated CEQA Guidelines (BAAQMD 2012).

14 **3.7.3 Impact Analysis**

15 ***a) Generate greenhouse gas emissions, either directly or indirectly, that may have***
 16 ***a significant impact on the environment?***

17 **Less than Significant Impact.** The decommissioning activities would result in GHG
 18 emissions (primarily engine exhaust) from marine vessels and onboard equipment,
 19 heavy duty construction equipment, transfer dump trucks, cement trucks, and worker
 20 vehicles. Operation of offshore vessels and equipment listed in Section 2.4, Equipment

1 and Personnel Requirements, would result in GHG emissions of approximately 260
 2 MTCO₂e (metric tons of CO₂ equivalent) over the duration of the Project. Estimated
 3 emissions of GHGs are presented in Table 3.7-2. Overall, Project-related GHG
 4 emissions would not approach the more conservative 1,100 MTCO₂e significance
 5 threshold recommended by the SMAQMD. Project GHG emissions would be temporary
 6 and very low as compared to projects that create permanent sources of GHG
 7 emissions. Please refer to Appendix B for a copy of the GHG Spreadsheets supporting
 8 this analysis. A less than significant impact would result.

Table 3.7-2. Estimated GHG Total Project Emissions

AIR EMISSIONS SUMMARY		CO ₂	N ₂ O	CH ₄	MTCO ₂ E
Pre-Survey	Pounds/Day	1,393.66	0.04	0.10	0.64
	Tons	0.70	0.00	0.00	
North Landing	Pounds/Day	6,436.82	0.14	0.33	34.43
	Tons	37.63	0.00	0.00	
South Landing	Pounds/Day	2,620.08	0.07	0.15	10.52
	Tons	11.49	0.00	0.00	
River Crossing Decommissioning	Pounds/Day	16,660.14	0.37	0.96	217.07
	Tons	237.10	0.01	0.02	
Post-Survey	Pounds/Day	1,393.66	0.04	0.10	0.64
	Tons	0.70	0.00	0.00	
TOTAL - PROJECT AIR EMISSIONS		CO₂	N₂O	CH₄	MTCO₂E
TOTAL CUMULATIVE EMISSIONS TONS/YEAR		287.62	0.01	0.02	263.30

9 ***b) Conflict with an applicable plan, policy or regulation adopted for the purpose***
 10 ***of reducing the emissions of greenhouse gases?***

11 **Less than Significant Impact.** The California Environmental Protection Agency (Cal
 12 EPA) Climate Action Team (CAT) and CARB have developed several reports to achieve
 13 the GHG targets identified by the State in Executive Order S-3-05 and Assembly Bill
 14 (AB) 32. These include the CAT’s 2006 Report to former Governor Schwarzenegger
 15 and the Legislature (CAT 2006), CARB’s 2007 Expanded List of Early Action Measures
 16 to Reduce Greenhouse Gas Emissions in California (CARB 2007), and CARB’s Climate
 17 Change Proposed Scoping Plan: a Framework for Change (CARB 2008). The reports
 18 identify strategies to reduce California’s emissions to the levels proposed in Executive
 19 Order S-3-05 and AB 32. The adopted Scoping Plan includes proposed GHG emissions
 20 reduction from direct regulations, alternative compliance mechanisms, monetary and
 21 non-monetary incentives, voluntary actions, and market based mechanisms.

22 The Project does not conflict with the State’s plans, policies, or regulations for GHG
 23 emissions because it includes measures to reduce and minimize criteria pollutants and
 24 GHG emissions as identified in the Project Execution Plan (PEP). Emission reduction

1 measures incorporated into the Project plans and specifications as **MM AQ-1: Air**
2 **Pollution Controls Measures** include:

- 3 1) harborcraft such as derricks, barges and tug boats shall meet the most stringent
4 USEPA emission standard in place at the time of bid (Tier II for marine engines
5 and non-road engines over 750 hp, Tier II for all other engines);
- 6 2) portable equipment with engines 50 hp and over shall be permitted through the
7 CARB's Portable Equipment Registration Program;
- 8 3) use diesel oxidation catalysts and/or catalyzed diesel particulate traps;
- 9 4) use high pressure fuel injectors on diesel-powered equipment; and
- 10 5) maintain equipment according to manufacturer's specifications.

11 After construction of the Project is completed, there would be no sources of operational
12 or ongoing GHG emissions that would undermine or conflict with the established GHG
13 reduction targets. Because construction emissions would be short-term and would
14 cease upon completion, GHGs from construction activities would not substantially
15 contribute to the global GHG emissions burden. Additionally, Project construction would
16 not conflict with any County or State policy to reduce GHG emissions, including
17 Executive Orders S-3-05, S-01-07, and B-30-15. Given the above measures, no
18 significant impact would result.

19 **3.7.4 Mitigation Summary**

20 No significant impacts resulting from GHGs would occur. However, as discussed in
21 Section 3.3 (Air Quality), the following MMs would be implemented to further reduce and
22 minimize impacts from GHG emissions.

- 23 • MM AQ-1: Air Pollutant Control Measures.