

APPENDIX B

Air Quality Analysis



OXY USA Inc.
Dominguez Oil Field
Air Quality
Technical Report

Prepared for:
City of Carson
Carson, California

On behalf of:
OXY USA Inc.
Long Beach, California

Prepared by:
ENVIRON International Corporation
Los Angeles, California

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List of Acronyms and Abbreviations

AHM	acutely hazardous material
AQMPs	Air Quality Management Plans
BACT	Best Available Control Technology
Basin	South Coast Air Basin
BPD	barrels per day
CAA	Clean Air Act
CAAQS	California ambient air quality standards
Cal/EPA	California Environmental Protection Agency
CARB	California Air Resource Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CO	carbon monoxide
Project	Dominguez Oil Field Development Project
ENVIRON	ENVIRON International Corporation
EPA	Environmental Protection Agency
GHG	greenhouse gas
LSTs	Localized Significance Thresholds
MPO	metropolitan planning organization
MSCFD	1000 standard cubic feet per day
NAAQS	National ambient air quality standards
NH ₃	Ammonia
NSPS	New Source Performance Standards
NSR	New Source Review
NO ₂	oxides of nitrogen
O ₃	ozone
Pb	lead
PM ₁₀	respirable particulate matter
PM _{2.5}	fine particulate matter
POAQC	Project of Air Quality Concern
ppm	parts per million
PTE	potential to emit

Appendix B

OXY USA Inc. – Dominguez Oil Field
Air Quality Technical Study Report

RCPG	Regional Comprehensive Plan and Guide
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SIP	State Implementation Plan
Site	The Project site
SO ₂	sulfur dioxide
SO _x	oxides of sulfur
TAC	toxic air contaminant
VOCs	volatile organic compounds
USEPA	United States Environmental Protection Agency

1 Introduction

This report presents the results of ENVIRON International Corporation's (ENVIRON) air quality assessment of the Dominguez Oil Field Development Project (Project). The Project would involve drilling wells and producing oil and gas from the Project Site. The Project Applicant is OXY USA Inc. The Project site (Site) is owned by the Carson Dominguez Properties, LP. Equipment installed at the Site would include vessels and tanks for storing and processing the oil and gas.

OXY USA Inc. proposes to construct a production facility consisting of up to 200 directionally drilled wells, an oil and gas processing facility, salt water treatment, slurry processing or injection facility, salt water injection operations, an electrical substation, and shipment and pipeline facilities. The Project is expected to produce and transport approximately 6,000 barrels per day (BPD) of oil, 94,000 barrels per day of salt water from the oil wells, 20,000 barrels per day of salt water from water wells, 3 million standard cubic feet per day (MMSCFD) of natural gas, and 150 barrels per day of natural gas liquids. Directional drilling techniques will be used to pinpoint oil reservoirs at depths of 4,000 to 13,500 feet below mean sea level (msl). In general, the Project will consist of the following elements: 1) wells surrounded by well cellars; 2) an office/control building; 3) a resource (oil and natural gas) staging area; 4) facades along the streets; 5) ground flares for combusting vent gases; 6) oil and natural gas pipeline interconnections and 7) a Southern California Edison (SCE) electrical substation.

The Project will use directional drilling to extract oil and natural gas resources from the subsurface and distribute them via pipeline and tanker truck for off-site treatment and refining. The Site was chosen to consolidate drilling and production operations at a previously developed industrial site located near existing pipelines and will encompass two existing wells. This consolidation limits the need to construct additional internal and offsite pipelines and related infrastructure and develop local oil reserves to minimize emissions of criteria pollutants and greenhouse gases associated with the transportation of foreign crude oil to local refineries.

Compliance with the California Environmental Quality Act (CEQA) is required because the Project requires discretionary approval from the City of Carson for a Development Application. Therefore, this Draft Air Quality Technical Study Report provides the basis for preparation of CEQA documentation with the City of Carson as the lead agency under CEQA. This report includes sections describing the details and location of the project; the existing site conditions; federal, state, and local regulatory context; emissions estimation methodology, construction and operation results, and health risk impacts; and mitigation measures.

2 Project Description

Key attributes of the Project related to the air quality evaluation are summarized here.

The Project will be located in the northern portion of the City of Carson within Los Angeles County as shown on the site map, Figure 1. The Site is approximately 6.5 acres and will be located entirely within the Dominguez Technology Centre as shown in Figure 2. The Site currently contains an industrial building located at 1450-1480 Charles Willard Street, which is used as a warehouse, and an oil and gas test well facility. The Site is bounded on the north by Charles Willard Street, on the east by Bishop Avenue, on the west by a commercial/light industrial building, and on the south by a vegetated swale that acts as a conveyance for storm water. The existing industrial building will be demolished.

The Project will include the installation of oil handling equipment and facilities to process the produced crude oil, natural gas, and natural gas liquids so that they can be transported to local refineries and other off-site facilities. The production facility will consist of wells; equipment for oil and gas processing, salt water treatment, slurry treatment or injection, salt water injection, oil and natural gas shipping, and an electrical substation to be operated by SCE. Natural gas liquids will be blended into the crude oil to the extent allowed by oil sales specifications and the remainder will be transported off-site by trucks. Produced water and stormwater will be treated to remove solids and oil, and reinjected into the oil bearing formations to enhance production. The Project plans to begin construction in January 2013 and begin operations in January 2014.

The Project will include up to 200 wells. Approximately 130 wells will be oil and gas production wells, 65 wells will be water injection wells, four wells will be salt water production wells and one well may be a slurry injection well. Directional drilling techniques will be used to pinpoint oil reservoirs at depths of 4,000 to 13,500 feet. Production wells will target separate pockets of oil and gas with water injection support. The salt water production wells will be at depths of 2,750-3,000 feet below mean sea level (msl) and the water produced will be used to replace the oil and gas production volumes in the reservoir rock (4,000-13,500 feet below msl). A slurry injection well may be used to inject the solids that are produced with the liquids or recovered from the drilling of the wells back into the oil and gas bearing sandstone. The Project may also have one truck per day remove produced solids in lieu of a slurry injection well.

Various off-site improvements are also proposed. Crude oil and natural gas will be transported by new pipelines (each approximately 2,000 feet in length) that will connect to the existing crude oil and natural gas pipeline networks in the area of the Project. The connections are expected to be with the existing Crimson Dominguez oil pipeline and the existing SCGC gas pipeline, both of which are located at the intersection of Charles Willard Street and South Central Avenue. The new pipelines and connections to utilities (e.g., potable water, electricity, and non-industrial wastewater) are expected to be constructed in public rights-of-way. The existing idle Crimson Dominguez Gathering Pipeline (Crimson Pipeline) will also require replacement of several previously removed sections. The locations of the oil and gas pipeline routes are shown in Figure 3 and Figure 4, respectively.

The electrical power supply to the Site will be provided by SCE. SCE is currently performing a method of service study to evaluate the options to supply approximately 25 Megavolt amperes

(MVA) to the Facility. The likely option under consideration is shown in Figure 5. The Operations are anticipated to have 4 to 8 permanent employees and additional contractors as required at the Site. Up to approximately 15 workers per day are estimated to be on-site. The facility is expected to operate 24 hours a day, 7 days a week.

3 Existing Conditions

The Project is located in the City of Carson, which is located in Los Angeles County within the South Coast Air Basin (Basin), a geographical area roughly bordered by mountains that inhibit regional air circulation during certain meteorological conditions. The Basin includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. The air quality within the Basin is primarily influenced by a wide range of emissions sources (e.g., dense population centers, heavy vehicular traffic, and industry) and meteorology. The Basin currently exceeds state standards for ozone (O_3), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$),¹ but meets the state standards for carbon monoxide (CO), oxides of nitrogen (NO_2), sulfur dioxide (SO_2), sulfate, and lead (Pb). The Basin currently exceeds federal standards for O_3 , PM_{10} , and $PM_{2.5}$, but meets the federal standards for CO, NO_2 , oxides of sulfur (SO_x), and Pb. The attainment status is described in further detail below in the Regulatory Setting section.

Local ambient air quality data are available for the North Long Beach monitoring station, which is the closest monitoring station to the Site and is located in the South Coastal LA County Area. The maximum background pollutant concentrations from 2009 through 2012 are the most recent data available and are shown below in Table 1.

1. SCAQMD, 2007. 2007 Air Quality Management Plan. South Coast Air Quality Management District, Diamond Bar, CA.

Table 1. maximum Ambient Air Concentration at the South Coastal LA County Station 1 (2009 – 2012)²						
Pollutant	Averaging Time	Background Pollutant Concentration ($\mu\text{g}/\text{m}^3$)^[a]				
		2009	2010	2011	2012	Design Value^[b]
NO ₂	1-hour	207	174	200	NA	207
	1-hour (98 th %)	132 ^[c]	132	127	118	126
	Annual	40	37	33	NA	40
CO	1-hour	3,433	3,433	NA	NA	3,433
	8-hour	2,518	2,403	2,976	NA	2,976
SO ₂	1-hour	52	105	39	NA	105
	24-hour	13	16	NA	NA	16
PM ₁₀	24-hour	62	44	43	NA	62
	Annual	31	22	24	NA	31
PM _{2.5}	24-hour	63	35	40	NA	63
Sulfates	24-hour	14	12	6	NA	14
^[a] Background concentrations observed at South Coastal LA County Station (North Long Beach, Station 1) for the years 2009, 2010, and 2011. Background concentrations for NO₂ only were available for 2012 and were included. Thus, the design value shown for NO₂ incorporates 2010 through 2012, whereas the other pollutants incorporate 2009 through 2011. ^[b] The Design Value for all pollutants except 1-hour (98th %) NO₂ is the maximum of the background concentration from the previous three years. The Design Value for 1-hour (98th %) NO₂ is the average of the background concentration from the previous three years (40 CFR 50 Appendix S to Part 50). ^[c] This value is not included in the Design Value.						

The average daily and annual criteria pollutants (volatile organic compounds [VOCs], CO, NO_x, SO_x, PM₁₀, and PM_{2.5}) emissions inventory for Los Angeles County is summarized in Table 2. Stationary sources are sources that can be identified by name and location (e.g., an industrial facility). Area-wide sources are small sources or diffuse stationary sources (e.g., household furnaces and solvent evaporation). Mobile sources are vehicles or self-propelled equipment such as automobiles, trucks, and ships, with fuel (e.g., gasoline or diesel) burning engines. Natural sources include natural sources of emissions such as wild fires. Mobile sources are the largest contributing source of VOC, CO, NO_x, and SO_x emissions in Los Angeles County.

² SCAQMD, 2011. Historical Data by Year. Available at: <http://aqmd.gov/smog/historicaldata.htm>. Accessed May 2011.

Table 2. Average Daily and Annual Emissions in Los Angeles, 2010³						
Daily Source	Emissions (tons/day)					
	VOC	CO	NO_x	SO_x	PM₁₀	PM_{2.5}
Stationary Sources	67.7	35.0	39.2	16.4	24.8	12.1
Area-wide Sources	88.0	51.2	14.1	0.4	135.7	30.8
Mobile Sources	194.1	1,675.8	458.4	33.3	28.8	23.3
Natural Sources	40.5	65.0	1.9	0.6	6.6	5.6
Total	390.3	1,827.0	513.6	50.7	195.9	71.8
Annual Source	Emissions (tons/yr)					
	VOC	CO	NO_x	SO_x	PM₁₀	PM_{2.5}
Stationary Sources	24,711	12,775	14,308	5,986	9,052	4,417
Area-wide Sources	32,120	18,688	5,147	146	49,531	11,242
Mobile Sources	70,847	611,667	167,316	12,155	10,512	8,505
Natural Sources	14,783	23,725	694	219	2,409	2,044
Total	142,460	666,855	187,464	18,506	71,504	26,207

3.1 Existing Site Conditions

The Dominguez Technology Centre is zoned as light industrial and commercial. The Site currently contains an industrial warehouse building located at 1450-1480 Charles Willard Street and an oil and gas production test facility on the south end of the Site. The industrial warehouse on the north side of the Site is currently leased by a retail hardware and merchandise distributor, an electronic equipment manufacturer, and a global freight forwarder. The operations consist of freight warehousing and distribution operations, which include tractor-trailer traffic associated with such operations.

Current oil and gas site operations include two production test wells and production testing equipment. Existing site operations has included the drilling of the two test wells and currently includes production testing. A process flare, an emergency flare, electrical generators, and several tanks are also used during testing operations. Criteria pollutant emissions were estimated using the methodology discussed in Section 6.3 and are summarized below. The detailed supporting calculations are included in Appendix A.

Average emissions over a 30-day period were used for the baseline. These emissions are then compared to maximum expected daily emissions during operation of the Project to result in the incremental Project emissions for comparison to the CEQA thresholds. Because maximum future emissions are compared to 30-day average emissions, this represents a conservative

³ CARB, 2010. Estimated Annual Average Emissions. Available at: http://www.arb.ca.gov/app/emsinv/emseic1_query.php. Accessed June 2011.

comparison. The 30-day average daily baseline emissions shown in Table 3 correspond to the drilling operations on the test well site and the warehouse operations.

Table 3. 30-Day Average Daily Baseline Emissions^[a]						
Emission Source	Daily Emissions (lb/day)					
	VOC	CO	NO_x	SO_x	PM₁₀	PM_{2.5}
<i>Onsite Emissions</i>						
Warehouse ^[b]	2.02	0.02	0.02	0	0	0
Drilling Electrical Generators ^[c]	92.2	123.5	584.6	11.8	13.1	12.8
Sub-total	94.2	123.5	584.6	11.8	13.1	12.8
<i>Offsite Emissions</i>						
Warehouse Workers and Contractors ^[d]	1.0	9.2	2.5	0.02	1.8	0.2
Drilling Workers and Contractors ^[e]	0.6	5.4	1.4	0.01	0.8	0.1
Drilling Slurry Trucks ^[f]	1.3	6.9	13.8	0.01	1.1	0.7
Sub-total	2.9	21.5	17.6	0.04	3.7	0.9
Total	97.1	145.0	602.2	11.9	16.8	13.7
^[a] 30-day average emissions represent the average emissions over 30 days of operation at the facility. ^[b] Warehouse emissions are modeled using CalEEMod and assuming a 77,360 ft² building. Further details are included in Appendix A. ^[c] The electrical generators used to power the drilling rig assume a maximum load of 1477 bhp and ran at 100% load 24 hours per day. Further details are in Appendix A. ^[d] Warehouse worker and contractor emissions are modeled using CalEEMod and assuming trip inputs as measured by the City of Carson. Further details are in Appendix A. ^[e] Drilling workers and contractors emissions are modeled using CalEEMod and assuming trip inputs as measured by the City of Carson. Further details are in Appendix A. ^[f] Drilling offsite emissions represent hauling trucks associated with transferring the slurry offsite. These emissions are modeled using CalEEMod and assuming two trips per day. Further details are in Appendix A.						

4 Regulatory Context

The Project was evaluated against existing federal, state, and local regulations and standards. A summary of the findings are presented here.

4.1 Federal

The Air Pollution Control Act of 1955 was the first federal legislation involving air pollution, which provided funds for federal research in air pollution. The Federal Clean Air Act (CAA) in 1963 was the first federal legislation regarding air pollution control and has been amended numerous times in subsequent years, with the most recent amendments in 1990. At the federal level, the United States Environmental Protection Agency (USEPA) is responsible for implementation of some portions of the CAA (e.g., certain mobile source and other requirements). Other portions of the CAA (e.g., stationary source requirements) are implemented by state and local agencies.

The CAA establishes federal air quality standards, known as national ambient air quality standards (NAAQS) and specifies future dates for achieving compliance. Two types of ambient air quality standards have been established: primary (to protect the public health with an adequate margin of safety) and secondary (to protect the public welfare against adverse non-health-related environmental effects). Primary NAAQS, as well as primary California ambient air quality standards (CAAQS), are limits set to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.⁴ The CAAQS define clean air, and are established to protect even the most sensitive individuals in our communities.⁵ Table 4 includes the NAAQS currently in effect for each of the criteria pollutants as well as other pollutants recognized federally. Table 5 includes a summary of the health effects of the various criteria pollutants.

Under the CAA, the USEPA is responsible for setting and enforcing the NAAQS and regulating emission sources that are under the exclusive authority of the federal government (e.g., aircraft, ships, and certain locomotives). The USEPA also has jurisdiction over emissions sources outside of state waters (outer continental shelf) and establishes various emissions standards for vehicles sold in states other than California.

The CAA mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting these standards (i.e., nonattainment areas). The SIP must integrate federal, state, and local actions and regulations to identify specific control measures to reduce pollution to attain the NAAQS by the required compliance date. The Project is within the Basin, which is an area designated as non-attainment for certain pollutants regulated under the CAA, as described above in Existing Conditions.

The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones.

4 USEPA. National Ambient Air Quality Standards (NAAQS). Available at: <http://www.epa.gov/air/criteria.html>. Accessed: October, 2011.

5 CARB. Available at: <http://arb.ca.gov/research/aaqs/caaqs/caaqs.htm>. Accessed: October, 2011.

The CAA Amendments of 1970 required the Environment Protection Agency (EPA) to identify and list all air pollutants (not already identified as criteria pollutants) that "may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible or incapacitating reversible illness." For each pollutant identified, EPA was to then promulgate national emissions standards for hazardous air pollutants (NESHAPs) at levels that would ensure the protection of the public health with an ample margin of safety and to prevent any significant and adverse environmental effects, which may reasonably be anticipated, on wildlife, aquatic life, or other natural resources.⁶

The EPA also promulgated New Source Performance Standards (NSPS) for major and minor sources on a category-by-category basis. NSPS are national emission standards that are progressively tightened over time to achieve a steady rate of air quality improvement without unreasonable economic disruption. The NSPS imposes uniform requirements on new and modified sources through the nation. These standards are based on the best demonstrated technology (BDT). BDT refers to the best system of continuous emissions reduction that has been demonstrated to work in a given industry, considering economic costs and other factors, such as energy use. In other words, any new source of air pollution must install the best control system currently in use within that industry.⁷ The facility is expected be subject to two NSPS's, Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants⁸ and possibly the Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units⁹.

4.2 State

The California Clean Air Act (CCAA) requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. The California Air Resource Board (CARB), a part of the California Environmental Protection Agency (Cal/EPA), is responsible for the coordination and administration of both state and federal air pollution control programs within California. In this capacity, the CARB conducts research, sets CAAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

Table 4 includes the CAAQS currently in effect for each of the criteria pollutants as well as other pollutants recognized by the State. As shown in Table 4, the CAAQS include more stringent standards than the NAAQS for many pollutants.

⁶ USEPA, 2010. National Emission Standard for Hazardous Air Pollutants website. Available at: <http://www.epa.gov/apti/course422/apc4e.html>. Accessed: November, 2011.

⁷ USEPA, 2010. National Emission Standard for Hazardous Air Pollutants website. Available at: <http://www.epa.gov/apti/course422/apc4c.html>. Accessed: November, 2011.

⁸ 40 CFR 60, Subpart KKK.

⁹ 40 CFR 60, Subpart D-c.

Table 4. Ambient Air Quality Standards					
Pollutant	Averaging Period	California Standard^[a]	Federal Standard^[b]	SCAQMD Attainment Status	
				California Standard^[c]	Federal Standard^[d]
Ozone (O ₃)	1 hour	0.09 ppm (180 µg/m ³)	Revoked	Nonattainment	---
	8 hour	0.07 ppm (137 µg/m ³)	0.075 ppm (147 µg/m ³)	Nonattainment	Extreme Nonattainment
Respirable Particulate Matter (PM ₁₀)	24 hour	50 µg/m ³	150 µg/m ³	Nonattainment	Attainment ^[e]
	Annual	20 µg/m ³	Revoked	Nonattainment	Nonattainment
Fine Particulate Matter (PM _{2.5})	24 hour	---	35 µg/m ³	---	Nonattainment
	Annual	12 µg/m ³	15 µg/m ³	Nonattainment	Nonattainment
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	Attainment	Attainment
	8 hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	Attainment	Attainment
Nitrogen Dioxide (NO ₂)	1 hour	0.18 ppm (339 µg/m ³)	0.100 ppm	Nonattainment	---
	Annual	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	---	Attainment
Lead (Pb)	Rolling 3-month average	---	0.15 µg/m ³	---	---
	30 day average	1.5 µg/m ³	---	Nonattainment	---
Sulfur Dioxide (SO ₂)	1 hour	0.25 ppm (655 µg/m ³)	0.075 ppm (197 µg/m ³)	Attainment	---
	3 hour ^[f]	---	0.5 ppm (1310 µg/m ³)	---	Attainment
	24 hour	0.04 ppm (105 µg/m ³)	---	Attainment	---
Hydrogen Sulfide (H ₂ S)	1 hour	0.03 ppm (42 µg/m ³)	---	Unclassified	---
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m ³)	---	Unclassified	---
Sulfates	24 hour	25 µg/m ³	---	Attainment	---
Visibility-Reducing Particles	8 hour	Extinction coefficient of 0.23 per kilometer (visibility of ten miles or more due to particles when relative humidity is less than 70 percent)	---	Unclassified	---

[a] California standards as listed on CARB website (Available at <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm> Accessed February 2012).

[b] Federal Standards as listed on USEPA website (Available at <http://epa.gov/air/criteria.html> Accessed February 2012).

[c] California standard attainment status as listed on CARB website (Available at <http://www.arb.ca.gov/desig/adm/adm.htm> Accessed February 2012).

[d] Federal standard attainment status as listed on USEPA websites Available at <http://www.epa.gov/air/oaqps/greenbk/index.html> and www.arb.ca.gov/desig/adm/adm.htm Accessed February 2012).

[e] The USEPA recently proposed to find the South Coast air basin in attainment for PM₁₀ (40 CFR Parts 52 and 81).

[f] This is a secondary standard.

Table 5. Criteria Pollutants, Their Precursors, and Related Health Effects^[a]

Pollutant	Health Effects
PM2.5 and PM10 In addition to directly emitted particulates, oxides of nitrogen (NOx), oxides of sulfur (SOx) are precursors of PM2.5 and PM10.	Respirable particulates (PM2.5 and PM10) pose a serious health hazard, alone or in combination with other pollutants. More than half of the smallest particles inhaled get deposited in the lungs and can cause permanent lung damage. Respirable particles have been found to increase morbidity and mortality via the following adverse health effects: decreased lung function, aggravated asthma, exacerbation of lung and heart disease symptoms, chronic bronchitis and irregular heartbeats. In addition, respirable particles can act as a carrier of absorbed toxic substance.[b]
Ozone Ozone is not a directly emitted pollutant from project sources; volatile organic compounds (VOCs) and NOx are precursors of ozone.	Elevated ozone concentrations have been shown to induce airway irritation, cause airway inflammation, induce wheezing and difficulty breathing, aggravate preexisting respiratory conditions such as asthma, and can lead to permanent lung damage after repeated exposure to elevated concentrations.[c]
Carbon Monoxide (CO)	Carbon monoxide is a colorless and odorless gas that is known to cause aggravation of various aspects of coronary heart disease, dizziness, fatigue, impairment to central nervous system functions, and possible increased risk to fetuses.
Sulfur Dioxide (SO2)	Sulfur dioxide is known to cause irritation in the respiratory tract, shortness of breath, and can injure lung tissue when combined with fine PM. It also reduces visibility and the level of sunlight.
Nitrogen Dioxide (NO2)	Long-term exposure to nitrogen dioxide has the potential to decrease lung function and worsen chronic respiratory symptoms and diseases in sensitive population. It has also been associated with cardiopulmonary mortality and emergency room asthma visits. USEPA recently adopted a 1-hour federal standard to address short-term exposure impacts (e.g., adverse respiratory effects), particularly near major roadways.
^[a] SCAQMD Final 2007 Air Quality Management Plan, June 2007, http://www.aqmd.gov/aqmp/07aqmp/aqmp/Complete_Document.pdf. ^[b] USEPA National Center for Environmental Assessment, particle pollution health affects http://www.epa.gov/air/particlepollution/health.html. ^[c] USEPA National Center for Environmental Assessment, ground level ozone health affects http://www.epa.gov/air/ozonepollution/health.html.	

4.3 Local

4.3.1 South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The Basin is a sub-region of the SCAQMD jurisdiction.

The SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the CAAQS and NAAQS. The 2007 AQMP employs the most up-to-date science, primarily in the form of updated emissions inventories, ambient measurements, meteorological data, and air quality modeling tools. Policies and measures currently contemplated by responsible agencies to meet Federal and State standards for healthy air quality in the Basin are based upon the 2007 AQMP, which includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.

The 2007 AQMP builds upon improvements accomplished from previous plans and aims to incorporate all feasible control measures while balancing costs and socioeconomic impacts for the attainment of air quality standards. It highlights the amount of reductions needed and the proposed control measures, especially in the area of mobile sources, to meet all NAAQS within the timeframes allowed under the Federal CAA.

The 2007 AQMP focuses on a comprehensive and integrated control approach aimed at achieving the PM_{2.5} standard by 2015 through implementation of short- and mid-term control measures and achieving the 8-hour O₃ standard by 2024 based on implementation of additional long-term measures.¹⁰ These reductions are expected to be achieved through implementation of new and advanced control technologies as well as improvement of existing control technologies. Control techniques requiring substantial levels of committed funding for implementation would also fall under this category of long-term emission reductions. The 2007 AQMP control measures consist of four components: (1) the SCAQMD's Stationary and Mobile Source Control Measures, (2) CARB's Proposed State Strategy, (3) SCAQMD Staff's Proposed Policy Options to Supplement CARB's Control Strategy, and 4) Regional Transportation Strategy and Control Measures provided by the Southern California Association of Governments (SCAG). Overall, the Plan includes 31 stationary and 30 mobile source measures. The SCAQMD's control strategy for stationary and mobile sources is based on the following approaches: (1) facility modernization, (2) energy efficiency and conservation, (3) good management practices, (4) market incentives/compliance flexibility, (5) area source programs, (6) emission growth management, and (7) mobile source programs.

The SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the Project. For example, SCAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. Other rules regulate operational sources, such as storage tanks and fugitive emissions from oil field operations.

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with plans and new development projects within the Basin. Instead, the SCAQMD has prepared the *California Environmental Quality Act (CEQA) Air Quality Handbook* to assist lead agencies, as well as

¹⁰ SCAQMD Final Program Environmental Impact Report for the 2007 Air Quality Management Plan, June 2007.

consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of plans and projects proposed in the Basin.

The SCAQMD published the *CEQA Air Quality Handbook* in November 1993 to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The *CEQA Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses in EIRs, and was used extensively in the preparation of this analysis. However, the SCAQMD is currently in the process of replacing the *CEQA Air Quality Handbook*, and has provided several updates to the tables and methods in the original Handbook on its website. While this process is underway, the SCAQMD recommends that the lead agency avoid using the screening tables in Chapter 6 because the tables were derived using an obsolete version of CARB's mobile source emission factor inventory. In addition, the trip generation characteristics of the land uses identified in these screening tables were not based on the most current edition of the ITE Trip Generation Manual, but were instead based on the fifth edition. The lead agency should also avoid using the on-road mobile source emission factors in Table A9-5-J1 through A9-5-L. The SCAQMD instead recommends using other approved models to calculate emissions from land use projects, such as the CalEEMod and other online models. These recommendations were followed in the preparation of this analysis.

The SCAQMD also has developed the Localized Significance Thresholds (LSTs) in response to the SCAQMD Governing Board's environmental justice initiatives in recognition of the fact that criteria pollutants can have local impacts as well as regional impacts.¹¹ The LST proposal went through extensive public outreach and was adopted by the Governing Board in October 2003. A methodology for PM_{2.5} was established in October 2006. The mass emission LSTs represent the maximum emissions resulting from the construction or operation of a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard for CO, NO₂, PM₁₀, and PM_{2.5}. This methodology is voluntary and applies only to projects that are five acres or smaller in size. The analyses included in this technical report will be based on methodologies developed by the SCAQMD for CEQA (i.e., *CEQA Air Quality Handbook*). However, because the Project area is greater than five acres, the analysis of localized air quality impacts resulting from construction and operation will not rely upon the mass screening LSTs, but rather on dispersion modeling.

Permitting

The Project will comply with all SCAQMD rules and regulations for new or modified sources, including requirements to install Best Available Control Technology (BACT) for permitted sources. An air permit application will be submitted to the SCAQMD in compliance with the agency's requirements.

The Project will comply with all applicable rules in Regulation II (Permits), including the following:

Rule 201 – Permit to Construct: A permit to construct is required when any new or modified equipment may result in a change to air emissions.

¹¹ SCAQMD. Final Localized Significance Threshold Methodology. Revised July 2008. Available at: http://www.aqmd.gov/ceqa/handbook/lst/Method_final.pdf

The Project will comply with all applicable rules in Regulation III (Fees), specifically paying the fees as required by Rule 301 – Permitting and Associated Fees.

The Project will comply with all applicable rules in Regulation IV (Prohibitions), including the following:

Rule 401 – Visible Emissions: The facility will meet all requirements related to visible emissions.

Rule 402 – Nuisance: The facility is not expected to cause injury, detriment, nuisance, or annoyance to the public, thus complying with this rule.

Rule 403 – Fugitive Dust: The facility will prevent, reduce, and mitigate fugitive dust emissions, complying with Rule 403.

Rule 404 – Particulate Matter, Concentration: The facility will not exceed the PM concentrations allowed by this rule.

Rule 405 – Solid Particulate Matter, Weight: The facility is expected to meet all the particulate matter weight requirements in Rule 405.

Rule 407 – Liquid and Gaseous Air Contaminants: The facility will not exceed the discharge requirements specified in this rule.

Rule 409 – Combustion Contaminants: The facility will not exceed the PM discharge requirements specified in this rule.

Rule 431.1 – Sulfur Content of Gaseous Fuels: The facility is expected to meet the requirements in this rule.

Rule 431.2 – Sulfur Content of Liquid Fuels: The facility will purchase compliant fuel for the emergency generators.

Rule 462 – Organic Liquid Loading: The facility will use the approved vapor recovery systems described in the rule to limit VOC emissions, thereby complying with Rule 462.

Rule 463 – Storage of Organic Liquids: The facility is expected to meet the requirements for above-ground stationary tank with a capacity of 19,815 gallons or greater used for storage of organic liquids in this rule.

Rule 464 – Wastewater Separators: The facility will employ the required vapor loss control devices and meet the other requirements to comply with Rule 464.

Rule 466 – Pumps and Compressors: The facility will use adequate seals on all pumps and compressors, and will meet the other requirements to comply with Rule 466.

Rule 466.1 – Valves and Flanges: The facility will minimize the leaks on all valves and flanges, and will meet the other requirements, as required to comply with Rule 466.1.

Rule 467 – Pressure Relief Devices: The facility will employ appropriate venting, inspection, and maintenance procedures to comply with Rule 467.

The Project will comply with all applicable rules in Regulation IX (Standards of Performance for New Stationary Sources).

40 CFR 60, Subpart Dc Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units and 40 CFR 60, Subpart KKK Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants – The facility will maintain monitoring and recordkeeping as required in this subpart.

The Project will comply with all applicable rules in Regulation XI (Source-Specific Standards), including the following:

Rule 1110.2 – Emissions from Gaseous - and Liquid-Fueled Engines

Rule 1113 – Architectural Coatings

Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters:

Rule 1148.1 – Oil and Gas Production Wells:

Rule 1173 – Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants:

Rule 1176 – Sumps and Wastewater Separators

The Project will comply with all applicable rules in Regulation XIII New Source Review (NSR). SCAQMD's Regulation XIII, NSR, specifically Rule 1303, sets forth requirements to ensure that the operation of new or modified facilities do not prevent attainment with the NAAQS. Rule 1303(a) requires BACT on all permit units that have a maximum daily uncontrolled emission rate greater than 1.0 lb/day of NO_x, VOC, PM₁₀, or SO_x. Based on the emission estimates from the SCAQMD permitting process, the Project will be subject to NSR; the permit units that will likely require BACT include the emergency flare, the process heater, the slurry system polymer hopper, the slurry injection tank, and the fixed roof tanks. All equipment that is subject to the BACT requirement will comply with the SCAQMD BACT Guidelines Part D for Non-Major Sources. The Project will be exempt from the SCAQMD offset requirements because the emissions are below the Rule 1304 thresholds.

The Project will comply with all applicable rules in Regulation XIV (Toxics and Other Non-Criteria Pollutants).

The Project will not be subject to the Regulation XVII – Prevention of Significant Deterioration (PSD).

The facility is not a RECLAIM facility and thus is not subject to Regulation XX.

The facility will not be required to obtain a Title V permit as its Potential to Emit (PTE) will be less than the thresholds for all pollutants as required in Rule 3001(d)(2); therefore the Project is exempt from Title V permit requirements and is not subject to Regulation XXX.

By meeting these requirements, the Project will be consistent with the goals and objectives of the 2007 AQMD to improve air quality in the Basin, thereby conforming to the requirements of the CAA.

4.3.2 Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. As the designated MPO, SCAG is mandated by the federal government to develop and implement regional plans that address transportation, growth management, hazardous waste management, and air quality issues. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG) for the SCAG region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation components of the AQMP and are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.¹²

The Project is located in Los Angeles County, where SCAG is the MPO. SCAG is relevant to the Project in the context of transportation projections. The Project is consistent with the SCAG projections utilized to prepare the AQMP. Growth considered to be consistent with the 2007 AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the 2007 AQMP. Consequently, as long as growth in the Basin is within the projections for growth identified in the RCPG, implementation of the 2007 AQMP would not be obstructed by such growth. In addition, the City of Carson's General Plan is consistent with SCAG's RCPG as described in the General Plan; the Project is also consistent with this General Plan.¹³ As such, the Project is consistent with SCAG's RCPG.

4.3.3 City of Carson

Local jurisdictions, such as the City of Carson, consider air pollution related to development through its policies and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City of Carson is also responsible for the implementation of transportation control measures as outlined in the AQMP. Examples of such measures include transit oriented development, transportation demand management programs, bus turnouts, energy-efficient streetlights, and synchronized traffic signals.

The most recent General Plan update was approved by the City Council on October 11, 2004. The General Plan sets forth the goals, objectives, and policies which will guide the City in the implementation of its air quality improvement programs and strategies. The Air Quality section acknowledges that numerous efforts are underway at the regional, county, and city levels to address clean air concerns and that coordination of these various efforts and the involvement of

¹² SCAG. Regional Comprehensive Plan. See <http://www.scag.ca.gov/rcp/index.htm>. Accessed September 17, 2010.

¹³ City of Carson. 2004. General Plan. Available at: http://ci.carson.ca.us/content/departments/eco_dev_service/generalplan.asp. Accessed July 2011.

the area's residents are crucial to the achievement of state and federal air quality standards. The Air Quality Element acknowledges the interrelationships among transportation and land use planning in meeting the City's mobility and clean air goals.

In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. The City of Carson's General Plan utilized the SCAQMD *CEQA Air Quality Handbook* and relevant SCAQMD CEQA guidance for environmental review.¹⁴ The analysis of the Project similarly relies upon the SCAQMD guidance and significance thresholds.

¹⁴City of Carson. 2004. General Plan. Available at: http://ci.carson.ca.us/content/departments/dev_service/generalplan.asp. Accessed July 2011.

5 Project Design Features and Mitigation Measures

The Project is expected to incorporate the following Project Design Features that will help reduce and minimize air emissions.

5.1 Construction

The Project will incorporate the following Project Design Features during construction:

- Comply with SCAQMD Rule 403 requirements to reduce fugitive dust PM emissions during construction. Specifically, the Applicant shall implement and include in construction contracts, the control measures in accordance with SCAQMD Rule 403. These measures shall be at least as effective as the following:
- Watering active construction areas with exposed soil at least three times daily to minimize fugitive dust emissions¹⁵;
- Maintaining soil stabilization of inactive construction areas with exposed soil via water, non-toxic soil stabilizers, or replaced vegetation;
- Covering all haul trucks or maintaining at least six inches of freeboard;
- Suspending earthmoving operations or increasing watering to meet Rule 403 criteria if winds exceed 25 mph;
- Minimizing track-out emissions using the allowable methods; and
- Limiting vehicle speeds to 15 mph or less in staging areas.
- All internal combustion engines/construction equipment used on the Project Site for purposes of the Project construction shall be designed or retrofitted to meet EPA-Certified Tier 2 emissions standards, or higher.

5.2 Operations

The Project will incorporate the following Project Design Features during operation:

- Electrification of the drilling rig;
- All pumps and compressors will be electric driven;
- Incorporate Best Available Control Technology consistent with SCAQMD regulations and requirements. The Project anticipates such equipment may include items such as:
- Integral dust collector on the Slurry System Polymer Hopper;
- A carbon absorber on the Slurry Injection Tank;
- Fixed-roof tanks with a vapor recovery system;

¹⁵ Note that the control efficiency of watering is dependent on numerous variables such as soil/ground conditions, temperature, and vehicle travel specifics. For unpaved roads, increased frequency and/or water amounts are expected to improve the control efficiency. Rule 403 only requires twice daily water, but the Project has committed to more frequent three times a day watering to help minimize fugitive dust emissions.

- The emergency flare; and
- Low NO_x burner for the process heater.
- Fully paved drill site excluding exterior landscaped areas.

5.3 Construction Mitigation Measure

The following mitigation measures will be imposed on the proposed Project to reduce emissions associated with construction activities from heavy construction equipment:

Off-Road Mobile Sources:

A-1 For off-road construction equipment rated 50hp or greater that will be operating for eight hours or more per day, the project proponent shall use Tier 3 or equivalent engines as available. Engines equivalent to Tier 3 may consist of Tier 2 engines retrofitted to meet Tier 3 requirements. If equipment rated Tier 3 engines are not available or cannot be retrofitted, the Project shall use equipment rated Tier 2 or equivalent engines.

6 Impact Assessment

6.1 Thresholds of Significance

The City of Carson directs project proponents to reference the SCAQMD *CEQA Air Quality Handbook* and relevant SCAQMD CEQA guidance when evaluating air quality issues. The SCAQMD has established significance thresholds to assess the impacts of project-related construction and operational emissions on regional ambient air quality (Table 6).¹⁶ The analysis summarized in this report estimates project-related construction and operational mass emissions and compares the emissions to the mass daily significance thresholds. In addition, the SCAQMD has established concentration significance thresholds for one-hour average (NO₂, CO, SO₂), eight-hour average (CO), 24-hour average (PM_{2.5}, PM₁₀, SO₂), annual average (NO₂, PM₁₀, SO₂) concentrations, and 30-day average, rolling 3-month average, and quarterly average concentrations for Pb. The analysis summarized in this report estimates and compares the Project's impacts to these concentration standards (i.e., background plus incremental) for pollutants for which the Basin is in attainment (i.e., NO₂, CO) and to incremental standards for pollutants for which the Basin is in nonattainment (i.e., PM₁₀, PM_{2.5}, SO₂, sulfate).

¹⁶ SCAQMD, 2011. SCAQMD Air Quality Significance Thresholds. Available at: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>. Accessed: July 2011.

Table 6. SCAQMD Air Quality Significance Thresholds		
Operational Mass Daily Thresholds		
Pollutant	Construction	Operation
NO _x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM ₁₀	150 lbs/day	150 lbs/day
PM _{2.5}	55 lbs/day	55 lbs/day
SO _x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
TAC and Odor Thresholds		
Toxic Air Contaminants (TACs)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO ₂ eq for industrial facilities	
Ambient Air Quality for Criteria Pollutants		
NO ₂ 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 (federal)	
PM ₁₀ 24-hour annual mean	10.4 µg/m ³ (construction) & 2.5 µg/m ³ (operation) 1.0 µg/m ³	
PM _{2.5} (24-hour average)	10.4 µg/m ³ (construction) & 2.5 µg/m ³ (operation)	
SO ₂ 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99 th percentile) 0.04 ppm (state)	
Sulfate (24-hour average)	25 µg/m ³ (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following ambient standards: 20 ppm (state) 9.0 ppm (state/federal)	
Lead 30-day average rolling 3-month average quarterly average	1.5 µg/m ³ (state) 0.15 µg/m ³ (federal) 1.5 µg/m ³ (federal)	
PM ₁₀ = particulate matter less than 10 microns in size, µg/m ³ = microgram per cubic meter; ppm = parts per million; TAC = toxic air contaminant; AHM = Acutely Hazardous Material. NO ₂ = Nitrogen Dioxide, CO = Carbon Monoxide, VOC = Volatile Organic Compounds, SO _x = Sulfur Oxide.		
Revision: March 2011		

6.2 Methodology

This analysis focuses on the change in the air quality environment due to implementation of the Project. The Project would result in air emissions from construction and operational sources. Construction activities would generate emissions at the Site from off-road construction equipment activity, and on roadways resulting from construction-related truck hauling, vendor deliveries, and worker commuting. Operational activities would also generate emissions at the Site due to Project activity and offsite due to operational-related traffic.

6.3 Emissions Estimation

The emissions during construction and operations are estimated using commonly accepted techniques. The methodology uses site specific data as the basis for identifying applicable emission factors and for calculations as appropriate. The emission factors are obtained from standard sources such as SCAQMD and USEPA AP-42. The CalEEMod tool is also used to assist with emission estimates.¹⁷ Additional details for each emissions source are included below.

Construction

The construction emissions have been separated into three components – the production facility; the off-site pipelines required for the Project; and the Southern California Edison (SCE) Interconnect and Substation. The proposed construction schedule for the facility is estimated to require approximately 12-18 months, starting in January of 2013.¹⁸ Pipeline construction is expected to occur for approximately six months from approximately January to June of 2014. The SCE Substation construction is expected to occur at the same time as the production facility, but has been separately characterized in this document, although considered as a part of the Project impacts.

The construction emissions in all construction components include off-road construction equipment (e.g., excavators, loaders, dozers, backhoes, cranes), on-road trucks (e.g., water trucks, dump trucks, delivery trucks, pickup trucks), and worker commute trips. The emissions sources during construction of the Project include on-site diesel-powered construction equipment, on-site fugitive dust from earthmoving activities, and off-site vehicular activity from worker commuting and vendor truck delivery trips.

The production facility construction is comprised of the following phases: (1) demolition of the existing building, (2) well cellar preparation, (3) construction at process equipment areas, and (4) construction of tank areas. Except for water trucks, the emission estimates were calculated using CalEEMod v1.1, which in turn uses equipment emission rates from the OFFROAD model and vehicle emission rates from the EMFAC2007 model. The number of equipment and hours of usage were user-defined inputs as per information from OXY USA, but other parameters such as horsepower and trip length used model defaults. Because water trucks are on-road vehicles working in a contained environment (i.e., on-site and at lower speeds), exhaust

¹⁷ California Emissions Estimator Model webpage. Available at: <http://www.caleemod.com/> Accessed July 2011.

¹⁸ The start of construction is an approximate date. The actual date will depend on when all permits are approved or obtained.

emissions from water trucks were modeled using EMFAC2007 v2.3 to reflect the low-speed operation on site.

Similar emission estimation methods were applied to construction equipment used for off-site construction, such as the pipeline installation and repairs and the SCE interconnect. In addition to the list of equipment provided by the applicant, one light-duty vehicle was added per piece of equipment and assumed to follow the same operating schedule of the specific equipment in order to move the equipment along the construction of the pipelines. Thus, emissions associated with pipeline construction include those from off-road equipment and from on-road vehicles used to transport the equipment. All pipeline related emissions are considered off-site.

The annual mass emissions are determined by summing all activities over the number of days each piece of equipment or vehicle will be in operation for the year. Due to the overlapping construction schedule of the project, the peak daily emissions are determined by overlapping all activities occurring on any given day and taking the maximum emissions as a result of the overlapping activities. On-site sources include all construction equipment and water trucks operating within the Site. Off-site sources include vehicle hauling trips, worker commuting trips, and all activities related to pipeline construction. The peak emissions for each pollutant may occur on different days, depending on the types of activities and associated emissions rates. As a conservative representation, it was assumed that the maximum SCE interconnect construction could occur on the same day as the maximum Project construction emission estimates. The detailed activities and schedules for each component are included in Appendix B.

Operation

The operational emissions are comprised of on-site and off-site emission sources. The on-site operational emissions consist of fugitive emissions and source specific emissions. The fugitive emissions are primarily VOCs and are from sources such as valves, pump seals, connectors, etc. The source specific emissions primarily result from the operation of the process heater, process and emergency flare, and emergency generators. Operational on-site emissions will also include miscellaneous emissions from various process operations (e.g., polymer hopper loading) and intermittent activities such as well maintenance. The Project off-site emissions are related to mobile sources (e.g., worker and contractor commuting vehicles, mud and solids hauling trucks, natural gas liquid trucks, and delivery trucks).

The operational emission estimates from on-site equipment are based on material throughput data, fuel use data, gas composition, and gas flow rates as provided by the Project applicant. The emission estimates from the off-site mobile sources (i.e., worker and contractor commuting vehicles, mud and solids hauling trucks, natural gas liquids trucks, and delivery trucks) were based on anticipated vehicle type, trip generation, and trip lengths. The emissions were calculated using CalEEMod with default values that were specific to the Basin. Detailed emission estimation files are included in Appendix A.

6.3.1 Air Quality Dispersion Modeling

Off-site ambient air quality impacts and potential impacts to human health are estimated using the results of air dispersion modeling. The AERMOD model is recommended by EPA and is a steady-state model used to estimate offsite ambient air concentrations in simple and complex

terrain.^{19,20} This analysis was conducted using AERMOD in the regulatory default mode, as recommended by USEPA²¹ and SCAQMD.²² These defaults include the following modeling control options:

- adjusting stack heights for stack-tip downwash;
- incorporating the effects of elevated terrain;
- employing the calms processing routine; and
- employing the missing data processing routine.

Dispersion model averaging times are specified based on the averaging times of ambient standards and the air quality significance thresholds established by the appropriate regulatory agencies. Averaging times for the various pollutants (see federal and state ambient air quality standards in Table 4 and SCAQMD air quality significance levels in Table 6) include 1-hour, 8-hour, 24-hour, and annual periods. Dispersion modeling was performed using the maximum (peak) daily emission rates and the complete 365-day meteorological data set to evaluate short-term impacts, thereby ensuring that all meteorological conditions are considered. This approach is conservative because it assumes that maximum daily emissions could occur on any day. This scenario is unlikely since there is a low probability that worst-case meteorological conditions would occur at exactly the same time as maximum emissions. Annual average air concentrations are used to estimate cancer risk and chronic noncancer health hazards, and 1-hour average air concentrations are used to estimate acute noncancer health hazards.

Three different representations of emission sources are used in air dispersion:

- Point sources;
- Area sources; and
- Volume sources.

Point sources are used to represent those emissions that have single identifiable points of release. A typical point source will have a stack with a defined location. Other sources, however, do not have a single, discrete point of release. Area or volume sources are used to represent these other sources for modeling purposes. Sources that can be reasonably represented as emitting at a uniform rate over a two-dimensional surface are modeled as area sources. Sources that can be reasonably represented as emitting at a uniform rate from a three dimensional space are modeled as volume sources.

Based on the *Final Localized Significance Threshold Methodology* published by SCAQMD, area sources and volume sources were used to model construction activities. A polygon area source

19 USEPA. Preferred/Recommended Models. Available at: http://www.epa.gov/ttn/scram/dispersion_prefrec.htm. Accessed July 2011.

20 40 CFR Part 51 Appendix W. Available at: http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf. Accessed July 2011.

21 USEPA. 2009. AERMOD Implementation Guide. Available at: http://www.epa.gov/ttn/scram/7thconf/aermod/aermod_implmtn_guide_19March2009.pdf. Accessed September 17, 2010.

22 SCAQMD. 2005. Risk Assessment Procedures for Rules 1401 and 212. Available at: <http://www.aqmd.gov/prdas/pdf/riskassessmentprocedures-v7.pdf>. Accessed September 17, 2010.

and a grid of volume sources covering the planned construction area were used to represent fugitive emissions and combustion sources, respectively, for the construction modeling.

The operational activities were modeled based on the available information for each source. For sources with likely locations and with defined emission characteristics (*e.g.*, fixed stationary combustion sources), a point source was used in the air dispersion model. For sources with approximate locations and undefined emission characteristics (*e.g.*, vehicle exhaust), a volume or area source was used in the air dispersion model based on the potential characteristics of the emissions source. Volume sources were used to represent emission sources in the general areas within the perimeter walls of the Site.

A gridded receptor network was used within the model to evaluate impacts. From the property fence line out to 500 m, a 50 x 50 m gridded network was used. From a distance of 500 m from the facility to 2,000 m, a 250 x 250 m gridded network was used.

6.3.2 Localized CO Impacts

The SCAQMD suggests that localized CO hotspots be evaluated at intersections due to increases in project-related off-site mobile source trips. The SCAQMD recommends performing a CO hotspots analysis for intersections that change from Level of Service (LOS) C to D as a result of the proposed project, and for all intersections rated D or worse where the project increases the volume-to-capacity ratio by two percent or more.²³

The analysis prepared for CO attainment in the South Coast Air Quality Management District (SCAQMD) can be used to assist in evaluating the potential for CO exceedances as a result of this Project. CO attainment was thoroughly analyzed as part of the SCAQMD 1992 and 2003 AQMPs. As discussed in the 1992 CO AQMP, peak CO concentrations in the Basin are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Even considering those unique meteorological conditions, due to the increasingly stringent CO emissions standards CO modeling was performed as part of SCAQMD's 2003 AQMP. This modeling was conducted for emissions at the four busiest intersections in Los Angeles at the worst case time with the highest peak morning and afternoon traffic and failed to yield a violation of CO standards. These intersections are: Long Beach Blvd. and Imperial Highway (Lynwood); Wilshire Blvd. and Veteran Ave. (Westwood); Sunset Blvd. and Highland Ave. (Hollywood); and La Cienega Blvd. and Century Blvd. (Inglewood). Since the Project is expected to have very small contributions to new vehicle traffic, it is unlikely that any of the intersections in the Project area would have peak hour traffic volumes that even approach those at the intersections modeled in the SCAQMD AQMP, nor would there be any unique reason to believe that they would yield higher CO concentrations if modeled in detail. Also, the Project is expected to result in fewer mobile source trips per day than the existing baseline, which is an industrial building used as a warehouse facility and an oil and gas test facility, leading to a reduction in CO emissions and peak traffic volumes at local intersections. The assumed number of trips for baseline and Project operations are shown in Appendix A.

²³ SCAQMD. Email communication with Steve Smith (Program Supervisor – CEQA Section). February, 2009.

6.3.3 Toxic Air Contaminant (TAC) Thresholds

The Project will generate various air contaminants that are potentially carcinogenic, toxic, or hazardous, depending on concentration levels and the duration of exposure.

The Health Risk Assessment (HRA) was conducted consistent with California Environmental Protection Agency's (Cal/EPA's) Air Toxics Hot Spots Program Risk Assessment Guidelines²⁴ and based on risk assessment guidance documents by USEPA,²⁵ Cal/EPA's Department of Toxic Substances Control (DTSC),²⁶ The Chemicals of Potential Concern (COPC) were identified based on the emission inventory for the Project's construction and operation phases. Toxicity weightings were developed for each COPC based upon the SCAQMD's Risk Assessment Procedures for Rules 1401 and 212, Attachment L.²⁷ For a health risk assessment (HRA), the SCAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities.²⁸ The Project is located within an area that is zoned light commercial and industrial. No sensitive receptors are located within one-quarter of a mile from the Site.

The HRA is based on using the emission estimates and air dispersion modeling described above. For purposes of the risk assessment, receptors located in residential and commercial/industrial areas were identified. Commercial/industrial areas include all types of businesses located near the Project, and would be the location for worker receptors. The locations of all receptors are illustrated in Appendix D.

The HRA included in this report incorporates various conservative assumptions. For example, risk is calculated for residential exposure using the standard upper-bound assumptions that every resident is exposed for every hour of every day for 70 years. However, it is unlikely that any person will actually be present at any of the receptor locations for the entire duration of operational activities. Similarly for off-site worker exposure, risk is calculated using the standard upper-bound assumption that all off-site workers are exposed to operational emissions continuously every working day (e.g., 250 days as estimated based on a standard five day work week) for every working hour (e.g., 8 hours as estimated based on a standard work day) for 40 years. It is unlikely that such worker exposures actually will occur. Furthermore, for both residential and off-site workers, risks are calculated assuming continuous exposure to outdoor/ambient concentrations, even though people typically spend more than 90% of their time indoors. People also move from place to place (and often away from Project emissions) during the day for work, school, shopping, or other purposes. For this reason, the estimated cancer risks and noncancer hazard indices reported in this analysis are likely upper-bound

24 Cal/EPA. 2003. The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health Hazard Assessment. August.

25 USEPA. 1989. Risk Assessment Guidance for Superfund Volume I, Human Health Evaluation Manual (Part A). USEPA 540/1-89-002, Office of Emergency and Remedial Response, Washington, DC. December.

26 Cal/EPA. 1994. Preliminary Endangerment Assessment Guidance Manual. Department of Toxic Substances Control. January.

27 SCAQMD. 2009. Permit Application Package "L". For use in conjunction with Risk Assessment Procedures for Rules 1401 and 212. Version 7.0. Available: <http://www.aqmd.gov/prdas/pdf/1401AttL2.pdf>. Accessed September 17, 2010.

28 SCAQMD. 1993. CEQA Air Quality Handbook. April.

estimates for potential exposure to Project-related emissions. Also, the estimated cancer risks and noncancer hazard indices represent the maximum exposed individual (resident and worker) and do not represent the risk over a broad area. The actual risks of cancer or noncancer effects from the Project are likely to be lower than presented herein.

6.4 Construction Results

6.4.1 Mass Emissions

The estimated maximum mass daily construction emissions are shown in Table . The projected emissions are below the SCAQMD's mass daily significance thresholds, for all pollutants except for NO_x. Based on the numbers and types of equipment working on-site, the maximum daily emissions during construction would occur during various phases of the expected construction schedule. These emission estimates are based on conservative assumptions and represent the maximum emissions that may occur during Project construction. The maximum daily emissions for each pollutant will not necessarily occur on the same day (i.e., the maximum PM₁₀ emissions may occur on a different day from the maximum NO_x emission) due to the variety of equipment and construction activities that are expected to occur throughout the construction schedule. Detailed summaries of the emissions estimates are included in Appendix B, which show the estimated emissions for various phases of the expected construction schedule.

The Facility and pipeline construction are separated from the offsite SCE construction in the calculations. The Facility and pipeline construction are grouped together based on the anticipated ability to coordinate and schedule these construction activities. The SCE construction is separated since that work is expected to be coordinated and managed by SCE. As a conservative representation, the maximum emissions from the SCE construction is added to the maximum emissions from the Facility and pipeline construction to account for the uncertainty of when the SCE construction may occur. Based on this conservative assumption, the estimated emissions for all criteria pollutants will be below the SCAQMD significance thresholds except for NO_x. The construction phase of the proposed Project will exceed the significance threshold for NO_x. Therefore, unmitigated air quality impacts associated with construction are considered significant. The Project will mitigate these emissions as discussed in Sections 5.3 and 6.3.3.

Table 7. Projected Maximum Mass Daily Emission Rates During Construction^[a]						
Category	Daily Emissions (lb/day)					
	VOC	CO	NO_x	SO_x	PM₁₀^[b]	PM_{2.5}^[b]
Facility and Pipeline Construction^[c]						
Onsite	10.0	38.7	65.8	0.05	7.3	4.3
Offsite	6.0	35.0	32.6	0.04	11.3	1.9
SCE Construction^[d]						
Offsite	7.0	33.7	39.0	0.06	4.9	3.0
Total ^[e]	23.0	107.4	137.4	0.15	23.5	9.2
SCAQMD Threshold	75	550	100	150	150	55
Above Threshold?	No	No	Yes	No	No	No
^[a] The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. ^[b] The fugitive dust emissions are calculated assuming compliance with SCAQMD Rule 403 requirements to reduce fugitive dust PM emissions during construction. The reduction factors were obtained from SCAQMD fugitive dust mitigation tables available at http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/mm_fugitive.html, accessed in October 2011. In addition to the Rule 403 requirements, the site is assumed to be watered three times a day for a fugitive dust control efficiency of 61%. ^[c] The maximum daily emissions for Project construction were determined based on the maximum emissions from the overlapping onsite and offsite activities at any given day over the course of the construction period. ^[d] The emissions associated with SCE interconnect construction were estimated separately from the Project construction due to the uncertainty of when this construction activity may occur. ^[e] It was conservatively assumed that the maximum SCE construction could occur on the same day as the maximum Project construction emission estimates. The total mass emissions for OFFROAD sources were modified to account for an overestimate of 33% in emissions based on ARB's assessment of incorrect load factors in their OFFROAD2007 model.						

6.4.2 Ambient Air Quality Impacts

The construction air quality impacts at residential and sensitive receptors were based on air dispersion modeling, as described above and in Appendix D, and the on-site emission rates described above. The daily mass emission rates were converted to gram-per-second emission rates by assuming 8 hours per day of construction. For averaging periods less than 24-hours, the maximum daily emission rates were used, for all other averaging periods the average emission rates were used. The maximum ambient air quality impacts for construction criteria pollutant emissions are summarized in Table 8, which shows that the Project construction air quality impacts would not exceed the SCAQMD thresholds for any pollutants. These estimates are based on conservative assumptions, for example, they assume that the maximum emissions occur during the worst-case meteorological conditions.

Table 8. Maximum Ambient Air Quality Impacts During Construction					
Pollutant	Averaging Time	Maximum Impact from Project Emissions ($\mu\text{g}/\text{m}^3$)	Background Pollutant Concentration ($\mu\text{g}/\text{m}^3$)^[a]	Maximum Project + Background Concentration ($\mu\text{g}/\text{m}^3$)	SCAQMD Threshold ($\mu\text{g}/\text{m}^3$)^[b]
NO ₂ ^[c]	1-hour	38	207	245	339
	Annual	4	40	44	57
CO	1-hour	87	3,433	3,520	23,000
	8-hour	32	2,976	3,008	10,000
Incremental Analysis					
PM ₁₀	24-hour	5.8	N/A	N/A	10.4
	Annual	0.5	N/A	N/A	1.0
PM _{2.5}	24-hour	2.7	N/A	N/A	10.4
SO ₂	1-hour	0.11	N/A	N/A	196.2
	24-hour	0.02	N/A	N/A	104.6
	Annual	0.003	N/A	N/A	78.5
Sulfates ^[d]	24-hour	0.0004	N/A	N/A	25
[a] Background concentration observed at South Coastal LA County (North Long Beach, Station 1) for the years 2009 through 2012 as described in Table 1. [b] South Coast Air Quality Management District CEQA thresholds. Available online at http://www.aqmd.gov/ceqa/handbook/signthres.pdf. Accessed: July 2011. [c] Impacts from air dispersion modeling are reported as NO_x. Per SCAQMD LST methodology, it is assumed that 25.8% and 75% of NO_x will be converted to NO₂ for receptors within and beyond 500 meters of the facility, respectively. [d] Sulfates estimated by assuming 2% of SO_x emissions are sulfate. It is assumed that maximally impacted receptors are located within 100m of sources, and atmospheric conversion from SO_x to sulfates is minimal.					

The air quality impacts from lead emissions during construction were not modeled because the level of emissions is very low. The estimated lead emissions during construction are 0.0002 lb/day, whereas the SCAQMD lead significance threshold is 3 lb/day. Project construction emissions are less than 0.01% of this threshold and thus construction lead emissions are not expected to exceed the SCAQMD lead significance thresholds for ambient air quality impacts.

The short-term impacts shown in Table 8 are measured against the state 1-hour NO₂ standard as recommended in the SCAQMD CEQA Handbook. Construction impacts are less than this standard. There is also a new federal 1-hour NO₂ standard of 0.100 ppm, which corresponds to 188 $\mu\text{g}/\text{m}^3$. The SCAQMD is currently evaluating, and has not yet updated, its CEQA

significance thresholds and CEQA Handbook to add a new significance threshold corresponding to the federal 1-hour NO₂ standard. When requested, the SCAQMD did not have a recommended methodology or threshold for the federal 1-hour NO₂ standard.²⁹ It is our understanding that the City of Carson has relied upon the SCAQMD expertise in establishing air quality significance thresholds. Thus, for the purposes of this analysis, the significance threshold is assumed to be the state 1-hour NO₂ standard as currently established by the SCAQMD and shown in Table 8.

Nevertheless, an additional analysis has been performed to assess the potential adverse impacts of the Project relative to the federal 1-hour NO₂ standard. In determining compliance with the federal 1-hour NO₂ standard, federal guidance indicates that the 98th percentile pollutant concentration should be used.³⁰ The 98th percentile background NO₂ value from the available 2009 to 2012 data³¹ is 131.8 µg/m³; SCAQMD has not listed this data for any other years. As shown in Table 8, the maximum modeled value for the Project is 38µg/m³. This would result in a maximum Project 1-hour NO₂ concentration of 169.6 µg/m³, which is less than the federal 1-hour NO₂ standard. This is a conservative estimate since the analysis assumes the maximum modeled value³²; however, it is also noted that the 98th percentile maximum is based on two years rather than three years of monitoring data. The various facility construction activities that contribute to this maximum modeled value only occur for short and limited durations, thus the modeled concentration for the Project is likely a conservative representation in comparison to the federal 1-hour NO₂ standard.

6.4.3 Mitigated Mass Emissions

The mitigation measures described in Section 5.3 will reduce emissions associated with construction activities from heavy construction equipment. The estimated emissions were revised based on a change in the emission factor for the construction equipment that are expected to change as a result of this mitigation measure. The supporting calculations for these mitigated emissions are included in Appendix B. The mitigated construction emissions for the proposed Project for NO_x are expected to be less than significant (see Table 9). The construction emissions associated with CO, SO_x, VOC, PM₁₀, and PM_{2.5} are expected to remain less than significant following mitigation. Construction emissions are expected to be short-term and they will be eliminated following completion of the construction phase.

²⁹ SCAQMD, 2012. Phone conversation with Ian Macmillan at the SCAQMD with ENVIRON. February.

³⁰ CAPCOA. 2011. Modeling Compliance of the Federal 1-Hour NO₂ NAAQS. Available at: http://www.valleyair.org/busind/pto/Tox_Resources/CAPCOANO2GuidanceDocument10-27-11.pdf

³¹ SCAQMD, 2012. SCAQMD's historical data by year. Available at: <http://aqmd.gov/smog/historicaldata.htm>. Accessed: March 2012. Note that the 98th percentile background NO₂ is based on the three-year average (2009, 2010, 2011) of the 98th percentile of the daily maximum 1-hour NO₂ concentration observed at South Coastal LA County Station (North Long Beach, Station).

³² Note that a refined analysis would be based on the 98th percentile modeled value per federal guidance (40 CFR Part 50).

Table 9. Projected Mitigated Maximum Mass Daily Emission Rates During Construction^[a]						
Category	Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀ ^[b]	PM _{2.5} ^[b]
Facility and Pipeline Construction^[c]						
Onsite	7.7	44.4	39.3	0.05	6.8	3.4
Offsite	5.1	38.0	21.5	0.04	11.3	1.6
SCE Construction^[d]						
Offsite	7.0	33.7	39.0	0.06	4.9	2.3
Total ^[e]	19.8	116.1	99.8	0.15	23.0	7.3
SCAQMD Threshold	75	550	100	150	150	55
Above Threshold?	No	No	No	No	No	No
^[a] The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. ^[b] The fugitive dust emissions are calculated assuming compliance with SCAQMD Rule 403 requirements to reduce fugitive dust PM emissions during construction. The reduction factors were obtained from SCAQMD fugitive dust mitigation tables available at http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/mm_fugitive.html, accessed in October 2011. In addition to the Rule 403 requirements, the site was watered three times a day to reduce fugitive emissions by 61%. ^[c] The maximum daily emissions for Project construction were determined based on the maximum emissions from the overlapping onsite and offsite activities at any given day over the course of the construction period. ^[d] Emissions from SCE substation construction is included to represent a conservative estimate for CEQA significance comparison. Due to unknown beginning and finishing dates of the SCE construction, the max daily emissions are determined separately from the main facility and pipeline construction. All on-site construction equipment are assumed to be shared with facility construction and thus those emissions are not included for impact determination; off-site vehicle traffic emissions are added. ^[e] Emissions may not add precisely due to rounding.						

6.5 Operational Results

6.5.1 Mass Emissions

The estimated maximum and average daily operational emissions are as shown in Tables 10 and 11, respectively. The average daily operational emissions are the estimated emissions expected based on the typical day-to-day operations. The maximum daily operational emissions are based on intermittent operations that are expected to occur infrequently (e.g., well maintenance, and testing of the emergency generators). Additional tables to support the emission estimates are included in Appendix A. The emissions from well drilling are shown as zero because the Project has committed to using an electrically powered drill rig to minimize air emissions.

Table 10. Projected Maximum Daily Emission Rates During Operations						
Category	Daily Emissions (lb/day)					
	VOC	CO	NOX	SOX	PM10	PM2.5
Onsite Emissions						
Well Drilling ^[a]	0	0	0	0	0	0
Emergency Flare	0.05	0.25	0.94	0.004	0.05	0.05
Polymer Hopper Vent for Slurry System	0.00	0.00	0.00	0.00	2.1E-05	3.6E-06
Carbon Adsorber Unit for Slurry System	0.01	0.00	0.00	0.00	0.00	0.00
Process Heater Unit	1.46	17.75	2.62	0.13	1.57	1.53
Truck Loading Unit	0.09	0	0	0	0	0
Emergency Generator Units	0.13	0.88	4.76	0.21	0.08	0.08
Carbon Adsorber Unit for Sump Water	0.01	0	0	0	0	0
Fugitives	4.26	0	0	0	0	0
Workover Rig	1.18	2.26	10.86	0.12	0.36	0.33
Process Flare	3.25	10.51	26.86	0.28	3.48	3.48
Backhoe	0.06	0.33	0.41	0.001	0.0.3	0.0.3
Onsite Sub-total	10.51	31.99	46.44	0.73	5.57	5.51
Offsite Emissions						
Well Drilling						
Workers & Contractors (Commute)	0.16	1.58	0.42	0.00	0.30	0.02
Mud/Hauling Trucks	0.92	4.87	9.61	0.01	0.94	0.47
Sub-total	1.08	6.45	10.03	0.01	1.24	0.49
Full Production						
Workers & Contractors (Commute)	0.16	1.58	0.42	0.00	0.30	0.02
NGL Trucks (Air Basin) ^[b]	1.16	6.10	12.02	0.02	1.18	0.58
NGL Trucks (Statewide) ^[b]	1.64	8.58	17.22	0.02	1.70	0.84
Slurry Haul Trucks (Air Basin) ^[c]	0.46	2.44	4.80	0.00	0.47	0.23
Slurry Haul Trucks (Statewide) ^[c]	0.76	3.93	7.92	0.01	0.79	0.39
Workover Rig	0.03	0.19	0.26	0.00	0.02	0.01
Sub-total (Air Basin)	1.81	10.31	17.50	0.02	1.97	0.84
Sub-total (Statewide)	2.58	14.28	25.82	0.03	2.81	1.26
Offsite Sub-total (Air Basin)	2.89	16.76	27.53	0.03	3.22	1.33
Offsite Sub-total (Statewide)	3.67	20.73	35.85	0.04	4.05	1.75
Total Emissions^[d]	13.40	48.75	73.97	0.76	8.79	6.84
Total Statewide Emissions^[d]	14.17	52.72	82.29	0.77	9.62	7.26

[a] The emissions from well drilling is shown as zero because the Project has committed to using an electrically powered drill rig to minimize air emissions.

[b] Haul truck emissions to transfer NGL to Bakersfield. For the air quality analysis, emissions within the SCAQMD basin are compared to the CEQA significance thresholds. Total statewide emissions are included in this table for informational purposes only.

[c] The slurry haul trucks will only be required if the slurry injection well is not operational. For the air quality analysis, emissions within the SCAQMD basin are compared to the CEQA significance thresholds. Total statewide emissions are included in this table for informational purposes only.

[d] The total emissions conservatively assume that well drilling and full production are occurring at the same time.

Table 11. Projected Average Daily Emission Rates During Operations						
Category	Daily Emissions (lb/day)					
	VOC	CO	NOX	SOX	PM10	PM2.5
Onsite Emissions						
Well Drilling ^[a]	0	0	0	0	0	0
Emergency Flare	0.05	0.25	0.94	0.004	0.05	0.05
Polymer Hopper Vent for Slurry System	0	0	0	0	1.8E-05	3.0E-06
Carbon Adsorber Unit for Slurry System	0.01	0.00	0.00	0.00	0.00	0.00
Process Heater Unit	0.49	5.95	0.88	0.04	0.53	0.51
Truck Loading Unit	0.09	0	0	0	0	0
Emergency Generator Units	0.02	0.14	0.66	0.03	0.01	0.01
Carbon Adsorber Unit for Sump Water	0.01	0	0	0	0	0
Fugitives	4.26	0	0	0	0	0
Workover Rig	0.68	1.30	6.25	0.07	0.21	0.19
Process Flare	2.79	9.04	23.09	0.24	2.99	2.99
Backhoe	0.06	0.33	0.41	0.00	0.03	0.03
Onsite Sub-total	8.47	17.02	32.22	0.38	3.82	3.80
Offsite Emissions						
Well Drilling						
Workers & Contractors (Commute)	0.11	1.53	0.44	0.00	0.22	0.00
Mud/Hauling Trucks	0.26	1.39	2.59	0.00	0.26	0.13
Sub-total	0.37	2.92	3.02	0.00	0.48	0.13

Table 11. Projected Average Daily Emission Rates During Operations						
Category	Daily Emissions (lb/day)					
	VOC	CO	NOX	SOX	PM10	PM2.5
Full Production						
Workers & Contractors (Commute)	0.11	1.53	0.44	0.00	0.22	0.00
NGL Trucks (Air Basin) ^[b]	1.10	6.03	11.29	0.00	1.10	0.55
NGL Trucks (Statewide) ^[b]	1.64	8.55	16.11	0.00	1.64	0.88
Slurry Haul Trucks (Air Basin) ^[c]	0.02	0.08	0.15	0.00	0.01	0.01
Slurry Haul Trucks (Statewide) ^[c]	0.02	0.13	0.24	0.00	0.00	0.01
Workover Rig	0.01	0.06	0.08	0.00	0.01	0.004
Sub-total (Air Basin)	1.23	7.70	11.95	0.00	1.34	0.56
Sub-total (Statewide)	1.79	10.27	16.87	0.00	1.87	0.89
Offsite Sub-total (Air Basin)	1.60	10.62	14.98	0.00	1.81	0.69
Offsite Sub-total (Statewide)	2.16	13.19	19.90	0.00	2.35	1.03
Total Emissions ^[d]	10.07	27.64	47.20	0.38	5.64	4.49
Total Statewide Emissions ^[d]	10.63	30.21	52.12	0.38	6.17	4.82
[a] The emissions from well drilling is shown as zero because the Project has committed to using an electrically powered drill rig to minimize air emissions. [b] Haul truck emissions to transfer NGL to Bakersfield. For the air quality analysis, emissions within the SCAQMD basin are compared to the CEQA significance thresholds. Total statewide emissions are included in this table for informational purposes only. [c] The slurry haul trucks will only be required if the slurry injection well is not operational. For the air quality analysis, emissions within the SCAQMD basin are compared to the CEQA significance thresholds. Total statewide emissions are included in this table for informational purposes only. [d] The total emissions conservatively assume that well drilling and full production are occurring at the same time.						

The comparison of Project emissions to the SCAQMD significance thresholds is based on the incremental change in emissions from existing conditions. As shown in Table 12, the incremental project emissions do not exceed any of the SCAQMD significance thresholds.

Table 12. Maximum Incremental Daily Emissions (lb/day)						
Category	Daily Emissions (lb/day)					
	VOC	CO	NO_x	SO_x	PM₁₀	PM_{2.5}
Baseline Emissions[a]	97.1	145.0	602.2	11.9	16.8	13.7
Total Project Emissions	13.4	48.7	74.0	0.8	8.8	6.8
Incremental Emissions (Project minus Baseline)[b]	-83.7	-96.2	-528.2	-11.1	-8.1	-6.9
SCAQMD Threshold	55	550	55	150	150	55
Above Threshold?	No	No	No	No	No	No
[a] Based on 30-day average emissions. See Table 3 for further details.						
[b] All onsite Project sources that are not already part of the Project baseline were included in the modeling to represent the incremental Project impact.						

6.5.2 Ambient Air Quality Impacts

The operational air quality impacts were based on the onsite emission rates and air dispersion modeling as described above and in Appendix D. For averaging periods 24 hours or less, the maximum daily emission rates were used, for all other averaging periods the average emission rates were used. The Project criteria pollutant impacts from Project operations are summarized in Table 13. Results indicate that the incremental Project impacts will be below all of the SCAQMD significance thresholds, including 1-hour and annual NO₂, 1-hour and 8-hour CO, 24-hour and annual PM₁₀, 24-hour PM_{2.5}, 1-hour, 24-hour, and annual SO₂, and 24-hour sulfates.

Table 13. Maximum Ambient Air Quality Impacts During Operation					
Pollutant	Averaging Time	Maximum Impact from Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)^[a]	Maximum Project + Background Concentration (µg/m³)	SCAQMD Threshold (µg/m³)^[b]
NO ₂ ^[c]	1-hour	35.4	207	242.4	339
	Annual	3	40	43	57
CO	1-hour	33	3,433	3,466	23,000
	8-hour	18	2,976	2,993	10,000
Incremental Analysis					
PM ₁₀	24-hour	1.1	N/A	N/A	2.5

Table 13. Maximum Ambient Air Quality Impacts During Operation					
Pollutant	Averaging Time	Maximum Impact from Project Emissions ($\mu\text{g}/\text{m}^3$)	Background Pollutant Concentration ($\mu\text{g}/\text{m}^3$)^[a]	Maximum Project + Background Concentration ($\mu\text{g}/\text{m}^3$)	SCAQMD Threshold ($\mu\text{g}/\text{m}^3$)^[b]
	Annual	0.2	N/A	N/A	1.0
PM _{2.5}	24-hour	1.1	N/A	N/A	2.5
SO ₂	1-hour	0.7	N/A	N/A	196.2
	24-hour	0.2	N/A	N/A	104.6
	Annual	0.04	N/A	N/A	78.5
Sulfates ^[d]	24 hr	0.005	N/A	N/A	25
[a] Maximum background concentration observed at South Coastal LA County (North Long Beach, Station 1) for the years 2009 through 2012 as described in Table 1. [b] South Coast Air Quality Management District CEQA thresholds. Available at http://www.aqmd.gov/ceqa/handbook/signthres.pdf. Accessed: July 2011. [c] Impacts from air dispersion modeling are reported as NO_x. It is assumed that 75% of NO_x will be converted to NO₂ per USEPA (USEPA, 2011. 40 CFR Part 51 Appendix W). [d] Sulfates estimated by assuming 2% of SO_x emissions are sulfate. It is assumed that maximally impacted receptors are located within 100m of sources, and atmospheric conversion from SO_x to sulfates is minimal.					

The estimated Project impacts are conservative estimates. The short-term impacts (i.e., those less than 24-hr averaging periods) are based on the maximum emissions and the worst-case meteorological conditions. The files supporting the modeling evaluations are included in Appendix D. It should also be noted that all of the stationary sources in the Project (i.e., including these major contributors) will be permitted by the SCAQMD and will be required to comply with strict emission control requirements to minimize the emissions and air quality impacts from operation of these sources.

The air quality impacts from lead emissions during operations were not modeled because the level of emissions is very low. The estimated lead emissions during operation are 0.008 lb/day, whereas the SCAQMD significance threshold is 3 lb/day. Project operational emissions are less than 0.3% of this threshold and thus operational lead emissions are not expected to exceed the SCAQMD lead significance thresholds for ambient air quality impacts.

The short-term impacts shown in Table 13 are measured against the state 1-hour NO₂ standard as recommended in the SCAQMD CEQA Handbook. Operational impacts are less than this standard. There is also a new federal 1-hour NO₂ standard of 0.100 ppm, which corresponds to 188 $\mu\text{g}/\text{m}^3$. The SCAQMD is currently evaluating, and has not yet updated, its CEQA significance thresholds and CEQA Handbook to add a new significance threshold corresponding to the federal 1-hour NO₂ standard. When requested, the SCAQMD did not have a

recommended methodology or threshold for the federal 1-hour NO₂ standard.³³ It is our understanding that the City of Carson has relied upon the SCAQMD expertise in establishing air quality significance thresholds. Thus, for the purposes of this analysis, the significance threshold is assumed to be the state 1-hour NO₂ standard as currently established by the SCAQMD and shown in Table 13.

Nevertheless, an additional analysis has been performed to assess the potential adverse impacts of the Project relative to the federal 1-hour NO₂ standard. In determining compliance with the federal 1-hour NO₂ standard, federal guidance indicates that the 98th percentile pollutant concentration should be used.³⁴ The 98th percentile background NO₂ value from the available 2009 to 2012 data³⁵ is 126 µg/m³; SCAQMD has not listed this data for any other years. As shown in Table 13, the maximum modeled value for the Project is 35.4 µg/m³. This would result in a maximum Project 1-hour NO₂ concentration of 161.4 µg/m³, which is less than the federal 1-hour NO₂ standard. This is a conservative estimate since the analysis assumes the maximum modeled value³⁶; however, it is also noted that the 98th percentile maximum is based on two years rather than three years of monitoring data. The various facility operations that contribute to this maximum modeled value only occur for short and limited durations (e.g., the workover rig operation and emergency generators maintenance testing), thus the modeled concentration for the Project is likely a conservative representation in comparison to the federal 1-hour NO₂ standard.

6.6 Localized CO Hotspots

A hotspots analysis was not conducted per the discussion above and because the Project does not generate an appreciable amount of operational and/or construction mobile source CO emissions (see Section 6.2.3). A maximum of 8 permanent employees and 15 contractors will be required to operate the Project, and thus a small number of worker and commuter trips will be required per day. Construction of the Project will generate trips due to both construction workers and hauling. Approximately 120 construction workers will be required on the day requiring the maximum number of construction workers, although the average number of construction workers required is approximately 70. Construction emissions will be temporary. The maximum off-site CO emissions are 34 lb/day estimated during construction. The assumed number of trips for baseline and Project operations are shown in Appendix A. Based on these estimates the Project is actually expected to reduce the total number of trips due to operations on the Project site.

³³ SCAQMD, 2012. Phone conversation with Ian Macmillan at the SCAQMD with ENVIRON. February.

³⁴ CAPCOA. 2011. Modeling Compliance of the Federal 1-Hour NO₂ NAAQS. Available at: http://www.valleyair.org/busind/pto/Tox_Resources/CAPCOANO2GuidanceDocument10-27-11.pdf

³⁵ SCAQMD, 2012. SCAQMD's historical data by year. Available at: <http://aqmd.gov/smog/historicaldata.htm>. Accessed March 2012. Note that the 98th percentile background NO₂ is based on the two-year average (2009 and 2010) of the 98th percentile of the daily maximum 1-hour NO₂ concentration observed at South Coastal LA County Station (North Long Beach, Station) as the 2008 98th percentile concentration is not available at SCAQMD website.

³⁶ Note that a refined analysis would be based on the 98th percentile modeled value per federal guidance (40 CFR Part 50).

6.7 Project Health Risk Assessment

A HRA was conducted to estimate the health risk impacts from Project operations. The HRA was based on the AERMOD air dispersion modeling and emission estimates described above. The maximum risk impacts from Project operations are shown in Table 14. As shown by the results, the health risk assessment results are below the SCAQMD significance thresholds.

Table 14. Maximum Incremental Risk Impacts from Operation of the Project			
Health Impact	Receptor	Maximum Impact from Project Emissions (Risk in 1 million or Hazard Index)	SCAQMD Threshold (Risk in 1 million or Hazard Index)
Cancer risk	Residential	1.0	10
	Worker	3.6	10
Chronic Noncancer Hazard Index	Residential	<0.01	1
	Worker	0.01	1
Acute Noncancer Hazard Index	Residential	0.02	1
	Worker	0.08	1

6.8 Cumulative Impacts

6.8.1 Introduction

CEQA Guidelines §15130(a) requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Cumulatively considerable is defined by CEQA Guidelines §15065(a)(3) as a project where the incremental effects are significant when viewed in connection with the effects of past projects, current projects, and probably future projects.

The City of Carson examined all projects in a one-mile radius of the Project site that had been approved since January 1, 2010. Only 12 projects were identified in this search. After reviewing the project descriptions and permit types for each of the 12 projects, only one project was identified that was deemed relevant in the context of cumulative impacts. In addition, no on-site projects were identified that would contribute to cumulative impacts.

6.8.2 Potentially Related Projects

The one project that was identified as relevant for potentially cumulative impacts is located at 1700 Central Avenue. This project consists of the installation of a wireless communication facility on an existing radio tower for MCI Communications.

6.8.3 Air Quality

Based on CEQA Guidelines §15301, the MCI Communications project is categorically exempt because it is an existing structure and there is no expansion of use beyond that existing at the

time of the determination. As such, no CEQA analysis was, nor was expected to be, found for use in this Project's cumulative analysis. However, the installation of a wireless communication facility (i.e., antennas) is not expected to result in either construction or operational air emissions that could contribute to cumulative impacts.

6.8.4 TACs

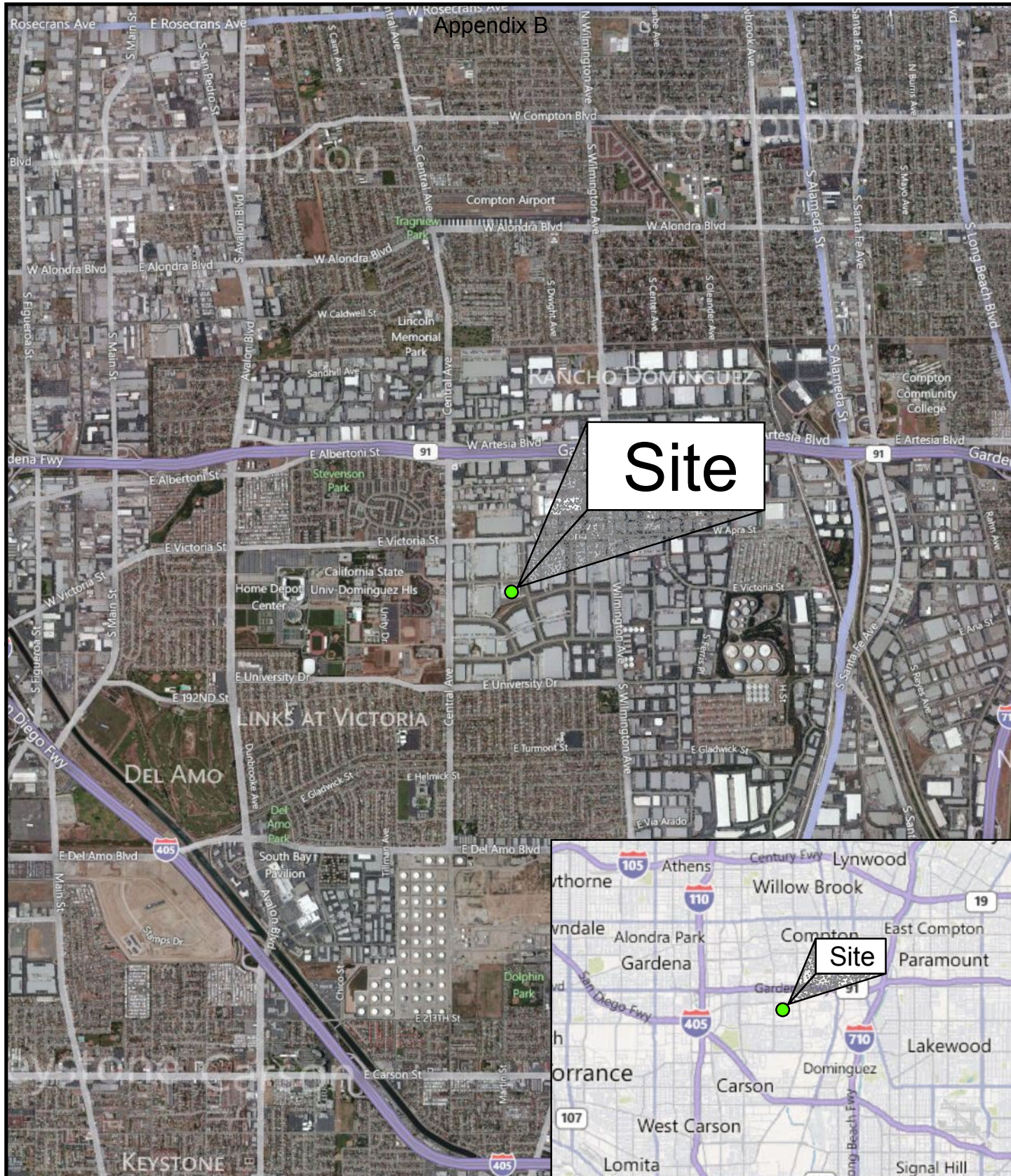
Similar to criteria pollutant emissions, there are no data on TAC emissions from the MCI Communications project. As discussed in Section 6.6, the health risks from the Project are below the SCAQMD significance thresholds.

7 References Cited

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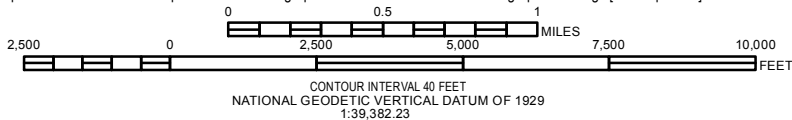
Figures

Appendix B



SOURCE:
U.S.G.S. 7.5 minute series (topographic)
Inglewood, Long Beach (digital)
South Gate, Torrance, CA Quadrangle
National Geographic TOPOI
Seamless, scanned images of
USGS paper topographic maps
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FILE: \\irvine06\irvine.enviro\local\EDMS_Irvine\01_Projects_Phase_1_Figures_Basic_8x11\Figure_1_Vicinity_Map.mxd

ENVIRON

DRAFTED BY: SShin

DATE: 7/29/2010

Site Vicinity Map
Oxy Dominguez Oil Field
B-48 1450 Charles Willard St
Carson, CA 90746

Figure
1

PROJECT: 03-25072E



Figure

2

PROJECT: 03-25072E

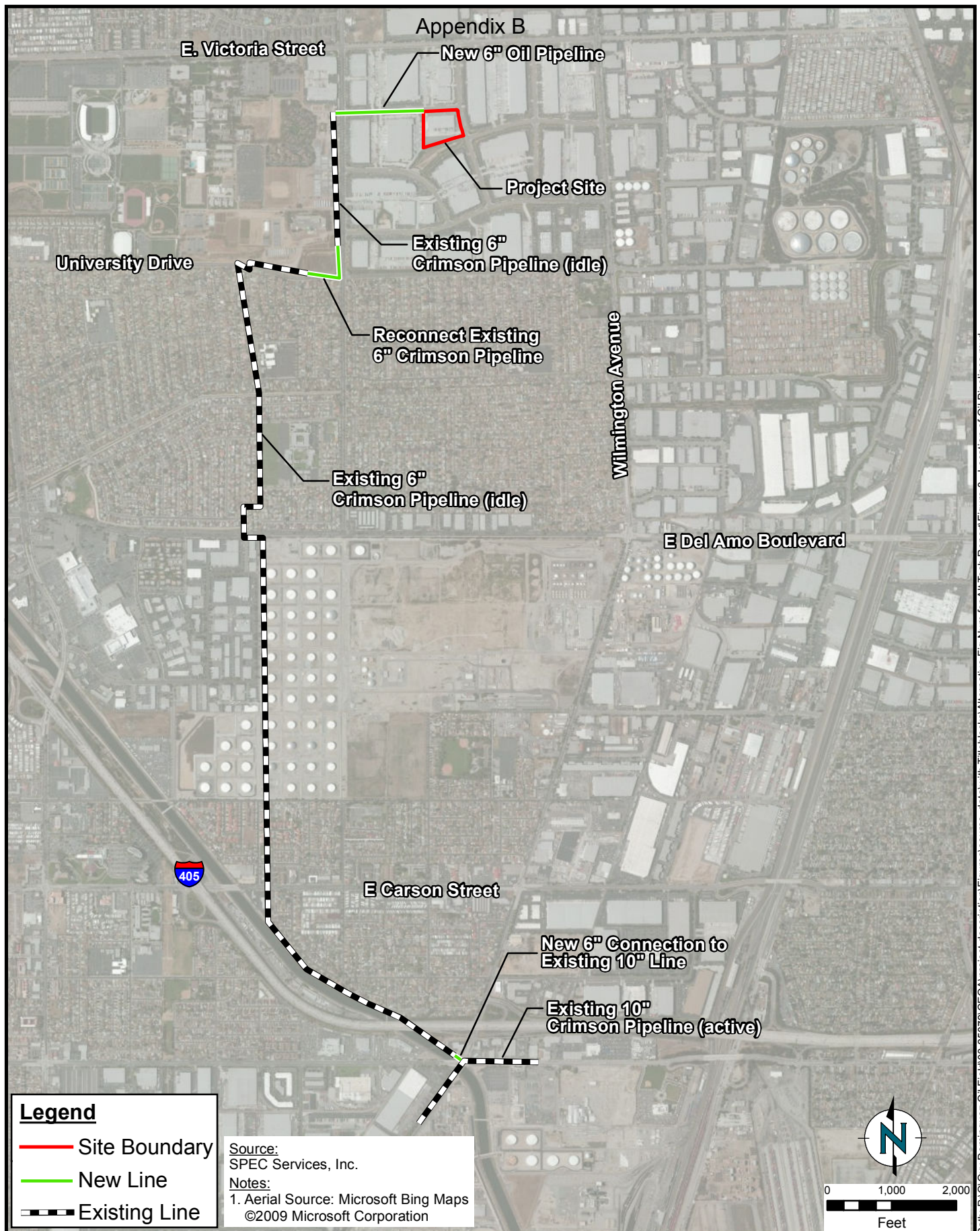
Site Detail

Oxy Dominguez Oil Field
1450 Charles Willard St
Carson, CA 90746

ENVIRON

DRAFTED BY: SShin

DATE: 5/4/2011



Path: P:\Oxy Dominguez Oil Field\03-25072\CEQA\project description\Figures\source_datawith_titleblocks\Alternative Fig Num for Alt Tech Report\Figure 3 - Location of Oil Pipelines.mxd

ENVIRON

DRAFTED BY: SShin

Date: 12/20/2011

Location of Oil Pipelines

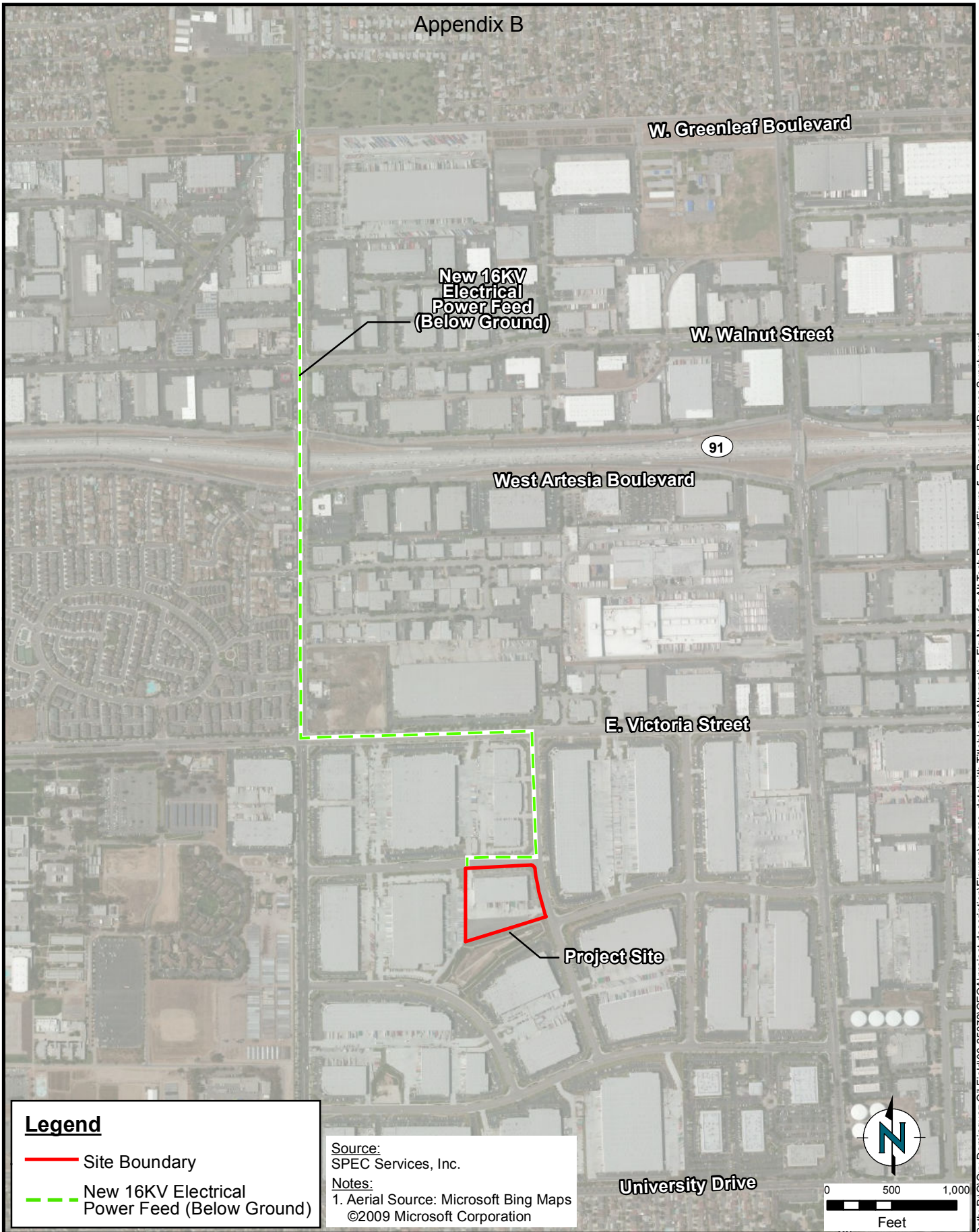
Oxy Dominguez Oil Field
B-50 1450 Charles Willard St
Carson, CA 90746

Figure
3

PROJECT: 03-25072



Path: P:\Oxy Dominguez Oil Field\03-25072\CEQA\project description\Figures\source_datawith Titleblocks\Alternative Fig Num for Alt Tech Report\Figure 4 - Location of Gas Pipelines.mxd



Path: P:\Oxy Dominguez Oil Field\03-25072\CEQA\project description\Figures\source_data\with Titleblocks\Alternative Fig Num for Alt Tech Report\Figure 5 - Proposed Power Supply.mxd

ENVIRON

DRAFTED BY: SShin

Date: 12/20/2011

Proposed Power Supply

Oxy Dominguez Oil Field
B-52 1450 Charles Willard St
Carson, CA 90746

Figure
5

PROJECT: 03-25072

Appendix A

Project Operational Emissions Estimate

Appendix B

Table A-1. Baseline Criteria Pollutant and TACs Emissions - Drill Rig Generators

Pollutant ¹	CAS	Emission Factor ^{1,2}	30 Day Average ³
		g/hp-hr or lb/1000 gal	lbs/day
VOC	-	0.59	92.2
CO	-	0.79	123.5
NO _x	-	3.74	584.6
SO _x	-	7.10	11.8
PM ₁₀ ¹	-	0.08	13.1
PM _{2.5} ⁶	--	0.08	12.8
Benzene	71432	0.1863	8.97E-02
1,3-Butadiene	106990	0.2174	1.05E-01
Cadmium	7440439	0.0015	7.22E-04
Formaldehyde	50000	1.7261	8.31E-01
Hexavalent chromium	18540299	0.0001	4.81E-05
Arsenic	7440382	0.0016	7.70E-04
Lead	7439921	0.0083	4.00E-03
Nickel	7440020	0.0039	1.88E-03
Naphthalene	91203	0.0197	9.49E-03
PAHs (excluding Naphthalene)	1151	0.0362	1.74E-02
Acetaldehyde	75070	0.7833	3.77E-01
Acrolein	107028	0.0339	1.63E-02
Ammonia	7664417	0.8	3.85E-01
Copper	7440508	0.0041	1.97E-03
Ethyl Benzene	100414	0.0109	5.25E-03
Hexane	110543	0.0269	1.30E-02
Hydrogen Chloride	7647010	0.1863	8.97E-02
Manganese	7439965	0.0031	1.49E-03
Mercury	7439976	0.002	9.63E-04
Selenium	7782492	0.0022	1.06E-03
Toluene	108883	0.1054	5.07E-02
Xylenes	1330207	0.0424	2.04E-02
Diesel exhaust particulates ¹	9901	3.94	1.89E+00

Maximum: 24 hr/day

178 day/yr

Average:

24 hr/day

178 day/yr

Calculation Factors

2 number of engines⁴
 1477 bhp, Engine Rating⁴
 100% Engine Load ⁴
 0.070 mgal/hr; Fuel Flow Rate ⁵
 0.59 g/hp-hr, HC emission rate ¹
 0.79 g/hp-hr, CO emission rate ¹
 3.74 g/hp-hr, NO_x emission rate ¹
 0.084 g/hp-hr, PM emission rate ¹
 453.59 g/lb
 4.33 30DA Constant³ (one month is 4.33 week)
 0.976 PM_{2.5}/PM₁₀⁶

Notes:

1. Unit in lb/hp-hr for criteria pollutants except for SO_x in lb/1000gal. Criteria pollutant emissions from diesel combustion in the emergency generator are estimated using the emission factors from AQMD certified ICE (http://www.aqmd.gov/aqmd/certification_programs.htm, accessed on October 17, 2011) for Caterpillar 3512C DITA except for SO_x estimated using the diesel default factors from SCAQMD's Annual Emissions Reporting Program online help document (available <http://www.aqmd.gov/webappl/Help/AER/index.html>, accessed on October 17, 2011): Default Emission Factors for Diesel/Distillate Oil (1000 gal.) / All ICEs & Micro Turbine.

2. Unit in lb/1000gal. Toxic pollutant emissions from combustion of diesel in the emergency generator are estimated using default emission factors for diesel combustion in "Stationary and Portable Internal Combustion Engines (ICE)", which are contained in Table B-2 of SCAQMD's "Supplemental Instructions - New Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory" (January 2010).

3. The 30-day average is calculated based on the maximum controlled emissions occurring over 30 days.

4. Provided by Oxy.

5. Based on engine performance data for Caterpillar Model 3512CDITA from Oxy.

6. PM_{2.5} is calculated using PM profiles in the California Emission Inventory Data and Reporting System (CEIDARS) developed by the CARB, assuming Internal Combustion: Distillate and diesel - Electrical Generation (SCAQMD, 2006. Final - Methodology to calculate PM_{2.5} and PM_{2.5} Significance Thresholds. Appendix A).

Table A-2. Baseline Criteria Pollutant Offsite Emissions - CalEEMod Input Assumptions

Number of Trips per Day During Baseline (Oxy Well Drilling)

Vehicle Type	Trips/day ¹
Workers and Contractors	85
Slurry Removal Trucks	4

Trip Parameters During Baseline (CalEEMod Input)

	Land Use Type	Land Size	Unit	Land Size in 1000 sf	Daily Trip	Trip Generation Rate	Trip %	Trip Length (miles)
Warehouse Haul Trucks	Unrefrigerated warehouse-no retail	77,360	sf	77	167	2.16	41% (CalEEMod default)	7.4 (CalEEMod default)
Oil and gas testing facility								
Commercial - Nonwork ²	General Heavy Industry	283,140	sf	283	85	0.300	59% (CalEEMod default)	7.4 (CalEEMod default)
Commercial Nonwork Hauling ^{3,4,5}					10	0.04	100	90

Notes:

1. The workers and contractors trips were calculated based on the total number of truck trips based on traffic counts and the CalEEMod percent of commercial-work (C-W, assumed to be worker/contractors commuting trips) and commercial-customer (C-C, assumed to be delivery trucks). Slurry removal trucks were estimated based on the amount of slurry generated during Project well drilling. One truck is required to transfer slurry offsite when slurry wells are not in operation during Project well production. The warehouse haul trucks were calculated based on CalEEMod default trip purpose percent of 13% (Commercial-Nonwork) and total trips of 256 based on a trip count. Note that all trips (workers and contractors, warehouse haul trucks, and slurry removal trucks) add up to 256.
2. Represents worker and contractor trips.
3. Hauling is modeled separately in CalEEMod due to different CalEEMOD assumptions in trip generation rate, trip %, and trip length than those for worker and contractor commute.
4. Two trucks, for a total of four round trips, are required to carry the slurry during the well drilling. Since trip generation rate for one truck is very small and the model is not sensitive enough, we assumed 10 trucks for the purpose of modeling. The output results are multiplied by 4/10 to represent only 4 trucks.
5. For the air quality analysis the trip length is assumed to be 90 miles to transfer solid from the site to the end of the SCAQMD basin.

Table A-3. Baseline Criteria Pollutant Emissions - 30 Day Average Summary

Emission Source	30 Day Average Emissions (lb/day) ¹					
	VOC	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}
Onsite Emissions						
Warehouse ²	2.0	0.02	0	0.02	0	0
Drilling Electrical Generator ³	92.2	584.6	11.8	123.5	13.1	12.8
<i>Total</i>	<i>94.2</i>	<i>584.6</i>	<i>11.8</i>	<i>123.5</i>	<i>13.1</i>	<i>12.8</i>
Offsite Emissions^{2,4}						
Warehouse Workers & Contractors ⁵	1.0	2.5	0.02	9.2	1.8	0.2
Drilling Workers & Contractors ⁶	0.6	1.4	0.01	5.4	0.8	0.1
Drilling Slurry Trucks ⁷	1.3	13.8	0.01	6.9	1.1	0.7
<i>Total</i>	<i>2.9</i>	<i>17.6</i>	<i>0.04</i>	<i>21.5</i>	<i>3.7</i>	<i>0.9</i>
Total	97.1	602.2	11.9	145.0	16.8	13.7

Notes:

1. The 30-day average is calculated based on the maximum controlled emissions occurring over 30 days.
2. Input assumptions are found in Appendix A, Table A-2.
3. Detailed calculations and assumptions are found in Appendix A, Tables A-1.
4. CalEEMod output emissions are multiplied by two to account for round trips.
5. Includes workers, contractors, and pickup trucks related to the existing warehouse.
6. Includes workers, contractors, and pickup trucks related to the drilling activities.
7. Represents emissions for slurry trucks to transfer slurry offsite.

Appendix B

Table A-4. Project Criteria Pollutant and TACs Emissions - Emergency Flare (Pilot)

Pollutant ¹	CAS	Emission Factor ^{1,2}	Maximum Daily Controlled	Average Annual
		lb/MMscf	lbs/day	lbs/yr
VOC	-	7.00	5.04E-02	1.84E+01
CO	-	35.00	2.52E-01	9.20E+01
NO _x	-	130.00	9.36E-01	3.42E+02
SO _x	-	0.60	4.32E-03	1.58E+00
PM ₁₀	-	7.50	5.40E-02	1.97E+01
PM _{2.5}	--	--	5.40E-02	1.97E+01
Benzene	71432	0.159	1.14E-03	4.18E-01
Formaldehyde	50000	1.169	8.42E-03	3.07E+00
Total PAHs (exclude Naphthalene)	1151	0.003	2.16E-05	7.88E-03
Naphthalene	91203	0.011	7.92E-05	2.89E-02
Acetaldehyde	75070	0.043	3.10E-04	1.13E-01
Acrolein	107028	0.010	7.20E-05	2.63E-02
Ethyl Benzene	100414	1.444	1.04E-02	3.79E+00
Hexane	110543	0.029	2.09E-04	7.62E-02
Toluene	108883	0.058	4.18E-04	1.52E-01
Xylene	1330207	0.029	2.09E-04	7.62E-02

Operation Hours

Maximum: 24 hr/day
7 day/week
365 days/year

Average: 24 hr/day
7 day/week
365 days/year

Calculation Factors

5 scfm; Maximum flow rate to flare
300 scfh; estimated pilot fuel flow rate
60 min/hr
365 days/yr

Notes:

1. Criteria pollutant emissions from natural gas combustion in the flare pilots are estimated using the natural gas default factors for VOC, SO_x, and PM₁₀ from SCAQMD's Annual Emissions Reporting Program online help document (available online at <http://www.aqmd.gov/webappl/Help/AER/index.html>): Default Emission Factors for External Combustion Equipment for Forms B1 and B1U (for all sizes); Natural Gas, Other Equipment. PM_{2.5} is calculated using PM profiles in the California Emission Inventory Data and Reporting System (CEIDARS) developed by the CARB, assuming Incinerator, afterburner, flare - Gaseous fuel (SCAQMD. 2006. Final - Methodology to calculate PM2.5 and PM2.5 Significance Thresholds. Appendix A).

2. Toxic pollutant emissions from combustion of natural gas in the flare pilots are estimated using default emission factors for natural gas combustion in "Flare, Non-Refinery", which are contained in Table B-1 of SCAQMD's "Supplemental Instructions - New Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory".

Appendix B

Table A-5. Project Criteria Pollutant Emissions - Polymer Hopper for Slurry System

Operating Schedule	hours/day	days/week	weeks/year	days/month
Average	1	6	50	26
Maximum	1	6	50	26

Throughput¹

Polymer	Batch/year	lb/batch	hr/batch	lb/year	lb/day	lb/hr
Average	80	25	1	2,000	7	7
Maximum	80	25	1	2,000	7	7

PM Emission Factor²

Manual Dump PM Emissions, Uncontrolled		Manual Dump PM ₁₀ Emissions, Uncontrolled		Manual Dump PM _{2.5} Emissions, Uncontrolled	
0.18	lb/ton	0.059	lb/ton	0.010	lb/ton

Integral Dust Collector Parameters³

Capture Efficiency	90%
Flowrate to Air Filter (SCFM)	1050
Control Efficiency	99%

Emissions from the Slurry System Polymer Hopper

Pollutant	Maximum Daily Controlled (lbs/day)	Average Annual (lbs/yr)
PM	6.54E-05	1.96E-02
PM ₁₀	2.14E-05	6.43E-03
PM _{2.5}	3.63E-06	1.09E-03

Notes:

1. Internal communication with SPEC Services, polymer will be loaded 80 batch/year and 25 lb/batch.
2. Total PM, PM₁₀ and PM_{2.5} emission factors are from AP-42 Table 9.9.1-1 (SCC 3-02-005-51). Assume polymer loading characteristics similar to loading grain from straight truck (most conservative).
3. The integral dust collector on the polymer hopper is assumed to have 90% capture efficiency and 99% control efficiency.

Appendix B

Table A-6A. Project Criteria Pollutant Emissions - Carbon Adsorber Unit For Slurry System

Operating Schedule	hours/day	days/week	weeks/year	days/month	days/year
Average	24	7	52	30	365
Maximum	24	7	52	30	365

Throughput ¹	MSCFD	SCFM
Gas	1.383	0.96

MSCDF: Thousand Standard Cubic Feet Per Day; SCFM: Standard Cubit Feet Per Minute

Emissions from the Slurry Injection Tanks

Pollutant	Maximum Daily Controlled (lbs/day)	Average Annual (lbs/yr)
VOC	0.014	5.2

Calculation Factors

1% Produced Gas Concentration by Volume
 385 scf/lb-mol; Molar Volume of Produced Gas
 0.0015 lb-mol/hr; Molar Flow Rate of Produced Gas
 23.30 lb/lbmol; Weighted Molecular Weight Based on Gas Composition²
 0.035 lb/hr THC; Mass Flow Rate of Produced Gas
 34.27% % VOC in THC, by weight²
 95% Carbon Adsorber Control Efficiency³

Notes:

1. The total gas throughput is based on the material balance provided by SPEC Services.
2. Gas composition is assumed to be similar to wet gas composition (provided by SPEC Services on 05/12/2011).
3. Conservatively estimated based on engineering judgement.

Table A-6B. Project TAC Emissions - Carbon Adsorber Unit For Slurry System

List of TACs	CAS#	Mass % of TAC in Produced Gas¹ (%)	Maximum Daily Controlled (lb/day)	Average Annual (lb/yr)
n-Hexane	110-54-3	3.94%	1.65E-03	6.00E-01
Benzene	71-43-2	0.42%	1.75E-04	6.38E-02
Ethyl Benzene	100-41-4	0.10%	4.07E-05	1.48E-02
Toluene	108-88-3	0.75%	3.12E-04	1.14E-01
Xylene	1330-20-7	0.63%	2.65E-04	9.66E-02

Notes:

1. Gas composition based on wet gas composition provided by SPEC Services on 05/12/2011.

Table A-7. Project Criteria Pollutant and TAC Emissions - Process Heater

Pollutant ¹	CAS	Emission Factor ^{1, 2}	Maximum Daily Controlled	Average Annual
		lb/MMscf	lbs/day	lbs/yr
VOC	-	7.00	1.46	178.85
CO	-	85.06	17.75	2,173.19
NO _x	-	12.58	2.62	321.32
SO _x	-	0.60	0.13	15.33
PM ₁₀	-	7.50	1.57	191.63
PM _{2.5}	--	--	1.53	187.60
Benzene	71432	0.0058	1.21E-03	0.15
Formaldehyde	50000	0.0123	2.57E-03	0.31
Total PAHs (exclude naphthalene)	1151	0.00010	2.09E-05	0.00
Naphthalene	91203	0.00030	6.26E-05	0.01
Acetaldehyde	75070	0.00310	6.47E-04	0.08
Acrolein	107028	0.00270	5.63E-04	0.07
Ammonia	7664417	3.20000	6.68E-01	81.76
Ethyl Benzene	100414	0.00690	1.44E-03	0.18
Hexane	110543	0.00460	9.60E-04	0.12
Toluene	108883	0.02650	5.53E-03	0.68
Xylene	1330207	0.01970	4.11E-03	0.50

Operation Hours

Maximum: 24 hr/day
365 days/year

Average: 24 hr/day
365 days/year

Calculation Factors

10 MMBtu/hr, Maximum Load ³
3.4 MMBtu/hr, Average Load
145 scfm; Maximum flow rate to process heater
208,696 scfd; Maximum flow rate to process heater
9 ppmvd @3% O₂; manufacturer guaranteed NO_x concentration⁴
100 ppmvd @3% O₂; manufacturer guaranteed CO concentration⁴
8,710 scf/MMBtu (HHV); F_d factor for Natural Gas at 0%O₂
1,150 MMBTU/refinery gas MMcf, High Heat Value of Refinery Gas⁵
20.90% Oxygen in ambient air
3% Oxygen level for ppm limit
385 cubic feet/lb-mole
46 lb/lb-mole; Mol. Weight of NO₂
28 lb/lb-mole; Mol. Weight of CO

Notes:

1. Criteria pollutant emissions from natural gas combustion in the process heater are estimated using the natural gas default factors for VOC, SO_x, and PM₁₀ from SCAQMD's Annual Emissions Reporting Program online help document (available online at <http://www.aqmd.gov/webappl/Help/AER/index.html>): Default Emission Factors for External Combustion Equipment for Forms B1 and B1U (for all sizes); Non-major source BACT determination (SCAQMD) for NO_x and CO concentrations were used to calculate NO_x and CO emissions for the process heater, respectively. PM_{2.5} is calculated using PM profiles in the California Emission Inventory Data and Reporting System (CEIDARS) developed by the CARB, assuming External Combustion - Gaseous Fuel - Petroleum and Industrial Process Heater Only (SCAQMD. 2006. Final - Methodology to calculate PM_{2.5} and PM_{2.5} Significance Thresholds. Appendix A).

2. Toxic pollutant emissions from combustion of natural gas in the process heater are estimated using default emission factors for natural gas combustion in "External Combustion Equipment", which are contained in Table B-1 of SCAQMD's "Supplemental Instructions - New Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory".

3. Process heater maximum rating is provided by SPEC Services.

4. NO_x and CO emissions are assumed to be 9 and 100 ppmvd at 3%O₂ based on non-major source BACT determination (SCAQMD). Rules 1146 and 1146.1 require that boilers rated >2 and <75 MMBtu/hr meet 9 ppm NO_x beginning 1/1/2012.

5. High Heating Value for Refinery gas is 1,150 Btu/scf, based on SCAQMD Rule 2012A-3, Table 3D.

Table A-8A. Project Criteria Pollutant Emissions - Truck Loading

Truck Loading Rack Operating Schedule ¹

Duration	# Truck/day	hours/load	hours/day	days/week	weeks/year	days/month
Average	2	1	2	7	52	30
Maximum	2	1	2	7	52	30

Propellant Tank Filling Losses - Hose Connector² Parameters

Duration	Trucks Per Year	Length of Connector (in)	Diameter of Connector (in)	Volume Pipe (ft ³)	Volume Pipe (gal)
Average	728	0.63	2.25	1.44E-03	0.01
Maximum	728	0.63	2.25	1.44E-03	0.01

Total Propellant Tank Filling Losses³

Duration	Total Emissions (lb/year)	Emissions (lbs/day)
Average	35.47	0.10
Maximum	35.47	0.10

NGL Emissions from the Truck Loading Rack

Truck Loading Parameter	Maximum Daily (lbs/day)	Average Annual (lb/yr)
NGL	0.10	35.5
Total	0.10	35.5

VOC Emissions from the Truck Loading Rack ³

Truck Loading Parameter	MDC lbs/day	Average Annual lbs/yr
VOC	0.09	33.5
Total	0.09	33.5

Conversion Factor7.48 gallon/ft³

4.53 lb/gal, LPG density at 60°F.

Notes:

1. Assumption of 2 trucks per day and one hour operation per loading from SPEC Services on 05/25/2011.
2. As the trucks fill the tanks with propellant, any vapor created in the liquid may escape the sealed connectors. VOC emissions are assumed to come from any liquid left in the connector. The hose will be sealed with the connect and will not emit any VOCs.
3. VOC percentage is THC less methane, ethane, CO₂, water, O₂ and N₂ as provided by SPEC Services (May 12, 2011 Composition).

Table A-8B. Project TAC Emissions - Truck Loading

List of TACs	CAS#	Mass % of TAC in Produced Gas ¹ (%)	MHU lb/hr	MHC lb/hr	Maximum Daily lb/day	Average Annual lb/yr
Ethylene Glycol	107-21-1	0.00048%	2.34E-07	2.34E-07	4.67E-07	1.70E-04
n-Hexane	110-54-3	2.29%	1.12E-03	1.12E-03	2.23E-03	8.13E-01
Benzene	71-43-2	0.42%	2.04E-04	2.04E-04	4.08E-04	1.49E-01
Ethyl Benzene	100-41-4	0.10%	4.74E-05	4.74E-05	9.47E-05	3.45E-02
Toluene	108-88-3	0.75%	3.64E-04	3.64E-04	7.27E-04	2.65E-01
Xylene	1330-20-7	0.63%	3.09E-04	3.09E-04	6.18E-04	2.25E-01

Notes:

1. Gas composition as provided by SPEC Services (May 12, 2011 Composition). We have assumed the BTEX composition of the raw produced gas based on the relative volatility and hydrocarbon content as provided by SPEC.

Table A-9A. Project Criteria Pollutant and TAC Emissions - Emergency Generators (Total)

Pollutant	CAS	Maximum Daily Emissions	Annual Average Emissions
		lbs/day	lbs/yr
VOC ⁴	-	0.13	6.67
CO ⁴	-	0.88	51.46
NO _x ⁴	-	4.76	240.60
SO _x ¹	-	0.21	10.59
PM ₁₀ ⁴	-	0.08	4.43
PM _{2.5}		0.08	4.33
Benzene	71432	5.41E-03	2.78E-01
1,3-Butadiene	106990	6.31E-03	3.24E-01
Cadmium	7440439	4.36E-05	2.24E-03
Formaldehyde	50000	5.01E-02	2.57E+00
Hexavalent chromium	18540299	2.90E-06	1.49E-04
Arsenic	7440382	4.65E-05	2.39E-03
Lead	7439921	2.41E-04	1.24E-02
Nickel	7440020	1.13E-04	5.82E-03
Naphthalene	91203	5.72E-04	2.94E-02
Total PAHs (exclude Naphthalene)	1151	1.05E-03	5.40E-02
Acetaldehyde	75070	2.27E-02	1.17E+00
Acrolein	107028	9.84E-04	5.06E-02
Ammonia	7664417	2.32E-02	1.19E+00
Copper	7440508	1.19E-04	6.11E-03
Ethyl Benzene	100414	3.16E-04	1.63E-02
Hexane	110543	7.81E-04	4.01E-02
Hydrogen Chloride	7647010	5.41E-03	2.78E-01
Manganese	7439965	9.00E-05	4.62E-03
Mercury	7439976	5.81E-05	2.98E-03
Selenium	7782492	6.39E-05	3.28E-03
Toluene	108883	3.06E-03	1.57E-01
Xylene	1330207	1.23E-03	6.32E-02
Diesel exhaust particulates	9901	8.26E-02	4.43E+00

Table A-9B. Project Criteria Pollutant and TAC Emissions - Emergency Generators (1000 kW)

Appendix B

Pollutant	CAS	Emission Factor ²	Emission Factor	Maximum Daily Emissions	Annual Average Emissions
		lb/mgal	lb/hr	lbs/day	lbs/yr
VOC ⁴	-	-	0.33	0.10	4.97
CO ⁴	-	-	1.13	0.36	16.89
NO _x ⁴	-	-	12.45	3.94	186.76
SO _x ¹	-	7.10	0.51	0.16	7.67
PM ₁₀ ⁴	-	-	0.17	0.05	2.58
PM _{2.5} ^{1, 4}	-	-	0.17	0.05	2.52
Benzene	71432	0.1863	0.0134	4.25E-03	2.01E-01
1,3-Butadiene	106990	0.2174	0.0157	4.96E-03	2.35E-01
Cadmium	7440439	0.0015	0.0001	3.42E-05	1.62E-03
Formaldehyde	50000	1.7261	0.1243	3.94E-02	1.86E+00
Hexavalent chromium	18540299	0.0001	0.0000	2.28E-06	1.08E-04
Arsenic	7440382	0.0016	0.0001	3.65E-05	1.73E-03
Lead	7439921	0.0083	0.0006	1.89E-04	8.96E-03
Nickel	7440020	0.0039	0.0003	8.89E-05	4.21E-03
Naphthalene	91203	0.0197	0.0014	4.49E-04	2.13E-02
Total PAHs (exclude Naphthalene)	1151	0.0362	0.0026	8.25E-04	3.91E-02
Acetaldehyde	75070	0.7833	0.0564	1.79E-02	8.46E-01
Acrolein	107028	0.0339	0.0024	7.73E-04	3.66E-02
Ammonia	7664417	0.8000	0.0576	1.82E-02	8.64E-01
Copper	7440508	0.0041	0.0003	9.35E-05	4.43E-03
Ethyl Benzene	100414	0.0109	0.0008	2.49E-04	1.18E-02
Hexane	110543	0.0269	0.0019	6.13E-04	2.91E-02
Hydrogen Chloride	7647010	0.1863	0.0134	4.25E-03	2.01E-01
Manganese	7439965	0.0031	0.0002	7.07E-05	3.35E-03
Mercury	7439976	0.0020	0.0001	4.56E-05	2.16E-03
Selenium	7782492	0.0022	0.0002	5.02E-05	2.38E-03
Toluene	108883	0.1054	0.0076	2.40E-03	1.14E-01
Xylene	1330207	0.0424	0.0031	9.67E-04	4.58E-02
Diesel exhaust particulates	9901	-	0.17	5.45E-02	2.58E+00

Operating Schedule	Minutes/ hour	hours/ day	days/ week	weeks/ year	hours/ year
Maximum	19	0.3	3	52	15
Average	19	0.3	3	52	15

Calculation Factors

1502 bhp, ICE Rating ⁵
 0.072 mgal/hr; Maximum fuel flow rate ³
 0.1 g/bhp-hr, HC emission rate ⁴
 0.34 g/bhp-hr, CO emission rate ⁴
 3.76 g/bhp-hr, NOX emission rate ⁴
 0.052 g/bhp-hr, PM emission rate ⁴
 137 MMBtu/mgal (HHV of diesel) ⁶
 60 min/hr
 453.59 g/lb

Notes:

1. The SO_x emission factor is based on the default emission factor from SCAQMD's Annual Emissions Reporting Program online help document (available online at <http://www.aqmd.gov/webappl/Help/AER/index.html>): Default Emission Factors for Diesel/Distillate Oil (1000 gal.) / All ICEs & Micro Turbine. PM_{2.5} is calculated using PM profiles in the California Emission Inventory Data and Reporting System (CEIDARS) developed by the CARB, assuming Internal Combustion: Distillate and diesel - Electrical Generation (SCAQMD. 2006. Final - Methodology to calculate PM_{2.5} and PM_{2.5} Significance Thresholds. Appendix A).
2. Toxic pollutant emissions from combustion of diesel in the emergency generator are estimated using default emission factors for diesel combustion in "Stationary and Portable Internal
3. Based on manufacturer specifications: Caterpillar® C-32 (1000 KW). 72 gal/hr at 100% Load
4. Based on emission factors from SCAQMD precertified ICE list for Caterpillar® C-32 (1000 KW),
5. Maximum rating in bhp is obtained from SCAQMD precertified ICE list for Caterpillar® C-32 (1000
6. High Heating Value for diesel is based on SCAQMD Rule 2012A-3, Table 3D.

Table A-9C. Project Criteria Pollutant and TAC Emissions - Emergency Generators (500 kW)

Pollutant	CAS	Emission Factor ^{1,2}	Emission Factor	Maximum Daily Emissions	Annual Average Emissions
		lb/mgal	lb/hr	lbs/day	lbs/yr
VOC ³	-	-	0.15	0.03	1.70
CO ³	-	-	3.14	0.52	34.57
NO _x ³	-	-	4.89	0.82	53.84
SO _x ¹	-	7.10	0.27	0.04	2.92
PM ₁₀ ³	-	-	0.17	0.03	1.85
PM _{2.5} ^{1, 3}	-	-	0.16	0.03	1.81
Benzene	71432	0.1863	0.0070	1.16E-03	7.66E-02
1,3-Butadiene	106990	0.2174	0.0081	1.36E-03	8.94E-02
Cadmium	7440439	0.0015	0.0001	9.35E-06	6.17E-04
Formaldehyde	50000	1.7261	0.0646	1.08E-02	7.10E-01
Hexavalent chromium	18540299	0.0001	0.0000	6.23E-07	4.11E-05
Arsenic	7440382	0.0016	0.0001	9.97E-06	6.58E-04
Lead	7439921	0.0083	0.0003	5.17E-05	3.41E-03
Nickel	7440020	0.0039	0.0001	2.43E-05	1.60E-03
Naphthalene	91203	0.0197	0.0007	1.23E-04	8.10E-03
Total PAHs (exclude Naphthalene)	1151	0.0362	0.0014	2.26E-04	1.49E-02
Acetaldehyde	75070	0.7833	0.0293	4.88E-03	3.22E-01
Acrolein	107028	0.0339	0.0013	2.11E-04	1.39E-02
Ammonia	7664417	0.8000	0.0299	4.99E-03	3.29E-01
Copper	7440508	0.0041	0.0002	2.56E-05	1.69E-03
Ethyl Benzene	100414	0.0109	0.0004	6.79E-05	4.48E-03
Hexane	110543	0.0269	0.0010	1.68E-04	1.11E-02
Hydrogen Chloride	7647010	0.1863	0.0070	1.16E-03	7.66E-02
Manganese	7439965	0.0031	0.0001	1.93E-05	1.28E-03
Mercury	7439976	0.0020	0.0001	1.25E-05	8.23E-04
Selenium	7782492	0.0022	0.0001	1.37E-05	9.05E-04
Toluene	108883	0.1054	0.0039	6.57E-04	4.34E-02
Xylene	1330207	0.0424	0.0016	2.64E-04	1.74E-02
Diesel exhaust particulates ³	9901	-	0.17	2.81E-02	1.85E+00

Operating Schedule	Minutes/	hours/ day	days/ week	weeks/ year	hours/ year
Maximum	10	0.2	3	52	11
Average	10	0.2	3	52	11

Calculation Factors

779 bhp, ICE Rating ⁵
 0.037 mgal/hr; Maximum fuel flow rate ³
 137 MMBtu/mgal (HHV of diesel) ⁶
 0.09 g/bhp-hr, HC emission rate ⁴
 1.83 g/bhp-hr, CO emission rate ⁴
 2.85 g/bhp-hr, NOX emission rate ⁴
 0.098 g/bhp-hr, PM emission rate ⁴
 60 min/hr
 453.59 g/lb

Notes:

1. All criteria pollutant emissions are based upon manufacturer stated emission rates under 100% load, except SO_x. The SO_x emission factor is based on the default emission factor from SCAQMD's Annual Emissions Reporting Program online help document (available online at <http://www.aqmd.gov/webappl/Help/AER/index.html>): Default Emission Factors for Diesel/Distillate Oil (1000 gal.) / All ICEs & Micro Turbine. PM_{2.5} is calculated using PM profiles in the California Emission Inventory Data and Reporting System (CEIDARS) developed by the CARB, assuming Internal Combustion: Distillate and diesel - Electrical Generation (SCAQMD. 2006. Final - Methodology to calculate PM_{2.5} and PM_{2.5} Significance Thresholds. Appendix A).

2. Toxic pollutant emissions from combustion of diesel in the emergency generator are estimated using default emission factors for diesel combustion in "Stationary and Portable Internal Combustion

3. Based on manufacturer specifications: Caterpillar® C-15 500kW, 779 bhp

4. Based on emission factors from SCAQMD precertified ICE list for Caterpillar® C-15 500kW, A/N # 452054

5. Maximum rating in bhp is obtained from SCAQMD precertified ICE list for Caterpillar® C-15 500kW, A/N # 452054

6. High Heating Value for diesel is 37.4 gal/hr, based on SCAQMD Rule 2012A-3, Table 3D.

Appendix B

Table A-10A. Project Criteria Pollutant Emissions - Carbon Adsorber Unit For Sump Water

Operating Schedule	hours/day	days/week	weeks/year	days/month
Average	24	7	52	30
Maximum	24	7	52	30

Throughput ¹	MSCFD	SCFM
Gas	1.383	0.96

MSCDF: Thousand Standard Cubic Feet Per Day; SCFM: Standard Cubic Feet Per Minute

Emissions from the Slurry Injection Tanks

Pollutant	Maximum Daily Controlled (lbs/day)	Average Annual (lbs/yr)
VOC	0.014	5.2

Calculation Factors

1% Produced Gas Concentration by Volume
 385 scf/lb-mol; Molar Volume of Produced Gas
 0.0015 lb-mol/hr; Molar Flow Rate of Produced Gas
 23.30 lb/lbmol; Weighted Molecular Weight Based on Gas Composition²
 0.035 lb/hr THC; Mass Flow Rate of Produced Gas
 34.27% % VOC in THC, by weight²
 95% Carbon Adsorber Control Efficiency³

Notes:

1. The total gas throughput is based on the material balance provided by SPEC Services.
2. Gas composition is assumed to be similar to wet gas composition (provided by SPEC Services on 05/12/2011).
3. Conservatively estimated based on engineering judgement

Appendix B

Table A-10B. Project TAC Emissions - Carbon Adsorber Unit For Sump Water

List of TACs	CAS#	Mass % of TAC in Produced Gas (%)	Maximum Daily Controlled (lb/day)	Average Annual (lb/yr)
Ethylene Glycol	107-21-1	0.00%	0.00E+00	0.00E+00
n-Hexane	110-54-3	3.94%	1.65E-03	6.00E-01
Benzene	71-43-2	0.42%	1.75E-04	6.38E-02
Ethyl Benzene	100-41-4	0.10%	4.07E-05	1.48E-02
Toluene	108-88-3	0.75%	3.12E-04	1.14E-01
Xylene	1330-20-7	0.63%	2.65E-04	9.66E-02

Notes:

1. Gas composition based on wet gas composition provided by SPEC Services on 05/12/2011.

Table A-11A. Project Criteria Pollutant Emissions - Fugitives (Crude Oil Tank)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Heavy Hydrocarbon	14	3.1E-05	1.0E-02	3.8E+00	1.0E-02	3.8E+00
	Light Hydrocarbon	409	4.2E-05	4.1E-01	1.5E+02	3.9E-01	1.4E+02
	Gas	180	7.7E-05	3.3E-01	1.2E+02	2.5E-02	9.0E+00
	Total			7.6E-01	2.8E+02	4.2E-01	1.6E+02
Pumps Seals	Light Hydrocarbon	24	5.8E-04	3.3E-01	1.2E+02	3.2E-01	1.2E+02
	Total			3.3E-01	1.2E+02	3.2E-01	1.2E+02
Threaded Conn	Heavy Hydrocarbon	28	1.8E-05	1.2E-02	4.4E+00	1.2E-02	4.4E+00
	Light Hydrocarbon	818	2.2E-05	4.3E-01	1.6E+02	4.1E-01	1.5E+02
	Gas	360	2.6E-05	2.2E-01	8.2E+01	1.7E-02	6.1E+00
	Total			6.7E-01	2.4E+02	4.4E-01	1.6E+02
Flanges	Heavy Hydrocarbon	70	5.1E-05	8.6E-02	3.1E+01	8.6E-02	3.1E+01
	Light Hydrocarbon	657	5.3E-05	8.4E-01	3.1E+02	7.9E-01	2.9E+02
	Gas	307	6.2E-05	4.6E-01	1.7E+02	3.4E-02	1.2E+01
	Total			1.4E+00	5.0E+02	9.1E-01	3.3E+02
Other	Heavy Hydrocarbon	14	1.3E-04	4.4E-02	1.6E+01	4.4E-02	1.6E+01
	Light Hydrocarbon	30	2.9E-04	2.1E-01	7.6E+01	2.0E-01	7.2E+01
	Gas	35	3.2E-04	2.7E-01	9.8E+01	2.0E-02	7.3E+00
	Total			5.2E-01	1.9E+02	2.6E-01	9.5E+01
Grand Total				3.66E+00	1.33E+03	2.35E+00	8.57E+02

Maximum Operating Schedule:

24 hr/day
365 day/year

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11B. Project Criteria Pollutant Emissions - Fugitives (Wet Oil Tank)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Light Hydrocarbon	41	4.2E-05	4.1E-02	1.5E+01	3.9E-02	1.4E+01
	Gas	25	7.7E-05	4.6E-02	1.7E+01	3.4E-03	1.3E+00
	Total			8.8E-02	3.2E+01	4.2E-02	1.6E+01
Pumps Seals	Light Hydrocarbon	4	5.8E-04	5.6E-02	2.0E+01	5.3E-02	1.9E+01
	Total			5.6E-02	2.0E+01	5.3E-02	1.9E+01
Threaded Conn	Light Hydrocarbon	82	2.2E-05	4.3E-02	1.6E+01	4.1E-02	1.5E+01
	Gas	50	2.6E-05	3.1E-02	1.1E+01	2.3E-03	8.4E-01
	Total			7.4E-02	2.7E+01	4.3E-02	1.6E+01
Flanges	Light Hydrocarbon	65	5.3E-05	8.3E-02	3.0E+01	7.8E-02	2.9E+01
	Gas	25	6.2E-05	3.7E-02	1.4E+01	2.8E-03	1.0E+00
	Total			1.2E-01	4.4E+01	8.1E-02	3.0E+01
Other	Light Hydrocarbon	2	2.9E-04	1.4E-02	5.1E+00	1.3E-02	4.8E+00
	Gas	3	3.2E-04	2.3E-02	8.4E+00	1.7E-03	6.2E-01
	Total			3.7E-02	1.3E+01	1.5E-02	5.4E+00
Grand Total				3.75E-01	1.37E+02	2.34E-01	8.55E+01

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Maximum Operating Schedule:

24 hr/day

365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11C. Project Criteria Pollutant Emissions- Fugitives (Swing Tank)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Light Hydrocarbon	25	4.2E-05	2.5E-02	9.2E+00	2.4E-02	8.7E+00
	Gas	25	7.7E-05	4.6E-02	1.7E+01	3.4E-03	1.3E+00
		Total		7.1E-02	2.6E+01	2.7E-02	9.9E+00
Threaded Conn	Light Hydrocarbon	50	2.2E-05	2.6E-02	9.6E+00	2.5E-02	9.1E+00
	Gas	50	2.6E-05	3.1E-02	1.1E+01	2.3E-03	8.4E-01
		Total		5.8E-02	2.1E+01	2.7E-02	1.0E+01
Flanges	Light Hydrocarbon	25	5.3E-05	3.2E-02	1.2E+01	3.0E-02	1.1E+01
	Gas	25	6.2E-05	3.7E-02	1.4E+01	2.8E-03	1.0E+00
		Total		6.9E-02	2.5E+01	3.3E-02	1.2E+01
Other	Gas	3	3.2E-04	2.3E-02	8.4E+00	1.7E-03	6.2E-01
		Total		2.3E-02	8.4E+00	1.7E-03	6.2E-01
Grand Total				2.21E-01	8.07E+01	8.90E-02	3.25E+01

Maximum Operating Schedule:

24 hr/day

365 day/year

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11D. Project Criteria Pollutant Emissions - Fugitives (Vapor Recovery)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Light Hydrocarbon	96	4.2E-05	9.7E-02	3.5E+01	9.1E-02	3.3E+01
	Gas	96	7.7E-05	1.8E-01	6.5E+01	1.3E-02	4.8E+00
	Total			2.7E-01	1.0E+02	1.0E-01	3.8E+01
Pumps Seals	Light Hydrocarbon	4	5.8E-04	5.6E-02	2.0E+01	5.3E-02	1.9E+01
	Total			5.6E-02	2.0E+01	5.3E-02	1.9E+01
Threaded Conn	Light Hydrocarbon	192	2.2E-05	1.0E-01	3.7E+01	9.6E-02	3.5E+01
	Gas	192	2.6E-05	1.2E-01	4.4E+01	8.9E-03	3.2E+00
	Total			2.2E-01	8.1E+01	1.0E-01	3.8E+01
Flanges	Light Hydrocarbon	116	5.3E-05	1.5E-01	5.4E+01	1.4E-01	5.1E+01
	Gas	96	6.2E-05	1.4E-01	5.2E+01	1.1E-02	3.9E+00
	Total			2.9E-01	1.1E+02	1.5E-01	5.5E+01
Other	Light Hydrocarbon	14	2.9E-04	9.7E-02	3.6E+01	9.2E-02	3.4E+01
	Gas	16	3.2E-04	1.2E-01	4.5E+01	9.1E-03	3.3E+00
	Total			2.2E-01	8.0E+01	1.0E-01	3.7E+01
Grand Total				1.06E+00	3.88E+02	5.13E-01	1.87E+02

Maximum Operating Schedule:

24 hr/day

365 day/year

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11E. Project Criteria Pollutant Emissions- Fugitives (Gas Processing)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Light Hydrocarbon	142	4.2E-05	1.4E-01	5.2E+01	1.4E-01	4.9E+01
	Gas	254	7.7E-05	4.7E-01	1.7E+02	3.5E-02	1.3E+01
	Total			6.1E-01	2.2E+02	1.7E-01	6.2E+01
Threaded Conn	Light Hydrocarbon	284	2.2E-05	1.5E-01	5.5E+01	1.4E-01	5.2E+01
	Gas	508	2.6E-05	3.2E-01	1.2E+02	2.4E-02	8.6E+00
	Total			4.7E-01	1.7E+02	1.7E-01	6.0E+01
Flanges	Light Hydrocarbon	154	5.3E-05	2.0E-01	7.1E+01	1.9E-01	6.8E+01
	Gas	340	6.2E-05	5.1E-01	1.8E+02	3.8E-02	1.4E+01
	Total			7.0E-01	2.6E+02	2.2E-01	8.1E+01
Other	Light Hydrocarbon	9	2.9E-04	6.3E-02	2.3E+01	5.9E-02	2.2E+01
	Gas	11	3.2E-04	8.4E-02	3.1E+01	6.3E-03	2.3E+00
	Total			1.5E-01	5.4E+01	6.5E-02	2.4E+01
Grand Total				1.93E+00	7.04E+02	6.23E-01	2.28E+02

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Maximum Operating Schedule:

24 hr/day

365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11F. Project Criteria Pollutant Emissions - Fugitives (NGL Tank #1)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Light Hydrocarbon	18	4.2E-05	1.8E-02	6.6E+00	1.7E-02	6.3E+00
	Gas	10	7.7E-05	1.8E-02	6.7E+00	1.4E-03	5.0E-01
	Total			3.7E-02	1.3E+01	1.9E-02	6.8E+00
Pumps Seals	Light Hydrocarbon	2	5.8E-04	2.8E-02	1.0E+01	2.6E-02	9.6E+00
	Total			2.8E-02	1.0E+01	2.6E-02	9.6E+00
Threaded Conn	Light Hydrocarbon	36	2.2E-05	1.9E-02	6.9E+00	1.8E-02	6.6E+00
	Gas	20	2.6E-05	1.2E-02	4.6E+00	9.3E-04	3.4E-01
	Total			3.1E-02	1.1E+01	1.9E-02	6.9E+00
Flanges	Light Hydrocarbon	30	5.3E-05	3.8E-02	1.4E+01	3.6E-02	1.3E+01
	Gas	10	6.2E-05	1.5E-02	5.4E+00	1.1E-03	4.0E-01
	Total			5.3E-02	1.9E+01	3.7E-02	1.4E+01
Other	Light Hydrocarbon	2	2.9E-04	1.4E-02	5.1E+00	1.3E-02	4.8E+00
	Gas	1	3.2E-04	7.7E-03	2.8E+00	5.7E-04	2.1E-01
	Total			2.2E-02	7.9E+00	1.4E-02	5.0E+00
Grand Total				1.71E-01	6.23E+01	1.15E-01	4.18E+01

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Maximum Operating Schedule:

24 hr/day

365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11G. Project Criteria Pollutant Emissions - Fugitives (NGL Tank #2)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Light Hydrocarbon	18	4.2E-05	1.8E-02	6.6E+00	1.7E-02	6.3E+00
	Gas	10	7.7E-05	1.8E-02	6.7E+00	1.4E-03	5.0E-01
	Total			3.7E-02	1.3E+01	1.9E-02	6.8E+00
Pumps Seals	Light Hydrocarbon	2	5.8E-04	2.8E-02	1.0E+01	2.6E-02	9.6E+00
	Total			2.8E-02	1.0E+01	2.6E-02	9.6E+00
Threaded Conn	Light Hydrocarbon	36	2.2E-05	1.9E-02	6.9E+00	1.8E-02	6.6E+00
	Gas	20	2.6E-05	1.2E-02	4.6E+00	9.3E-04	3.4E-01
	Total			3.1E-02	1.1E+01	1.9E-02	6.9E+00
Flanges	Light Hydrocarbon	30	5.3E-05	3.8E-02	1.4E+01	3.6E-02	1.3E+01
	Gas	10	6.2E-05	1.5E-02	5.4E+00	1.1E-03	4.0E-01
	Total			5.3E-02	1.9E+01	3.7E-02	1.4E+01
Other	Light Hydrocarbon	2	2.9E-04	1.4E-02	5.1E+00	1.3E-02	4.8E+00
	Gas	1	3.2E-04	7.7E-03	2.8E+00	5.7E-04	2.1E-01
	Total			2.2E-02	7.9E+00	1.4E-02	5.0E+00
Grand Total				1.71E-01	6.23E+01	1.15E-01	4.18E+01

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Maximum Operating Schedule:

24 hr/day

365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11H. Project Criteria Pollutant Emissions - Fugitives (Emergency Flare)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Light Hydrocarbon	5	4.2E-05	5.0E-03	1.8E+00	4.8E-03	1.7E+00
	Gas	36	7.7E-05	6.7E-02	2.4E+01	4.9E-03	1.8E+00
		Total		7.2E-02	2.6E+01	9.7E-03	3.5E+00
Threaded Conn	Light Hydrocarbon	10	2.2E-05	5.3E-03	1.9E+00	5.0E-03	1.8E+00
	Gas	72	2.6E-05	4.5E-02	1.6E+01	3.3E-03	1.2E+00
		Total		5.0E-02	1.8E+01	8.3E-03	3.0E+00
Flanges	Light Hydrocarbon	5	5.3E-05	6.4E-03	2.3E+00	6.0E-03	2.2E+00
	Gas	23	6.2E-05	3.4E-02	1.2E+01	2.5E-03	9.3E-01
		Total		4.1E-02	1.5E+01	8.5E-03	3.1E+00
Grand Total				1.62E-01	5.93E+01	2.66E-02	9.70E+00

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt	Maximum Operating Schedule:
Gas Stream	7.41%	80.04%	2.68%	24 hr/day
Light Hydrocarbon	94.52%	0.00%	0.00%	365 day/year
Heavy Hydrocarbon	100.00%	0.00%	0.00%	

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11I. Project Criteria Pollutant Emissions - Fugitives (Carbon Adsorber - Slurry System)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Gas	4	7.7E-05	7.4E-03	2.7E+00	5.5E-04	2.0E-01
		Total		7.4E-03	2.7E+00	5.5E-04	2.0E-01
Threaded Conn	Gas	8	2.6E-05	5.0E-03	1.8E+00	3.7E-04	1.4E-01
		Total		5.0E-03	1.8E+00	3.7E-04	1.4E-01
Flanges	Gas	4	6.2E-05	6.0E-03	2.2E+00	4.4E-04	1.6E-01
		Total		6.0E-03	2.2E+00	4.4E-04	1.6E-01
Grand Total				1.83E-02	6.69E+00	1.36E-03	4.96E-01

Maximum Operating Schedule:

24 hr/day
365 day/year

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11J. Project Criteria Pollutant Emissions - Fugitives (Process Heater)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Heavy Hydrocarbon	28	3.1E-05	2.1E-02	7.6E+00	2.1E-02	7.6E+00
	Gas	20	7.7E-05	3.7E-02	1.3E+01	2.7E-03	1.0E+00
		Total		5.8E-02	2.1E+01	2.4E-02	8.6E+00
Threaded Conn	Heavy Hydrocarbon	56	1.8E-05	2.4E-02	8.8E+00	2.4E-02	8.8E+00
	Gas	40	2.6E-05	2.5E-02	9.1E+00	1.9E-03	6.8E-01
		Total		4.9E-02	1.8E+01	2.6E-02	9.5E+00
Flanges	Heavy Hydrocarbon	30	5.1E-05	3.7E-02	1.3E+01	3.7E-02	1.3E+01
		Total		3.7E-02	1.3E+01	3.7E-02	1.3E+01
Other	Heavy Hydrocarbon	4	1.3E-04	1.2E-02	4.6E+00	1.2E-02	4.6E+00
		Total		1.2E-02	4.6E+00	1.2E-02	4.6E+00
Grand Total				1.56E-01	5.70E+01	9.88E-02	3.61E+01

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Maximum Operating Schedule:

24 hr/day

365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11K. Project Criteria Pollutant Emissions - Fugitives (Truck Loading Rack)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Light Hydrocarbon	13	4.2E-05	1.3E-02	4.8E+00	1.2E-02	4.5E+00
	Gas	4	7.7E-05	7.4E-03	2.7E+00	5.5E-04	2.0E-01
	Total			2.0E-02	7.5E+00	1.3E-02	4.7E+00
Pumps Seals	Light Hydrocarbon	2	5.8E-04	2.8E-02	1.0E+01	2.6E-02	9.6E+00
	Total			2.8E-02	1.0E+01	2.6E-02	9.6E+00
Threaded Conn	Light Hydrocarbon	26	2.2E-05	1.4E-02	5.0E+00	1.3E-02	4.7E+00
	Gas	18	2.6E-05	1.1E-02	4.1E+00	8.3E-04	3.0E-01
	Total			2.5E-02	9.1E+00	1.4E-02	5.0E+00
Flanges	Light Hydrocarbon	15	5.3E-05	1.9E-02	7.0E+00	1.8E-02	6.6E+00
	Gas	5	6.2E-05	7.4E-03	2.7E+00	5.5E-04	2.0E-01
	Total			2.7E-02	9.7E+00	1.9E-02	6.8E+00
Other	Light Hydrocarbon	3	2.9E-04	2.1E-02	7.6E+00	2.0E-02	7.2E+00
	Gas	1	3.2E-04	7.7E-03	2.8E+00	5.7E-04	2.1E-01
	Total			2.9E-02	1.0E+01	2.0E-02	7.4E+00
Grand Total				1.28E-01	4.69E+01	9.19E-02	3.36E+01

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Maximum Operating Schedule:

24 hr/day

365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11L. Project Criteria Pollutant Emissions - Fugitives (Carbon Adsorber - Sump Water)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	THC Emissions (lb/day)	THC Emissions (lb/yr)	VOC Emissions (lb/day)	VOC Emissions (lb/yr)
Valves	Gas	4	7.7E-05	7.4E-03	2.7E+00	5.5E-04	2.0E-01
		Total		7.4E-03	2.7E+00	5.5E-04	2.0E-01
Threaded Conn	Gas	8	2.6E-05	5.0E-03	1.8E+00	3.7E-04	1.4E-01
		Total		5.0E-03	1.8E+00	3.7E-04	1.4E-01
Flanges	Gas	4	6.2E-05	6.0E-03	2.2E+00	4.4E-04	1.6E-01
		Total		6.0E-03	2.2E+00	4.4E-04	1.6E-01
Grand Total				1.83E-02	6.69E+00	1.36E-03	4.96E-01

Maximum Operating Schedule:

24 hr/day
365 day/year

Composition ³	VOC, %wt	CH ₄ , %wt	CO ₂ , %wt
Gas Stream	7.41%	80.04%	2.68%
Light Hydrocarbon	94.52%	0.00%	0.00%
Heavy Hydrocarbon	100.00%	0.00%	0.00%

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11M. Project TAC Emissions - Fugitives (Crude Oil Tank)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Heavy Hydrocarbon	14	3.1E-05	2.5E-03	9.0E-01	4.4E-05	1.6E-02	1.0E-05	3.7E-03	7.8E-05	2.8E-02	6.6E-05	2.4E-02
	Light Hydrocarbon	409	4.2E-05	9.4E-03	3.4E+00	1.7E-03	6.3E-01	4.0E-04	1.5E-01	3.1E-03	1.1E+00	2.6E-03	9.5E-01
	Gas	180	7.7E-05	1.2E-04	4.3E-02	1.2E-04	4.3E-02	9.2E-06	3.4E-03	7.5E-05	2.7E-02	5.2E-05	1.9E-02
		Total		1.2E-02	4.4E+00	1.9E-03	6.9E-01	4.2E-04	1.5E-01	3.2E-03	1.2E+00	2.7E-03	1.0E+00
Pumps Seals	Light Hydrocarbon	24	5.8E-04	7.7E-03	2.8E+00	1.4E-03	5.1E-01	3.2E-04	1.2E-01	2.5E-03	9.1E-01	2.1E-03	7.7E-01
		Total		7.7E-03	2.8E+00	1.4E-03	5.1E-01	3.2E-04	1.2E-01	2.5E-03	9.1E-01	2.1E-03	7.7E-01
Threaded Conn	Heavy Hydrocarbon	28	1.8E-05	2.9E-03	1.0E+00	5.1E-05	1.8E-02	1.2E-05	4.3E-03	9.0E-05	3.3E-02	7.7E-05	2.8E-02
	Light Hydrocarbon	818	2.2E-05	9.9E-03	3.6E+00	1.8E-03	6.6E-01	4.2E-04	1.5E-01	3.2E-03	1.2E+00	2.7E-03	1.0E+00
	Gas	360	2.6E-05	8.0E-05	2.9E-02	7.9E-05	2.9E-02	6.2E-06	2.3E-03	5.0E-05	1.8E-02	3.5E-05	1.3E-02
		Total		1.3E-02	4.7E+00	1.9E-03	7.1E-01	4.4E-04	1.6E-01	3.4E-03	1.2E+00	2.9E-03	1.0E+00
Flanges	Heavy Hydrocarbon	70	5.1E-05	2.0E-02	7.4E+00	3.6E-04	1.3E-01	8.3E-05	3.0E-02	6.4E-04	2.3E-01	5.4E-04	2.0E-01
	Light Hydrocarbon	657	5.3E-05	1.9E-02	7.0E+00	3.5E-03	1.3E+00	8.1E-04	3.0E-01	6.2E-03	2.3E+00	5.3E-03	1.9E+00
	Gas	307	6.2E-05	1.6E-04	6.0E-02	1.6E-04	5.9E-02	1.3E-05	4.6E-03	1.0E-04	3.7E-02	7.2E-05	2.6E-02
		Total		4.0E-02	1.4E+01	4.0E-03	1.5E+00	9.1E-04	3.3E-01	7.0E-03	2.5E+00	5.9E-03	2.2E+00
Other	Heavy Hydrocarbon	14	1.3E-04	1.0E-02	3.8E+00	1.8E-04	6.7E-02	4.2E-05	1.5E-02	3.3E-04	1.2E-01	2.8E-04	1.0E-01
	Light Hydrocarbon	30	2.9E-04	4.8E-03	1.7E+00	8.7E-04	3.2E-01	2.0E-04	7.4E-02	1.6E-03	5.7E-01	1.3E-03	4.8E-01
	Gas	35	3.2E-04	9.6E-05	3.5E-02	9.5E-05	3.5E-02	7.4E-06	2.7E-03	6.0E-05	2.2E-02	4.2E-05	1.5E-02
		Total		1.5E-02	5.6E+00	1.2E-03	4.2E-01	2.5E-04	9.2E-02	1.9E-03	7.1E-01	1.6E-03	6.0E-01
Grand Total				8.74E-02	3.19E+01	1.04E-02	3.79E+00	2.34E-03	8.55E-01	1.80E-02	6.57E+00	1.53E-02	5.57E+00

Maximum Operating Schedule:			
Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Notes:

- 1. The number of components is based on estimates from SPEC Services.
- 2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
- 3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11N. Project TAC Emissions - Fugitives (Wet Oil Tank)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Light Hydrocarbon	41	4.2E-05	9.5E-04	3.5E-01	1.7E-04	6.3E-02	4.0E-05	1.5E-02	3.1E-04	1.1E-01	2.6E-04	9.6E-02
	Gas	25	7.7E-05	1.7E-05	6.0E-03	1.6E-05	6.0E-03	1.3E-06	4.7E-04	1.0E-05	3.8E-03	7.3E-06	2.6E-03
	Total			9.6E-04	3.5E-01	1.9E-04	6.9E-02	4.1E-05	1.5E-02	3.2E-04	1.2E-01	2.7E-04	9.8E-02
Pumps Seals	Light Hydrocarbon	4	5.8E-04	1.3E-03	4.7E-01	2.3E-04	8.5E-02	5.4E-05	2.0E-02	4.2E-04	1.5E-01	3.5E-04	1.3E-01
		Total		1.3E-03	4.7E-01	2.3E-04	8.5E-02	5.4E-05	2.0E-02	4.2E-04	1.5E-01	3.5E-04	1.3E-01
Threaded Conn	Light Hydrocarbon	82	2.2E-05	9.9E-04	3.6E-01	1.8E-04	6.6E-02	4.2E-05	1.5E-02	3.2E-04	1.2E-01	2.7E-04	1.0E-01
	Gas	50	2.6E-05	1.1E-05	4.1E-03	1.1E-05	4.0E-03	8.6E-07	3.2E-04	7.0E-06	2.6E-03	4.9E-06	1.8E-03
	Total			1.0E-03	3.7E-01	1.9E-04	7.0E-02	4.3E-05	1.6E-02	3.3E-04	1.2E-01	2.8E-04	1.0E-01
Flanges	Light Hydrocarbon	65	5.3E-05	1.9E-03	6.9E-01	3.5E-04	1.3E-01	8.0E-05	2.9E-02	6.2E-04	2.3E-01	5.2E-04	1.9E-01
	Gas	25	6.2E-05	1.3E-05	4.9E-03	1.3E-05	4.8E-03	1.0E-06	3.8E-04	8.3E-06	3.0E-03	5.8E-06	2.1E-03
	Total			1.9E-03	7.0E-01	3.6E-04	1.3E-01	8.1E-05	3.0E-02	6.3E-04	2.3E-01	5.3E-04	1.9E-01
Other	Light Hydrocarbon	2	2.9E-04	3.2E-04	1.2E-01	5.8E-05	2.1E-02	1.4E-05	4.9E-03	1.0E-04	3.8E-02	8.8E-05	3.2E-02
	Gas	3	3.2E-04	8.2E-06	3.0E-03	8.1E-06	3.0E-03	6.4E-07	2.3E-04	5.2E-06	1.9E-03	3.6E-06	1.3E-03
	Total			3.3E-04	1.2E-01	6.6E-05	2.4E-02	1.4E-05	5.2E-03	1.1E-04	4.0E-02	9.2E-05	3.4E-02
Grand Total				5.48E-03	2.00E+00	1.04E-03	3.80E-01	2.34E-04	8.54E-02	1.80E-03	6.57E-01	1.52E-03	5.56E-01

Composition ³	Maximum Operating Schedule:		
	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
	0.04%	0.035%	0.003%
	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-110. Project TAC Emissions - Fugitives (Swing Tank)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Light Hydrocarbon	25	4.2E-05	5.8E-04	2.1E-01	1.1E-04	3.9E-02	2.4E-05	8.9E-03	1.9E-04	6.9E-02	1.6E-04	5.8E-02
	Gas	25	7.7E-05	1.7E-05	6.0E-03	1.6E-05	6.0E-03	1.3E-06	4.7E-04	1.0E-05	3.8E-03	7.3E-06	2.6E-03
		Total		5.9E-04	2.2E-01	1.2E-04	4.4E-02	2.6E-05	9.4E-03	2.0E-04	7.2E-02	1.7E-04	6.1E-02
Threaded Conn	Light Hydrocarbon	50	2.2E-05	6.0E-04	2.2E-01	1.1E-04	4.0E-02	2.6E-05	9.4E-03	2.0E-04	7.2E-02	1.7E-04	6.1E-02
	Gas	50	2.6E-05	1.1E-05	4.1E-03	1.1E-05	4.0E-03	8.6E-07	3.2E-04	7.0E-06	2.6E-03	4.9E-06	1.8E-03
		Total		6.2E-04	2.2E-01	1.2E-04	4.4E-02	2.7E-05	9.7E-03	2.0E-04	7.4E-02	1.7E-04	6.3E-02
Flanges	Light Hydrocarbon	25	5.3E-05	7.3E-04	2.7E-01	1.3E-04	4.9E-02	3.1E-05	1.1E-02	2.4E-04	8.7E-02	2.0E-04	7.4E-02
	Gas	25	6.2E-05	1.3E-05	4.9E-03	1.3E-05	4.8E-03	1.0E-06	3.8E-04	8.3E-06	3.0E-03	5.8E-06	2.1E-03
		Total		7.4E-04	2.7E-01	1.5E-04	5.3E-02	3.2E-05	1.2E-02	2.5E-04	9.0E-02	2.1E-04	7.6E-02
Other	Gas	3	3.2E-04	8.2E-06	3.0E-03	8.1E-06	3.0E-03	6.4E-07	2.3E-04	5.2E-06	1.9E-03	3.6E-06	1.3E-03
				8.2E-06	3.0E-03	8.1E-06	3.0E-03	6.4E-07	2.3E-04	5.2E-06	1.9E-03	3.6E-06	1.3E-03
		Total		1.96E-03	7.15E-01	3.98E-04	1.45E-01	8.49E-05	3.10E-02	6.53E-04	2.38E-01	5.51E-04	2.01E-01
Grand Total													

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day
365 day/year

- Notes:**
- 1. The number of components is based on estimates from SPEC Services.
 - 2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
 - 3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11P. Project TAC Emissions - Fugitives (Vapor Recovery System)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Light Hydrocarbon	96	4.2E-05	2.2E-03	8.1E-01	4.1E-04	1.5E-01	9.4E-05	3.4E-02	7.2E-04	2.6E-01	6.1E-04	2.2E-01
	Gas	96	7.7E-05	6.3E-05	2.3E-02	6.3E-05	2.3E-02	4.9E-06	1.8E-03	4.0E-05	1.5E-02	2.8E-05	1.0E-02
	Total			2.3E-03	8.3E-01	4.7E-04	1.7E-01	9.9E-05	3.6E-02	7.6E-04	2.8E-01	6.4E-04	2.3E-01
Pumps Seals	Light Hydrocarbon	4	5.8E-04	1.3E-03	4.7E-01	2.3E-04	8.5E-02	5.4E-05	2.0E-02	4.2E-04	1.5E-01	3.5E-04	1.3E-01
	Total			1.3E-03	4.7E-01	2.3E-04	8.5E-02	5.4E-05	2.0E-02	4.2E-04	1.5E-01	3.5E-04	1.3E-01
Threaded Conn	Light Hydrocarbon	192	2.2E-05	2.3E-03	8.5E-01	4.2E-04	1.5E-01	9.9E-05	3.6E-02	7.6E-04	2.8E-01	6.4E-04	2.3E-01
	Gas	192	2.6E-05	4.3E-05	1.6E-02	4.2E-05	1.5E-02	3.3E-06	1.2E-03	2.7E-05	9.8E-03	1.9E-05	6.9E-03
	Total			2.4E-03	8.6E-01	4.7E-04	1.7E-01	1.0E-04	3.7E-02	7.8E-04	2.9E-01	6.6E-04	2.4E-01
Flanges	Light Hydrocarbon	116	5.3E-05	3.4E-03	1.2E+00	6.2E-04	2.3E-01	1.4E-04	5.2E-02	1.1E-03	4.0E-01	9.4E-04	3.4E-01
	Gas	96	6.2E-05	5.1E-05	1.9E-02	5.0E-05	1.8E-02	4.0E-06	1.4E-03	3.2E-05	1.2E-02	2.2E-05	8.2E-03
	Total			3.4E-03	1.3E+00	6.7E-04	2.4E-01	1.5E-04	5.4E-02	1.1E-03	4.1E-01	9.6E-04	3.5E-01
Other	Light Hydrocarbon	14	2.9E-04	2.2E-03	8.1E-01	4.1E-04	1.5E-01	9.5E-05	3.5E-02	7.3E-04	2.7E-01	6.2E-04	2.3E-01
	Gas	16	3.2E-04	4.4E-05	1.6E-02	4.3E-05	1.6E-02	3.4E-06	1.2E-03	2.8E-05	1.0E-02	1.9E-05	7.0E-03
	Total			2.3E-03	8.3E-01	4.5E-04	1.6E-01	9.8E-05	3.6E-02	7.5E-04	2.8E-01	6.4E-04	2.3E-01
Grand Total				1.16E-02	4.24E+00	2.29E-03	8.35E-01	5.00E-04	1.83E-01	3.85E-03	1.40E+00	3.25E-03	1.19E+00

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Maximum Operating Schedule:			
24 hr/day			
365 day/year			

Notes:

- 1. The number of components is based on estimates from SPEC Services.
- 2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
- 3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11Q. Project TAC Emissions - Fugitives (Gas Processing Unit)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Light Hydrocarbon	142	4.2E-05	3.3E-03	1.2E+00	6.0E-04	2.2E-01	1.4E-04	5.1E-02	1.1E-03	3.9E-01	9.1E-04	3.3E-01
	Gas	254	7.7E-05	1.7E-04	6.1E-02	1.7E-04	6.1E-02	1.3E-05	4.7E-03	1.1E-04	3.8E-02	7.4E-05	2.7E-02
	Total			3.4E-03	1.3E+00	7.7E-04	2.8E-01	1.5E-04	5.6E-02	1.2E-03	4.3E-01	9.8E-04	3.6E-01
Threaded Conn	Light Hydrocarbon	284	2.2E-05	3.4E-03	1.3E+00	6.3E-04	2.3E-01	1.5E-04	5.3E-02	1.1E-03	4.1E-01	9.5E-04	3.5E-01
	Gas	508	2.6E-05	1.1E-04	4.1E-02	1.1E-04	4.1E-02	8.8E-06	3.2E-03	7.1E-05	2.6E-02	5.0E-05	1.8E-02
	Total			3.5E-03	1.3E+00	7.4E-04	2.7E-01	1.5E-04	5.6E-02	1.2E-03	4.3E-01	1.0E-03	3.7E-01
Flanges	Light Hydrocarbon	154	5.3E-05	4.5E-03	1.6E+00	8.2E-04	3.0E-01	1.9E-04	6.9E-02	1.5E-03	5.3E-01	1.2E-03	4.5E-01
	Gas	340	6.2E-05	1.8E-04	6.6E-02	1.8E-04	6.5E-02	1.4E-05	5.1E-03	1.1E-04	4.1E-02	7.9E-05	2.9E-02
	Total			4.7E-03	1.7E+00	1.0E-03	3.6E-01	2.0E-04	7.5E-02	1.6E-03	5.8E-01	1.3E-03	4.8E-01
Other	Light Hydrocarbon	9	2.9E-04	1.4E-03	5.2E-01	2.6E-04	9.6E-02	6.1E-05	2.2E-02	4.7E-04	1.7E-01	4.0E-04	1.5E-01
	Gas	11	3.2E-04	3.0E-05	1.1E-02	3.0E-05	1.1E-02	2.3E-06	8.5E-04	1.9E-05	6.9E-03	1.3E-05	4.8E-03
	Total			1.5E-03	5.3E-01	2.9E-04	1.1E-01	6.3E-05	2.3E-02	4.9E-04	1.8E-01	4.1E-04	1.5E-01
Grand Total				1.31E-02	4.79E+00	2.80E-03	1.02E+00	5.74E-04	2.10E-01	4.43E-03	1.62E+00	3.72E-03	1.36E+00

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day
365 day/year

Notes:

- 1. The number of components is based on estimates from SPEC Services.
- 2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
- 3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11R. Project TAC Emissions - Fugitives (NGL Tank #1)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Light Hydrocarbon	18	4.2E-05	4.2E-04	1.5E-01	7.6E-05	2.8E-02	1.8E-05	6.4E-03	1.4E-04	4.9E-02	1.2E-04	4.2E-02
	Gas	10	7.7E-05	6.6E-06	2.4E-03	6.5E-06	2.4E-03	5.1E-07	1.9E-04	4.1E-06	1.5E-03	2.9E-06	1.1E-03
	Total			4.2E-04	1.5E-01	8.2E-05	3.0E-02	1.8E-05	6.6E-03	1.4E-04	5.1E-02	1.2E-04	4.3E-02
Pumps Seals	Light Hydrocarbon	2	5.8E-04	6.4E-04	2.3E-01	1.2E-04	4.3E-02	2.7E-05	9.9E-03	2.1E-04	7.6E-02	1.8E-04	6.4E-02
		Total		6.4E-04	2.3E-01	1.2E-04	4.3E-02	2.7E-05	9.9E-03	2.1E-04	7.6E-02	1.8E-04	6.4E-02
Threaded Conn	Light Hydrocarbon	36	2.2E-05	4.4E-04	1.6E-01	8.0E-05	2.9E-02	1.8E-05	6.7E-03	1.4E-04	5.2E-02	1.2E-04	4.4E-02
	Gas	20	2.6E-05	4.5E-06	1.6E-03	4.4E-06	1.6E-03	3.5E-07	1.3E-04	2.8E-06	1.0E-03	2.0E-06	7.2E-04
	Total			4.4E-04	1.6E-01	8.4E-05	3.1E-02	1.9E-05	6.9E-03	1.4E-04	5.3E-02	1.2E-04	4.5E-02
Flanges	Light Hydrocarbon	30	5.3E-05	8.7E-04	3.2E-01	1.6E-04	5.8E-02	3.7E-05	1.4E-02	2.8E-04	1.0E-01	2.4E-04	8.8E-02
	Gas	10	6.2E-05	5.3E-06	1.9E-03	5.3E-06	1.9E-03	4.1E-07	1.5E-04	3.3E-06	1.2E-03	2.3E-06	8.5E-04
	Total			8.8E-04	3.2E-01	1.7E-04	6.0E-02	3.8E-05	1.4E-02	2.9E-04	1.1E-01	2.4E-04	8.9E-02
Other	Light Hydrocarbon	2	2.9E-04	3.2E-04	1.2E-01	5.8E-05	2.1E-02	1.4E-05	4.9E-03	1.0E-04	3.8E-02	8.8E-05	3.2E-02
	Gas	1	3.2E-04	2.7E-06	1.0E-03	2.7E-06	9.9E-04	2.1E-07	7.8E-05	1.7E-06	6.3E-04	1.2E-06	4.4E-04
	Total			3.2E-04	1.2E-01	6.1E-05	2.2E-02	1.4E-05	5.0E-03	1.1E-04	3.9E-02	9.0E-05	3.3E-02
Grand Total				2.70E-03	9.86E-01	5.09E-04	1.86E-01	1.15E-04	4.21E-02	8.86E-04	3.23E-01	7.51E-04	2.74E-01

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day
365 day/year

Notes:

- 1. The number of components is based on estimates from SPEC Services.
- 2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
- 3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11S. Project TAC Emissions - Fugitives (NGL Tank #2)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Light Hydrocarbon	18	4.2E-05	4.2E-04	1.5E-01	7.6E-05	2.8E-02	1.8E-05	6.4E-03	1.4E-04	4.9E-02	1.2E-04	4.2E-02
	Gas	10	7.7E-05	6.6E-06	2.4E-03	6.5E-06	2.4E-03	5.1E-07	1.9E-04	4.1E-06	1.5E-03	2.9E-06	1.1E-03
		Total		4.2E-04	1.5E-01	8.2E-05	3.0E-02	1.8E-05	6.6E-03	1.4E-04	5.1E-02	1.2E-04	4.3E-02
Pumps Seals	Light Hydrocarbon	2	5.8E-04	6.4E-04	2.3E-01	1.2E-04	4.3E-02	2.7E-05	9.9E-03	2.1E-04	7.6E-02	1.8E-04	6.4E-02
		Total		6.4E-04	2.3E-01	1.2E-04	4.3E-02	2.7E-05	9.9E-03	2.1E-04	7.6E-02	1.8E-04	6.4E-02
Threaded Conn	Light Hydrocarbon	36	2.2E-05	4.4E-04	1.6E-01	8.0E-05	2.9E-02	1.8E-05	6.7E-03	1.4E-04	5.2E-02	1.2E-04	4.4E-02
	Gas	20	2.6E-05	4.5E-06	1.6E-03	4.4E-06	1.6E-03	3.5E-07	1.3E-04	2.8E-06	1.0E-03	2.0E-06	7.2E-04
		Total		4.4E-04	1.6E-01	8.4E-05	3.1E-02	1.9E-05	6.9E-03	1.4E-04	5.3E-02	1.2E-04	4.5E-02
Flanges	Light Hydrocarbon	30	5.3E-05	8.7E-04	3.2E-01	1.6E-04	5.8E-02	3.7E-05	1.4E-02	2.8E-04	1.0E-01	2.4E-04	8.8E-02
	Gas	10	6.2E-05	5.3E-06	1.9E-03	5.3E-06	1.9E-03	4.1E-07	1.5E-04	3.3E-06	1.2E-03	2.3E-06	8.5E-04
		Total		8.8E-04	3.2E-01	1.7E-04	6.0E-02	3.8E-05	1.4E-02	2.9E-04	1.1E-01	2.4E-04	8.9E-02
Other	Light Hydrocarbon	2	2.9E-04	3.2E-04	1.2E-02	5.8E-05	2.1E-02	1.4E-05	4.9E-03	1.0E-04	3.8E-02	8.8E-05	3.2E-02
	Gas	1	3.2E-04	2.7E-06	1.0E-03	2.7E-06	9.9E-04	2.1E-07	7.8E-05	1.7E-06	6.3E-04	1.2E-06	4.4E-04
		Total		3.2E-04	1.2E-01	6.1E-05	2.2E-02	1.4E-05	5.0E-03	1.1E-04	3.9E-02	9.0E-05	3.3E-02
Grand Total				2.70E-03	9.86E-01	5.09E-04	1.86E-01	1.15E-04	4.21E-02	8.86E-04	3.23E-01	7.51E-04	2.74E-01

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day
365 day/year

Notes:

- 1. The number of components is based on estimates from SPEC Services.
- 2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
- 3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11T. Project TAC Emissions - Fugitives (Emergency Flare)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Light Hydrocarbon	5	4.2E-05	1.2E-04	4.2E-02	2.1E-05	7.7E-03	4.9E-06	1.8E-03	3.8E-05	1.4E-02	3.2E-05	1.2E-02
	Gas	36	7.7E-05	2.4E-05	8.7E-03	2.4E-05	8.6E-03	1.8E-06	6.7E-04	1.5E-05	5.4E-03	1.0E-05	3.8E-03
	Total			1.4E-04	5.1E-02	4.5E-05	1.6E-02	6.7E-06	2.5E-03	5.3E-05	1.9E-02	4.2E-05	1.5E-02
Threaded Conn	Light Hydrocarbon	10	2.2E-05	1.2E-04	4.4E-02	2.2E-05	8.1E-03	5.1E-06	1.9E-03	3.9E-05	1.4E-02	3.3E-05	1.2E-02
	Gas	72	2.6E-05	1.6E-05	5.9E-03	1.6E-05	5.8E-03	1.2E-06	4.5E-04	1.0E-05	3.7E-03	7.1E-06	2.6E-03
	Total			1.4E-04	5.0E-02	3.8E-05	1.4E-02	6.4E-06	2.3E-03	4.9E-05	1.8E-02	4.1E-05	1.5E-02
Flanges	Light Hydrocarbon	5	5.3E-05	1.5E-04	5.3E-02	2.7E-05	9.7E-03	6.2E-06	2.3E-03	4.7E-05	1.7E-02	4.0E-05	1.5E-02
	Gas	23	6.2E-05	1.2E-05	4.5E-03	1.2E-05	4.4E-03	9.5E-07	3.5E-04	7.7E-06	2.8E-03	5.4E-06	2.0E-03
	Total			1.6E-04	5.8E-02	3.9E-05	1.4E-02	7.1E-06	2.6E-03	5.5E-05	2.0E-02	4.6E-05	1.7E-02
Grand Total				4.34E-04	1.58E-01	1.21E-04	4.43E-02	2.03E-05	7.39E-03	1.57E-04	5.74E-02	1.29E-04	4.70E-02

Composition³

Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
0.04%	0.035%	0.003%
2.29%	0.419%	0.097%
23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day
365 day/year

Notes:

- 1. The number of components is based on estimates from SPEC Services.
- 2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
- 3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11U. Project TAC Emissions - Fugitives (Carbon Adsorber - Slurry System)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Gas	4	7.7E-05	2.6E-06	9.7E-04	2.6E-06	9.5E-04	2.0E-07	7.5E-05	1.7E-06	6.1E-04	1.2E-06	4.2E-04
Total				2.6E-06	9.7E-04	2.6E-06	9.5E-04	2.0E-07	7.5E-05	1.7E-06	6.1E-04	1.2E-06	4.2E-04
Threaded Conn	Gas	8	2.6E-05	1.8E-06	6.5E-04	1.8E-06	6.4E-04	1.4E-07	5.0E-05	1.1E-06	4.1E-04	7.8E-07	2.9E-04
Total				1.8E-06	6.5E-04	1.8E-06	6.4E-04	1.4E-07	5.0E-05	1.1E-06	4.1E-04	7.8E-07	2.9E-04
Flanges	Gas	4	6.2E-05	2.1E-06	7.8E-04	2.1E-06	7.7E-04	1.6E-07	6.0E-05	1.3E-06	4.9E-04	9.3E-07	3.4E-04
Total				2.1E-06	7.8E-04	2.1E-06	7.7E-04	1.6E-07	6.0E-05	1.3E-06	4.9E-04	9.3E-07	3.4E-04
Grand Total				6.56E-06	2.39E-03	6.48E-06	2.36E-03	5.08E-07	1.85E-04	4.11E-06	1.50E-03	2.88E-06	1.05E-03

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11V. Project TAC Emissions - Fugitives (Process Heater)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Heavy Hydrocarbon	28	3.1E-05	4.9E-03	1.8E+00	8.7E-05	3.2E-02	2.0E-05	7.4E-03	1.6E-04	5.7E-02	1.3E-04	4.8E-02
	Gas	20	7.7E-05	1.3E-05	4.8E-03	1.3E-05	4.8E-03	1.0E-06	3.7E-04	8.3E-06	3.0E-03	5.8E-06	2.1E-03
		Total		4.9E-03	1.8E+00	1.0E-04	3.7E-02	2.1E-05	7.8E-03	1.6E-04	6.0E-02	1.4E-04	5.0E-02
Threaded Conn	Heavy Hydrocarbon	56	1.8E-05	5.7E-03	2.1E+00	1.0E-04	3.7E-02	2.4E-05	8.6E-03	1.8E-04	6.6E-02	1.5E-04	5.6E-02
	Gas	40	2.6E-05	8.9E-06	3.3E-03	8.8E-06	3.2E-03	6.9E-07	2.5E-04	5.6E-06	2.0E-03	3.9E-06	1.4E-03
		Total		5.7E-03	2.1E+00	1.1E-04	4.0E-02	2.4E-05	8.8E-03	1.9E-04	6.8E-02	1.6E-04	5.7E-02
Flanges	Heavy Hydrocarbon	30	5.1E-05	8.7E-03	3.2E+00	1.5E-04	5.6E-02	3.6E-05	1.3E-02	2.7E-04	1.0E-01	2.3E-04	8.5E-02
		Total		8.7E-03	3.2E+00	1.5E-04	5.6E-02	3.6E-05	1.3E-02	2.7E-04	1.0E-01	2.3E-04	8.5E-02
Other	Heavy Hydrocarbon	4	1.3E-04	3.0E-03	1.1E+00	5.2E-05	1.9E-02	1.2E-05	4.4E-03	9.3E-05	3.4E-02	7.9E-05	2.9E-02
		Total		3.0E-03	1.1E+00	5.2E-05	1.9E-02	1.2E-05	4.4E-03	9.3E-05	3.4E-02	7.9E-05	2.9E-02
Grand Total				2.23E-02	8.16E+00	4.16E-04	1.52E-01	9.33E-05	3.41E-02	7.17E-04	2.62E-01	6.07E-04	2.22E-01

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day

365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11W. Project TAC Emissions - Fugitives (Truck Loading Rack)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Light Hydrocarbon	13	4.2E-05	3.0E-04	1.1E-01	5.5E-05	2.0E-02	1.3E-05	4.6E-03	9.8E-05	3.6E-02	8.3E-05	3.0E-02
	Gas	4	7.7E-05	2.6E-06	9.7E-04	2.6E-06	9.5E-04	2.0E-07	7.5E-05	1.7E-06	6.1E-04	1.2E-06	4.2E-04
		Total		3.0E-04	1.1E-01	5.7E-05	2.1E-02	1.3E-05	4.7E-03	9.9E-05	3.6E-02	8.4E-05	3.1E-02
Pumps Seals	Light Hydrocarbon	2	5.8E-04	6.4E-04	2.3E-01	1.2E-04	4.3E-02	2.7E-05	9.9E-03	2.1E-04	7.6E-02	1.8E-04	6.4E-02
		Total		6.4E-04	2.3E-01	1.2E-04	4.3E-02	2.7E-05	9.9E-03	2.1E-04	7.6E-02	1.8E-04	6.4E-02
Threaded Conn	Light Hydrocarbon	26	2.2E-05	3.1E-04	1.1E-01	5.7E-05	2.1E-02	1.3E-05	4.9E-03	1.0E-04	3.7E-02	8.7E-05	3.2E-02
	Gas	18	2.6E-05	4.0E-06	1.5E-03	4.0E-06	1.4E-03	3.1E-07	1.1E-04	2.5E-06	9.2E-04	1.8E-06	6.4E-04
		Total		3.2E-04	1.2E-01	6.1E-05	2.2E-02	1.4E-05	5.0E-03	1.0E-04	3.8E-02	8.9E-05	3.2E-02
Flanges	Light Hydrocarbon	15	5.3E-05	4.4E-04	1.6E-01	8.0E-05	2.9E-02	1.9E-05	6.8E-03	1.4E-04	5.2E-02	1.2E-04	4.4E-02
	Gas	5	6.2E-05	2.7E-06	9.7E-04	2.6E-06	9.6E-04	2.1E-07	7.5E-05	1.7E-06	6.1E-04	1.2E-06	4.3E-04
		Total		4.4E-04	1.6E-01	8.3E-05	3.0E-02	1.9E-05	6.8E-03	1.4E-04	5.3E-02	1.2E-04	4.5E-02
Other	Light Hydrocarbon	3	2.9E-04	4.8E-04	1.7E-01	8.7E-05	3.2E-02	2.0E-05	7.4E-03	1.6E-04	5.7E-02	1.3E-04	4.8E-02
	Gas	1	3.2E-04	2.7E-06	1.0E-03	2.7E-06	9.9E-04	2.1E-07	7.8E-05	1.7E-06	6.3E-04	1.2E-06	4.4E-04
		Total		4.8E-04	1.8E-01	9.0E-05	3.3E-02	2.1E-05	7.5E-03	1.6E-04	5.8E-02	1.3E-04	4.9E-02
Grand Total				2.18E-03	7.96E-01	4.08E-04	1.49E-01	9.29E-05	3.39E-02	7.14E-04	2.61E-01	6.06E-04	2.21E-01

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day
365 day/year

Notes:

- 1. The number of components is based on estimates from SPEC Services.
- 2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
- 3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Table A-11X. Project TAC Emissions - Fugitives (Carbon Adsorber - Slurry System)

Type	Service	Number ¹	THC Emission Factor ² (lb/hr/source)	Hexane Emissions (lb/day)	Hexane Emissions (lb/yr)	Benzene Emissions (lb/day)	Benzene Emissions (lb/yr)	Ethyl benzene Emissions (lb/day)	Ethyl benzene Emissions (lb/yr)	Toluene Emissions (lb/day)	Toluene Emissions (lb/yr)	Xylene Emissions (lb/day)	Xylene Emissions (lb/yr)
Valves	Gas	4	7.7E-05	2.6E-06	9.7E-04	2.6E-06	9.5E-04	2.0E-07	7.5E-05	1.7E-06	6.1E-04	1.2E-06	4.2E-04
Total				2.6E-06	9.7E-04	2.6E-06	9.5E-04	2.0E-07	7.5E-05	1.7E-06	6.1E-04	1.2E-06	4.2E-04
Threaded Conn	Gas	8	2.6E-05	1.8E-06	6.5E-04	1.8E-06	6.4E-04	1.4E-07	5.0E-05	1.1E-06	4.1E-04	7.8E-07	2.9E-04
Total				1.8E-06	6.5E-04	1.8E-06	6.4E-04	1.4E-07	5.0E-05	1.1E-06	4.1E-04	7.8E-07	2.9E-04
Flanges	Gas	4	6.2E-05	2.1E-06	7.8E-04	2.1E-06	7.7E-04	1.6E-07	6.0E-05	1.3E-06	4.9E-04	9.3E-07	3.4E-04
Total				2.1E-06	7.8E-04	2.1E-06	7.7E-04	1.6E-07	6.0E-05	1.3E-06	4.9E-04	9.3E-07	3.4E-04
Grand Total				6.56E-06	2.39E-03	6.48E-06	2.36E-03	5.08E-07	1.85E-04	4.11E-06	1.50E-03	2.88E-06	1.05E-03

Composition ³	Hexane, %wt	Benzene, %wt	Ethyl benzene, %wt
Gas Stream	0.04%	0.035%	0.003%
Light Hydrocarbon	2.29%	0.419%	0.097%
Heavy Hydrocarbon	23.70%	0.419%	0.097%

Maximum Operating Schedule:

24 hr/day

365 day/year

Notes:

1. The number of components is based on estimates from SPEC Services.
2. The VOC emission factors are based on the <10,000 ppmv emission factor in Table IV-2c (Method 3) of the SCAQMD's "Guidelines for Fugitive Emissions Calculations", June 2003, for Oil and Gas Production.
3. Gas compositions for gas stream, light hydrocarbon, and heavy hydrocarbon are based on compositions of produced gas, NGL to truck and NGL to pipeline provided by SPEC Services.

Appendix B

Table A-12A. Operational Criteria Pollutant Emissions - Oil Well Workover Rig Emissions

Number of well workovers (no./yr)	Emissions (lb/yr)					
	NO _x (lb/yr)	VOC (lb/yr)	CO (lb/yr)	SO _x (lb/yr) ¹	PM ₁₀ (lb/yr)	PM _{2.5} ² (lb/yr)
60	2,280	95	475	25	76	70
Number of well workovers (no./yr)	Emissions (lb/day)					
	NO _x (lb/day)	VOC (lb/day)	CO (lb/day)	SO _x (lb/day) ¹	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
60	10.9	0.5	2.3	0.1	0.4	0.3

Input Data	Unit	Source
Engine Size	450 hp	Engine data provided by Oxy
# of engines per rig	1 --	Engine data provided by Oxy
Engine load factor	0.19 --	The engine typically runs at approximately 100% load for 10 percent of the time and 10% load for 90% of the time, as estimated by Oxy.
Time per workover	84.00 hr	Estimate provided by Oxy
# of workovers per year	60 no./yr	Estimate provided by Oxy

EFs

NO _x	2.40 g/bhp-hr	CARB Engine certification provided by Oxy.
VOC	0.10 g/bhp-hr	CARB Engine certification provided by Oxy.
CO	0.50 g/bhp-hr	CARB Engine certification provided by Oxy.
SO _x ¹	0.0002 lb/gal	Sulfur content provided by Oxy (see note 1)
PM ₁₀	0.08 g/bhp-hr	CARB Engine certification provided by Oxy.
Conversion data	0.367 lb of fuel /bhp-hr	BSFC: HHDT, 300<HP<600. Ref: NONROAD Model
	7.15 lb diesel/US gallon	
Fuel usage	832,356 lb fuel/yr	
Fuel usage	116,413 gallon/yr	

Notes:

1. SO_x emissions are assumed to be equal to SO₂ emissions. Sulfur content of low sulfur diesel is
2. PM_{2.5} emissions are calculated using CEIDARS data (SCAQMD, 2006. Final - Methodology to calculate particulate matter PM_{2.5} and PM_{2.5} Significance Thresholds. Appendix A. Updated CEIDARS table with PM_{2.5} fractions), assuming Offroad equipment - Diesel.

Table A-12B. Operational Criteria Pollutant Emissions - Oil Well Workover Fugitive Emissions

Number of well workovers (no./yr)	VOC EF (ton/ workover) ³	Emissions	
		VOC (lb/day)	VOC (ton/yr)
60	0.0013	0.7	0.0761

Input DataUnitSource
Available atCH₄ EF 0.0018 tonnes/
workover http://www.epa.gov/ehs/climate/new/upload/2009_GHG_COMPENDIUM.pdf.

Accessed on October 17, 2011.

of workovers 60 Estimate provided by Oxy

Mass ratio (VOC/CH₄) 0.64 Calculated from composition data for raw produced gas provided by OxyMass ratio (CO₂/CH₄) 0.04 Calculated from composition data for raw produced gas provided by Oxy

Time per workover 84.00 hr Estimate provided by Oxy

Notes:

1. Calculation of CH₄ emissions uses the 2009 API Compendium of GHG Estimation Methodologies for the Oil and Natural Gas Industry, Table 5-23, page 5-91.

2. CH₄ emissions use the per oil well workover EF directly, although it is noted that the assumed CH₄ mass fraction of the gas for oil well workovers is not

3. CO₂ and VOC emissions are calculated as a fraction of CH₄ emissions using the ratio of mass fractions of CO₂ and VOC to CH₄, respectively.

Appendix B

Table A-12C. Operational Emissions - Oil Well Workover Rig Emissions - Diesel Fueled (TACs)

Pollutant	Pollutant	Workover Rig ¹			Workover Venting ²		
		Weight Fraction	Maximum Hourly Controlled	Average Annual	Weight Fraction	Maximum Hourly Controlled	Average Annual
			lbs/hr	lbs/yr		lbs/hr	lbs/yr
Arsenic	PM	0.000005	7.54E-08	3.80E-04	--	--	--
Lead	PM	0.000042	6.33E-07	3.19E-03	--	--	--
Nickel	PM	0.000019	2.87E-07	1.44E-03	--	--	--
Chlorine	PM	0.000344	5.19E-06	2.61E-02	--	--	--
Chromium	PM	0.000012	1.81E-07	9.12E-04	--	--	--
Cobalt	PM	0.000011	1.66E-07	8.36E-04	--	--	--
Copper	PM	0.000025	3.77E-07	1.90E-03	--	--	--
Manganese	PM	0.000040	6.03E-07	3.04E-03	--	--	--
Selenium	PM	0.000010	1.51E-07	7.60E-04	--	--	--
Cadmium	PM	0.000040	6.03E-07	3.04E-03	--	--	--
Mercury	PM	0.000030	4.52E-07	2.28E-03	--	--	--
1,3-Butadiene	VOC	0.001900	3.58E-05	1.81E-01	--	--	--
Acetaldehyde	VOC	0.073530	1.39E-03	6.99E+00	--	--	--
Benzene	VOC	0.020010	3.77E-04	1.90E+00	0.004187	1.27E-04	6.38E-01
Formaldehyde	VOC	0.147140	2.77E-03	1.40E+01	--	--	--
Naphthalene	VOC	0.000850	1.60E-05	8.08E-02	--	--	--
Ethyl Benzene	VOC	0.003050	5.75E-05	2.90E-01	0.000972	2.94E-05	1.48E-01
Methyl Alcohol	VOC	0.000300	5.65E-06	2.85E-02	--	--	--
Methyl Ethyl Ketone	VOC	0.014770	2.78E-04	1.40E+00	--	--	--
M-Xylene	VOC	0.006110	1.15E-04	5.80E-01	0.002114	6.39E-05	3.22E-01
Hexane	VOC	0.001570	2.96E-05	1.49E-01	0.000004	1.08E-07	5.45E-04
O-Xylene	VOC	0.003350	6.31E-05	3.18E-01	0.002114	6.39E-05	3.22E-01
Propylene	VOC	0.025970	4.90E-04	2.47E+00	--	--	--
P-Xylene	VOC	0.000950	1.79E-05	9.03E-02	0.002114	6.39E-05	3.22E-01
Styrene	VOC	0.000580	1.09E-05	5.51E-02	--	--	--
Toluene	VOC	0.014730	2.78E-04	1.40E+00	0.007463	2.26E-04	1.14E+00

Notes:

1. Diesel related TAC composition for the workover rig is based on the ARB speciation profile 425 for PM and 818 for VOC.
2. TAC composition for the workover venting is based on the gas composition provided by Oxy.

Appendix B

Table A-13. Project Criteria Pollutant and TACs Emissions - Process Flare

Pollutant ¹	CAS	Emission Factor ^{1,2}	AHU	AHC	MHU	MHC	MDU	Maximum Daily Controlled	Average Annual
		lb/MMscf	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/day	lbs/day	lbs/yr
VOC	-	7.00	0.12	0.12	0.14	0.14	3.25	3.25	1,019
NO _x	-	-	0.96	0.96	0.96	0.96	26.86	26.86	8,429
SO _x	-	0.60	0.01	0.01	0.01	0.01	0.28	0.28	87
CO	-	-	0.38	0.38	0.38	0.38	10.51	10.51	3,298
PM ₁₀	-	7.50	0.13	0.13	0.15	0.15	3.48	3.48	1,092
PM _{2.5}	--	--						3.48	1,092
Benzene	71432	0.159	2.65E-03	2.65E-03	3.07E-03	3.07E-03	7.38E-02	7.38E-02	2.32E+01
Formaldehyde	50000	1.169	1.95E-02	1.95E-02	2.26E-02	2.26E-02	5.42E-01	5.42E-01	1.70E+02
Total PAHs (excluding Napht)	1151	0.003	5.00E-05	5.00E-05	5.80E-05	5.80E-05	1.39E-03	1.39E-03	4.37E-01
Naphthalene	91203	0.011	1.83E-04	1.83E-04	2.13E-04	2.13E-04	5.10E-03	5.10E-03	1.60E+00
Acetaldehyde	75070	0.043	7.17E-04	7.17E-04	8.31E-04	8.31E-04	2.00E-02	2.00E-02	6.26E+00
Acrolein	107028	0.010	1.67E-04	1.67E-04	1.93E-04	1.93E-04	4.64E-03	4.64E-03	1.46E+00
Ethyl Benzene	100414	1.444	2.41E-02	2.41E-02	2.79E-02	2.79E-02	6.70E-01	6.70E-01	2.10E+02
Hexane	110543	0.029	4.83E-04	4.83E-04	5.61E-04	5.61E-04	1.35E-02	1.35E-02	4.22E+00
Toluene	108883	0.058	9.67E-04	9.67E-04	1.12E-03	1.12E-03	2.69E-02	2.69E-02	8.44E+00
Xylene	1330207	0.029	4.83E-04	4.83E-04	5.61E-04	5.61E-04	1.35E-02	1.35E-02	4.22E+00

Operation Hours

Maximum:	24 hr/day
	7 day/wk
	52 wk/yr
Average:	24 hr/day
	7 day/wk
	52 wk/yr

Operation Limit³

	27 MMBtu/hr Rating (based on vendor data)
	322 scfm; Maximum flow rate to flare (based on permit limit)
	278 scfm; Average flow rate to flare (from SPEC service)
	464,000 scfd; Maximum flow rate to flare (based on permit limit)
	400,000 scfd; Average flow rate to flare (from SPEC service)

Calculation Factors

	60 min/hr
	365 days/yr
	0.023 lb NO _x /MMBtu, Manufacturer's Guarantee
	0.009 lb CO/MMBtu, Manufacturer's Guarantee

Notes:

- Criteria pollutant emissions from natural gas combustion in the flare pilots are estimated using the natural gas default factors for VOC, SO_x, and PM₁₀ from SCAQMD's Annual Emissions Reporting Program online help document (available online at <http://www.aqmd.gov/webappl/Help/AER/index.html>): Default Emission Factors for External Combustion Equipment for Forms B1 and B1U (for all sizes); Natural Gas, Other Equipment. Manufacturer guaranteed NO_x and CO concentrations were used to calculate NO_x and CO emissions, respectively. PM_{2.5} is calculated using CEIDARS data (SCAQMD. 2006. Final methodology to calculate particulate matter (PM) 2.5 and PM_{2.5} significance thresholds. Appendix A. Updated CEIDARS table with PM_{2.5} fractions), assuming Incinerator, afterburner, flare - gaseous fuel.
- Toxic pollutant emissions from combustion of natural gas in the flare pilots are estimated using default emission factors for natural gas combustion in "Flare, Non-Refinery", which are contained in Table B-1 of SCAQMD's "Supplemental Instructions - New Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory".
- A higher heating value of 1,050 MMBtu/MMscf (which is commonly used value for natural gas) was used in the analysis for other pieces of equipment as well as in the permitting analysis. While the flare rating and capacity is expected to be as shown, the emissions shown here are conservatively based on the average expected flow rate from SPEC Service and a higher heating value of 2,517 MMBtu/MMcf.

Appendix B

Table 14A: Project criteria pollutant for Backhoe¹

Pollutant	Emission Factor ⁴	Maximum Daily Emissions	Average Annual Emissions
	g/hp-hr	lbs/day	lbs/yr
VOC	0.696	0.06	22
CO	3.848	0.33	122
NO _x	4.671	0.41	148
SO _x	0.006	0.001	0
PM ₁₀	0.369	0.03	12
PM _{2.5}	0.369	0.03	12

Operation Schedule

Maximum:

1.4 hr/day
10 hr/week
520 hour/year

Average:

1.4 hr/day
10 hr/week
520 hour/year

Calculation Factors

1	Number of Equipment
75 hp	Horsepower ²
37% %	Load Factor ³
453.59 g/lb	

Notes:

1. One backhoe will be operating on the site to move solids around the site during operation.
2. Based on CalEEMod default horsepower for backhoes.
3. Emission factors are from CalEEMod user manual, Appendix D, Table 3.4: OFFROAD Equipment Emission Factors and the selected equipment category for tractors/loaders/backhoes. Load factor for backhoes are from CalEEMod User manual, Appendix D, Table 3.3 Offroad Default Horsepower Load Factors. It is noted a 33% adjustment factor was applied to the load factor per CARB recent updates on in-use offroad equipment load factors.

Appendix B

Table 14B: Project TACs for Backhoe

Pollutant	Type	Weight Fraction ¹	Maximum Hourly Controlled ²	Annual Average ²
			lbs/hr	lbs/yr
Arsenic	PM	0.000005	1.12E-07	5.85E-05
Lead	PM	0.000042	9.44E-07	4.91E-04
Nickel	PM	0.000019	4.27E-07	2.22E-04
Chlorine	PM	0.000344	7.73E-06	4.02E-03
Chromium	PM	0.000012	2.70E-07	1.40E-04
Cobalt	PM	0.000011	2.47E-07	1.29E-04
Copper	PM	0.000025	5.62E-07	2.92E-04
Manganese	PM	0.000040	8.99E-07	4.68E-04
Selenium	PM	0.000010	2.25E-07	1.17E-04
Cadmium	PM	0.000040	8.99E-07	4.68E-04
Mercury	PM	0.000030	6.75E-07	3.51E-04
1,3-Butadiene	VOC	0.001900	8.06E-05	4.19E-02
Acetaldehyde	VOC	0.073530	3.12E-03	1.62E+00
Benzene	VOC	0.020010	8.49E-04	4.41E-01
Formaldehyde	VOC	0.147140	6.24E-03	3.24E+00
Naphthalene	VOC	0.000850	3.60E-05	1.87E-02
Ethyl Benzene	VOC	0.003050	1.29E-04	6.73E-02
Methyl Alcohol	VOC	0.000300	1.27E-05	6.62E-03
Methyl Ethyl Ketone	VOC	0.014770	6.26E-04	3.26E-01
M-Xylene	VOC	0.006110	2.59E-04	1.35E-01
Hexane	VOC	0.001570	6.66E-05	3.46E-02
O-Xylene	VOC	0.003350	1.42E-04	7.39E-02
Propylene	VOC	0.025970	1.10E-03	5.73E-01
P-Xylene	VOC	0.000950	4.03E-05	2.09E-02
Styrene	VOC	0.000580	2.46E-05	1.28E-02
Toluene	VOC	0.014730	6.25E-04	3.25E-01

Notes:

1. Diesel related TAC composition is based on the ARB speciation profile 425 for PM and 818 for VOC.
2. Speciated emissions from Diesel Exhaust assessed for acute effects only.

Table A-15A. Project Assumptions - Offsite Emissions (CalEEMod Runs) During Well Drilling

Number of Trips per Day During Well Drilling

Vehicle Type ¹	One-Way Trip Per Day
Worker	10
Contractors	5
Slurry Removal Trucks	2

Trip Parameters During Well Drilling-CalEEMod Input

	Land Use Type	Land Size	Unit	Land Size in 1000 sf	Daily One-Way Trip	Trip Generation Rate ⁵ (trips /1,000 sq. ft)	Trip %	One-Way Trip Length (miles)
Commercial - Work ²	General heavy industry	283,140	sf	283	15	0.05	66.67	model default
Commercial - Nonwork ²							33.33	model default
Commercial Nonwork Hauling ^{3,4}					2	0.01	100	90

Notes:

1. Estimated by Oxy.
2. Represent worker and contractor commute trips.
3. Hauling is modeled separately in CalEEMod due to different CalEEMOD assumptions in trip generation rate, trip %, and trip length than those for worker and contractor commute.
4. For the air quality analysis, the trip length is assumed to be 90 miles to transfer slurry to the end of SCAQMD basin. Emissions are also calculated for the full trip length of 150 miles to Buttonwillow.
5. Calculated as daily one-way trip divided by land size in 1000 sf.

Table A-15B. Project Assumptions - Offsite Emissions (CalEEMod Runs) During Well Production

Number of Trips per Day During Well Production

Vehicle Type ¹	One-Way Trip Per Day
Worker	10
Contractors	5
Workover Rig Truck	1
NGL Haul Trucks	2
Slurry Removal Truck	1

Trip Parameters During Well Production-CalEEMod Input

	Land Use Type	Land Size	Unit	Land Size in 1000 sf	Daily One-Way Trip	Trip Generation Rate ⁹ (trips /1,000 sq. ft)	Trip %	One-Way Trip Length (miles)
Commercial - Work ²	General heavy industry	283,140	sf	283	15	0.05	66.67	model default
Commercial - Nonwork ³							33.33	model default
Commercial Nonwork Hauling ^{4,5}					2	0.01	100	90
Commercial Nonwork Hauling ^{6,7}					10	0.04	100	90
Commercial - Nonwork Workover Rig ⁸					10	0.04	100	model default

Notes:

- Estimated by Oxy.
- Represents worker commute trips.
- Represents contractor commute trips.
- Hauling is modeled separately in CalEEMod due to different CalEEMOD assumptions in trip generation rate, trip %, and trip length than those for worker and contractor commute.
- For the air quality analysis, the trip length is assumed to be 90 miles to transfer NGL's to the end of SCAQMD basin. Emissions are also calculated for the full trip length of 130 miles to Bakersfield.
- One truck per day is required to transfer slurry offsite when the slurry injection wells are not in operation. Since trip generation rate for one truck is very small and the model is not sensitive enough, we assumed 10 trucks for the purpose of modeling. The output results are divided by 10 to represent only 1 truck.
- For the air quality analysis, the trip length is assumed to be 90 miles to transfer slurry to the end of SCAQMD basin. Emissions are also calculated for the full trip length of 150 miles to Buttonwillow.
- One truck is required to carry the workover rig to the site during the well maintenance. Since trip generation rate for one truck is very small and the model is not sensitive enough, we assumed 10 trucks for the purpose of modeling. The output results are divided by 10 to represent only 1 truck.
- Calculated as daily one-way trip divided by land size in 1000 sf.

Table A-16(A). Maximum Mass Daily Operational Emissions (lb/day)

Category	CO	NO _x	SO _x	PM ₁₀ (Total)	PM _{2.5} (Total)	VOC
<i>Onsite Emissions</i>						
Emergency Flare	0.25	0.94	0.004	0.05	0.05	0.05
Ploymer Hopper Vent for Slurry System	0	0	0	2.14E-05	3.63E-06	0
Carbon Adsorber Unit for Surry System	0	0	0	0	0	1.43E-02
Process Heater Unit	17.75	2.62	0.13	1.57	1.53	1.46
Truck Loading Unit	0	0	0	0	0	0.09
Emergency Generator Unit	0.88	4.76	0.21	0.08	0.08	0.13
Carbon Adsorber Unit for Sump Water	0	0	0	0	0	0.01
Fugitives	0	0	0	0	0	4.26
Workover Rig	2.26	10.86	0.12	0.36	0.33	1.18
Process Flare	10.51	26.86	0.28	3.48	3.48	3.25
Backhoe	0.33	0.41	0.001	0.03	0.03	0.06
Sub-Total	31.99	46.44	0.73	5.57	5.51	10.51
<i>Offsite Emissions¹</i>						
<i>Well Drilling</i>						
Workers & Contractors ²	1.58	0.42	0.00	0.30	0.02	0.16
Mud/Hauling Trucks	4.87	9.61	0.01	0.94	0.47	0.92
Sub-Total	6.45	10.03	0.01	1.24	0.49	1.08
<i>Full Production</i>						
Workers & Contractors ²	1.58	0.42	0.00	0.30	0.02	0.16
NGL Trucks (Air Basin) ³	6.10	12.02	0.02	1.18	0.58	1.16
NGL Trucks (Statewide)	8.58	17.22	0.02	1.70	0.84	1.64
SlurryTrucks (Air Basin) ⁴	2.44	4.80	0.00	0.47	0.23	0.46
SlurryTrucks (Statewide)	3.93	7.92	0.01	0.79	0.39	0.76
Workover Rig ⁵	0.19	0.26	0.00	0.02	0.01	0.03
Sub-Total (Air Basin)	10.31	17.50	0.02	1.97	0.84	1.81
Sub-Total (Statewide)	14.28	25.82	0.03	2.81	1.26	2.58
Offsite Emissions Sub-Total (Air Basin)	16.76	27.53	0.03	3.22	1.33	2.89
Offsite Emissions Sub-Total (Statewide)	20.73	35.85	0.04	4.05	1.75	3.67
Total emissions (lb/day)	48.75	73.97	0.76	8.79	6.84	13.40
Statewide Total emissions (lb/day)	52.72	82.29	0.77	9.62	7.26	14.17

Notes:

1. Estimated using CalEEMOD.
2. Represents worker and contractor commuting emissions.
3. Haul truck emissions to transfer NGL to Bakersfield. For air quality analysis, emissions within the SCAQMD basin are compared to the CEQA significance thresholds. Total statewide emissions are included in this table for informational purposes only.
4. Haul truck emissions to transfer slurry to Buttonwillow, CA. For air quality analysis, emissions within the SCAQMD basin are compared to the CEQA significance thresholds. Total statewide emissions are included in this table for informational purposes only.
5. When needed, a workover rig will be brought to the Site.

Table A-16(B). Average Mass Daily Operational Emissions⁶ (lb/day)

Category	CO	NO _x	SO _x	PM _{1.0} (Total)	PM _{2.5} (Total)	VOC
<i>Onsite Emissions</i>						
Emergency Flare	0.25	0.94	0.004	0.05	0.05	0.05
Ploymer Hopper Vent for Slurry System	0	0	0	1.8E-05	3.0E-06	0
Carbon Adsorber Unit for Surry System	0	0	0	0	0	1.43E-02
Process Heater Unit	5.95	0.88	0.04	0.53	0.51	0.49
Truck Loading Unit	0	0	0	0	0	0.09
Emergency Generator Unit	0.14	0.66	0.03	0.01	0.01	0.02
Carbon Adsorber Unit for Sump Water	0	0	0	0	0	0.01
Fugitives	0	0	0	0	0	4.26
Workover Rig	1.30	6.25	0.07	0.21	0.19	0.68
Process Flare	9.04	23.09	0.24	2.99	2.99	2.79
Backhoe	0.33	0.41	0.0005	0.03	0.03	0.06
Sub-Total	17.02	32.22	0.38	3.82	3.80	8.47
<i>Offsite Emissions¹</i>						
<i>Well Drilling</i>						
Workers & Contractors ²	1.53	0.44	0.00	0.22	0	0.11
Mud/Hauling Trucks	1.39	2.59	0.00	0.26	0.13	0.26
Sub-Total	2.92	3.02	0.00	0.48	0.13	0.37
<i>Full Production</i>						
Workers & Contractors ²	1.53	0.44	0.00	0.22	0	0.11
NGL Trucks (Air Basin) ³	6.03	11.29	0.00	1.10	0.55	1.10
NGL Trucks (Statewide) ³	8.55	16.11	0.00	1.64	0.88	1.64
SlurryTrucks (Air Basin) ⁴	0.08	0.15	0.00	0.01	0.01	0.02
SlurryTrucks (Statewide) ⁴	0.13	0.24	0.00	0.00	0.01	0.02
Workover Rig ⁵	0.06	0.08	0.00	0.01	0.00	0.01
Sub-Total (Air Basin)	7.70	11.95	0.00	1.34	0.56	1.23
Sub-Total (Statewide)	10.27	16.87	0.00	1.87	0.89	1.79
Offsite Emissions Sub-Total (Air Basin)	10.62	14.98	0.00	1.81	0.69	1.60
Offsite Emissions Sub-Total (Statewide)	13.19	19.90	0.00	2.35	1.03	2.16
Total emissions (lb/day)	27.64	47.20	0.38	5.64	4.49	10.07
Statewide Total emissions (lb/day)	30.21	52.12	0.38	6.17	4.82	10.63

Notes:

1. Estimated using CalEEMOD.
2. Represents worker and contractor commuting emissions.
3. Haul truck emissions to transfer NGLto Bakersfield. For air quality analysis, emissions within the SCAQMD basin are compared to the CEQA significance thresholds. Total statewide emissions are included in this table for informational purposes only.
4. Haul truck emisisions to transfer slurry to Buttonwillow, CA. For air quality analysis, emissions within the SCAQMD basin are compared to the CEQA significance thresholds. Total statewide emissions are included in this table for informational purposes only.
5. When needed, a workover rig will be brought to the Site.
6. Calculated as annual average emissions divided by 365 days per year. The average daily operational emissions are the estimated emissions expected based on the typical day-to-day operations as opposed to the maximum potential daily operational emissions.

Table A-17. Assumed Baseline (Well Drilling)¹ and Project Trips per Day (Maximum)

Vehicle Type	Baseline Well Drilling (Round Trips/day) ¹	Project Well Drilling (Trips/day) ¹	Project Well Production (Trips/day) ¹
Worker/Contractors Commute and Delivery Trucks ²	85	15	15
Warehouse Haul Trucks ³	167	--	--
Slurry Removal Trucks ⁴	4	2	1
Workover Rig Truck ^{2,5}	--	--	1
Oil or NGL Haul Trucks ^{2,6}	--	--	2
Total	256	17	19

Notes:

1. Includes existing industrial warehouse and current oil and gas operations. Baseline trips represent round trips while Project trips represent one-way trips.
2. Calculated based on the total number of truck trips based on traffic counts and the CalEEMod percent of commercial-work (C-W, assumed to be worker/contractors commuting trips) and commercial-customer (C-C, assumed to be delivery trucks).
3. Calculated based on CalEEMod default trip purpose percent of 13% (Commercial-Nonwork) and total trips of 256 based on a trip count.
4. Estimated based on the amount of slurry generated during Project well drilling. These truck trips are required to transfer slurry offsite when slurry wells are not in operation during Project well production.
5. One truck is required to carry the workover rig to the site during the well maintenance.
6. Oil haul truck during Baseline and NGL haul truck during Project operations.

Driveway	Trips
Bishop Street (warehouse only)	108
Charles Willard Street (warehouse and test well)	148
Total	256

Trip Type	Industrial - Unrefrigerated Warehouse No Rail ¹
Commercial-Customer (C-C)	0%
Commercial-Work (C-W) ²	59%
Commercial-Nonwork (C-NW) ³	41%

1. CalEEMod. Appendix D. Data Tables. Table 4.3. Mobile Trip Rates, Trip Purpose, Trip Type by Land Use
2. Assumed to represent worker/contractor commuting trips.
3. Assumed to represent hauling trips.

Baseline (Production)

Vehicle Type	Baseline Production (Round Trips/day) ¹
Worker/Contractors Commute and Delivery Trucks ²	83
Warehouse Haul Trucks ³	167
Slurry Removal Trucks	--
Workover Rig Truck ^{2,4}	2
Oil or NGL Haul Trucks ^{2,5}	4
Total	256

Notes:

1. Includes existing industrial warehouse and current oil and gas operations. Baseline trips represent round trips while Project trips represent one-way trips.
2. Calculated based on the total number of truck trips based on traffic counts and the CalEEMod percent of commercial-work (C-W, assumed to be worker/contractors commuting trips) and commercial-customer (C-C, assumed to be delivery trucks).
3. Calculated based on CalEEMod default trip purpose percent of 13% (Commercial-Nonwork) and total trips of 256 based on a trip count.
4. One truck is required to carry the workover rig to the site during the well maintenance.
5. Oil haul truck during Baseline. Estimated based on the amount generated during baseline production.

Appendix A-18: Baseline CalEEMod Output Files – NGL
Hauling

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 10/13/2011

Oxy Offsite Operational Emission Estimation-Baseline NGL Hauling Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Utility Company	Los Angeles Department of Water & Power
Climate Zone	9	2.2		
		Precipitation Freq (Days)		

1.3 User Entered Comments

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Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Haul trucks

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Recreational default values are assumed to be equal to Strip Mall.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Recreational default values are assumed to be equal to Strip Mall.

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.03	0.27	0.18	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	29.47	29.47	0.00	0.00	29.50
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.41	0.53	0.40	0.00	0.01	0.01	0.04	0.00	0.01	0.03	353.83	12,429.79	12,783.62	63.69	1.16	14,482.88

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.03	0.27	0.18	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	29.47	29.47	0.00	0.00	29.50
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.41	0.53	0.40	0.00	0.01	0.01	0.04	0.00	0.01	0.03	353.83	12,429.79	12,783.62	63.69	1.16	14,482.88

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Appendix B

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.03	0.27	0.18	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	29.47	29.47	0.00	0.00	29.50
Unmitigated	0.03	0.27	0.18	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	29.47	29.47	0.00	0.00	29.50
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	2.83	2.83	2.83	15,459	15,459
Total	2.83	2.83	2.83	15,459	15,459

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	15.00	0.00	0.00	100.00

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5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
NaturalGas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
NaturalGas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

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8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					353.83	20.91	0.00	792.95
Unmitigated					353.83	20.91	0.00	792.95
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Baseline NGL Hauling

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Los Angeles Department of Water & Power
Climate Zone	9	2.2	Utility Company
		Precipitation Freq (Days)	
		33	

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Haul trucks
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to Office Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to Office Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day									
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	0.03	1,727.08	0.03	0.03	1,727.08	0.03
Mobile	0.16	1.47	0.92	0.00	0.05	0.12	0.07	0.00	0.12	0.07	0.07	178.98	0.01	0.01	0.01	179.13	0.01	0.01	179.13	0.01
Total	7.72	2.90	2.12	0.01	0.05	0.23	0.07	0.00	0.23	0.07	0.18	1,895.62	0.04	0.04	0.04	1,906.21	0.04	0.04	1,906.21	0.04

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11	0.00	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.16	1.47	0.92	0.00	0.05	0.07	0.12	0.00	0.07	0.07	0.00	178.98	0.01	0.01	0.01	179.13
Total	7.72	2.90	2.12	0.01	0.05	0.07	0.23	0.00	0.07	0.18	0.00	1,895.62	0.04	0.04	0.04	1,906.21

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	lb/day															
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	lb/day															
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail**4.1 Mitigation Measures Mobile**

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated	0.16	1.47	0.92	0.00	0.05	0.07	0.12	0.00	0.07	0.07		178.98		0.01		179.13
Unmitigated	0.16	1.47	0.92	0.00	0.05	0.07	0.12	0.00	0.07	0.07		178.98		0.01		179.13
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Land Use					
General Heavy Industry	2.83	2.83	2.83	15,459	15,459
Total	2.83	2.83	2.83	15,459	15,459

4.3 Trip Type Information

	Miles		Trip %	
	H-W or C-W	H-S or C-C	H-W or C-W	H-S or C-C
Land Use				
General Heavy Industry	8.90	13.30	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day															
NaturalGas Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
NaturalGas Unmitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU							lb/day						lb/day			
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU							lb/day						lb/day			
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category							lb/day						lb/day			
Mitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day															
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day															
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Baseline NGL Hauling
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
 - Construction Phase - No Construction Phase
 - Off-road Equipment - No Construction emissions
 - Trips and VMT - No Construction emissions
 - On-road Fugitive Dust - No construction emission
 - Grading - No Construction Phase
 - Vehicle Trips - Based on the information provided by Mark
 - Vehicle Emission Factors - Haul trucks
 - Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
 - Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
 - Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.16	1.55	0.99	0.00	0.05	0.07	0.00	0.12	177.95	0.01	0.01	0.01	178.11
Total	7.72	2.98	2.19	0.01	0.05	0.07	0.00	0.23	1,894.59	0.04	0.03	0.03	1,905.19

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11	0.00	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.16	1.55	0.99	0.00	0.05	0.07	0.12	0.00	0.07	0.07	0.00	177.95	0.01	0.01	0.01	178.11
Total	7.72	2.98	2.19	0.01	0.05	0.07	0.23	0.00	0.07	0.18		1,894.59		0.04	0.03	1,905.19

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.16	1.55	0.99	0.00	0.05	0.07	0.12	0.00	0.07	0.07		177.95		0.01		178.11
Unmitigated	0.16	1.55	0.99	0.00	0.05	0.07	0.12	0.00	0.07	0.07		177.95		0.01		178.11
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Heavy Industry	2.83	2.83	2.83	15,459	15,459		15,459

Total	2.83	2.83	2.83	2.83	15,459	15,459

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	15.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Natural Gas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

Land Use	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

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7.0 Water Detail

7.1 Mitigation Measures Water

8.1 Mitigation Measures Waste

Appendix A-19: Baseline CalEEMod Output Files – Slurry
Hauling

Oxy Offsite Operational Emission Estimation-Baseline Solid and Slurry Hauling

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Related Operational default values are assumed to be equal to Office Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Related Operational default values are assumed to be equal to Office Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Area	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.59	5.87	3.13	0.00	0.21	0.28	0.49	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.97	6.13	3.35	0.00	0.21	0.28	0.51	0.02	0.28	0.32	353.83	13,082.40	13,436.23	63.71	1.16

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	MT/yr			CO2e
													Total CO2	CH4	N2O	
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.59	5.87	3.13	0.00	0.21	0.28	0.49	0.02	0.28	0.30	0.00	682.08	682.08	0.02	0.00	682.57
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.97	6.13	3.35	0.00	0.21	0.28	0.51	0.02	0.28	0.32	353.83	13,082.40	13,436.23	63.71	1.16	15,135.95

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
MT/yr																

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
MT/yr																

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
MT/yr																

Off-Road	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.59	5.87	3.13	0.00	0.21	0.28	0.49	0.02	0.28	0.30	0.00	682.08	682.08	0.02	0.00	682.57
Unmitigated	0.59	5.87	3.13	0.00	0.21	0.28	0.49	0.02	0.28	0.30	0.00	682.08	682.08	0.02	0.00	682.57
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
General Heavy Industry	11.33	11.33	11.33	371,027	371,027
Total	11.33	11.33	11.33	371,027	371,027

4.3 Trip Type Information

Land Use	Miles			Trip %	
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C
General Heavy Industry	8.90	13.30	90.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Appendix B

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Natural Gas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Natural Gas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural/Gas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU							tons/yr									
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	Natural/Gas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU							tons/yr									
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	ROG	NOX	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh								
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOX	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh								

6.0 Area Detail

6.2 Area by SubCategory

Unmitigated

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Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail**7.1 Mitigation Measures Water**

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr							MT/yr

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons		tons/yr						
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons		tons/yr						
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Baseline Solid and Slurry Hauling
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

Project Characteristics -
Land Use - Project description
Construction Phase - No Construction Phase
Off-road Equipment - No Construction emissions
Trips and VMT - No Construction emissions
On-road Fugitive Dust - No construction emission
Grading - No Construction Phase
Vehicle Trips - Based on the information provided by Mark
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	0.03	1,716.64	0.03	0.03	1,727.08
Mobile	3.24	32.26	17.03	0.02	1.30	1.53	2.83	0.11	1.64	4,133.96	0.14		4,136.90
Total	10.80	33.69	18.23	0.03	1.30	1.53	2.94	0.11	1.75	5,850.60	0.17	0.03	5,863.98

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	3.24	32.26	17.03	0.02	1.30	1.53	2.83	0.11	1.53	1.64		4,133.96		0.14		4,136.90
Total	10.80	33.69	18.23	0.03	1.30	1.53	2.94	0.11	1.53	1.75		5,850.60		0.17	0.03	5,863.98

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	3.24	32.26	17.03	0.02	1.30	1.53	2.83	0.11	1.53	1.64		4,133.96		0.14		4,136.90
Unmitigated	3.24	32.26	17.03	0.02	1.30	1.53	2.83	0.11	1.53	1.64		4,133.96		0.14		4,136.90
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Heavy Industry	11.33	11.33	11.33	371,027		371,027	

Total	11.33	11.33	11.33	11.33	371.027	371.027

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	90.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

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Oxy Offsite Operational Emission Estimation-Baseline Solid and Slurry Hauling
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

Project Characteristics -
Land Use - Project description
Construction Phase - No Construction Phase
Off-road Equipment - No Construction emissions
Trips and VMT - No Construction emissions
On-road Fugitive Dust - No construction emission
Grading - No Construction Phase
Vehicle Trips - Based on the information provided by Mark
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	1,727.08	
Mobile	3.26	34.42	17.30	0.02	1.30	1.54	2.83	0.11	4,129.87	0.14		4,132.83	
Total	10.82	35.85	18.50	0.03	1.30	1.54	2.94	0.11	5,846.51	0.17	0.03	5,859.91	

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	3.26	34.42	17.30	0.02	1.30	1.54	2.83	0.11	1.54	1.65		4,129.87		0.14		4,132.83
Total	10.82	35.85	18.50	0.03	1.30	1.54	2.94	0.11	1.54	1.76		5,846.51		0.17	0.03	5,859.91

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	3.26	34.42	17.30	0.02	1.30	1.54	2.83	0.11	1.54	1.65		4,129.87		0.14		4,132.83
Unmitigated	3.26	34.42	17.30	0.02	1.30	1.54	2.83	0.11	1.54	1.65		4,129.87		0.14		4,132.83
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Heavy Industry	11.33	11.33	11.33	371,027		371,027	

Total	11.33	11.33	11.33	11.33	371.027	371.027

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	90.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

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7.0 Water Detail

7.1 Mitigation Measures Water

8.1 Mitigation Measures Waste

Appendix A-20: Baseline CalEEMod Output Files –
Production Workers

Oxy Offsite Operational Emission Estimation-Well Production Workers and Contractors Commute

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Related Recreational default values are assumed to be equal to Club Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Related Recreational default values are assumed to be equal to Club Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Area	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.00	0.22	0.00	0.00	0.02	0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87	0.00
Mobile	0.10	0.25	0.00	1.01	0.00	0.13	0.01	0.14	0.00	0.01	126.15	126.15	0.01	0.00	126.31	0.00
Waste							0.00	0.00	0.00	0.00	353.83	0.00	20.91	0.00	792.95	0.00
Water							0.00	0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56	0.00
Total	1.48	0.51	1.23	0.00	0.00	0.13	0.01	0.16	0.00	0.03	353.83	12,526.47	63.70	1.16	14,579.69	

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.10	0.25	1.01	0.00	0.13	0.01	0.14	0.00	0.01	0.01	0.00	126.15	126.15	0.01	0.00	126.31
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.48	0.51	1.23	0.00	0.13	0.01	0.16	0.00	0.01	0.03	353.83	12,526.47	12,880.30	63.70	1.16	14,579.69

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Off-Road	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.10	0.25	1.01	0.00	0.13	0.01	0.14	0.00	0.01	0.01	0.00	126.15	126.15	0.01	0.00	126.31
Unmitigated	0.10	0.25	1.01	0.00	0.13	0.01	0.14	0.00	0.01	0.01	0.00	126.15	126.15	0.01	0.00	126.31
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
General Heavy Industry	82.11	82.11	82.11	239,106	239,106
Total	82.11	82.11	82.11	239,106	239,106

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	40.00	0.00	60.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Appendix B

Category	ROG	NOx	CO	SO2	tons/yr				MT/yr							
					Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Natural Gas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Natural Gas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural/Gas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	Natural/Gas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	ROG	NOX	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh								
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOX	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh								

6.0 Area Detail

6.2 Area by SubCategory

Unmitigated

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Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail**7.1 Mitigation Measures Water**

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr							MT/yr

	Waste Disposed	ROG	NOx	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	tons		tons/yr				MT/yr		
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	tons		tons/yr				MT/yr		
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Well Production Workers and Contractors Commute

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	0.00	1,716.64	0.03	0.03	1,727.08
Mobile	0.54	1.34	5.55	0.01	0.79	0.84	0.03	0.08	0.05	798.62	0.04		799.52
Total	8.10	2.77	6.75	0.02	0.79	0.95	0.03	0.19	0.05	2,515.26	0.07	0.03	2,526.60

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.54	1.34	5.55	0.01	0.79	0.84	0.84	0.03	0.05	0.08		798.62		0.04		799.52
Total	8.10	2.77	6.75	0.02	0.79	0.95	0.95	0.03	0.05	0.19		2,515.26		0.07	0.03	2,526.60

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.54	1.34	5.55	0.01	0.79	0.05	0.84	0.03	0.05	0.08		798.62		0.04		799.52
Unmitigated	0.54	1.34	5.55	0.01	0.79	0.05	0.84	0.03	0.05	0.08		798.62		0.04		799.52
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Heavy Industry	82.11	82.11	82.11	239,106		239,106	

Total	82.11	82.11	82.11	82.11	239.106	239.106

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	40.00	0.00	60.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

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Oxy Offsite Operational Emission Estimation-Well Production Workers and Contractors Commute
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.58	1.46	5.51	0.01	0.79	0.84	0.03	0.08	749.42	0.04			750.35
Total	8.14	2.89	6.71	0.02	0.79	0.95	0.03	0.19	2,466.06	0.07	0.03		2,477.43

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.58	1.46	5.51	0.01	0.79	0.05	0.84	0.03	0.05	0.08		749.42		0.04		750.35
Total	8.14	2.89	6.71	0.02	0.79	0.05	0.95	0.03	0.05	0.19		2,466.06		0.07	0.03	2,477.43

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.58	1.46	5.51	0.01	0.79	0.05	0.84	0.03	0.05	0.08		749.42		0.04		750.35
Unmitigated	0.58	1.46	5.51	0.01	0.79	0.05	0.84	0.03	0.05	0.08		749.42		0.04		750.35
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Heavy Industry	82.11	82.11	82.11	239,106		239,106	

Total	82.11	82.11	82.11	82.11	239.106	239.106

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	40.00	0.00	60.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

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Appendix A-21: Baseline CalEEMod Output Files – Well
Drilling Workers

Oxy Offsite Operational Emission Estimation-Well Drilling Workers and Contractors Commute

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Area	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00	0.00	0.02	0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87	0.00
Mobile	0.10	0.24	0.98	0.00	0.12	0.01	0.13	0.00	0.01	120.97	120.97	0.01	0.00	121.11	0.00
Waste						0.00	0.00	0.00	0.00	353.83	0.00	20.91	0.00	792.95	0.00
Water						0.00	0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56	0.00
Total	1.48	0.50	1.20	0.00	0.12	0.01	0.15	0.00	0.03	353.83	12,521.29	63.70	1.16	14,574.49	

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.10	0.24	0.98	0.00	0.12	0.01	0.13	0.00	0.01	0.01	0.00	120.97	120.97	0.01	0.00	121.11
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.48	0.50	1.20	0.00	0.12	0.01	0.15	0.00	0.01	0.03	353.83	12,521.29	12,875.12	63.70	1.16	14,574.49

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Off-Road	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.10	0.24	0.98	0.00	0.12	0.01	0.13	0.00	0.01	0.01	0.00	120.97	120.97	0.01	0.00	121.11
Unmitigated	0.10	0.24	0.98	0.00	0.12	0.01	0.13	0.00	0.01	0.01	0.00	120.97	120.97	0.01	0.00	121.11
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
General Heavy Industry	84.94	84.94	84.94	228,800	228,800
Total	84.94	84.94	84.94	228,800	228,800

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Appendix B

Category	ROG	NOx	CO	SO2	tons/yr				MT/yr							
					Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Electricity Mitigated						0.00	0.00	0.00		0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00	0.00		0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Natural Gas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02	0.02	0.00	0.00	0.02	284.21	284.21	0.01	0.01	285.94
Natural Gas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02	0.02	0.00	0.00	0.02	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural/Gas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	Natural/Gas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	ROG	NOX	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh								
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOX	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh								

6.0 Area Detail

6.2 Area by SubCategory

Unmitigated

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Mitigated

	ROG	NOx	CO	SO ₂	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail**7.1 Mitigation Measures Water**

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	ROG	NOx	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	ROG	NOx	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	Mgal	tons/yr				MT/yr			

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons		tons/yr						
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons		tons/yr						
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Well Drilling Workers and Contractors Commute
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Rate And Commercial default values are assumed to be equal to Gas Mill

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Rate And Commercial default values are assumed to be equal to Gas Mill

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.53	1.29	5.38	0.01	0.76	0.81	0.03	0.07	765.74	0.04	0.04	0.04	766.60
Total	8.09	2.72	6.58	0.02	0.76	0.92	0.03	0.18	2,482.38	0.07	0.03	0.03	2,493.68

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11	0.00	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.53	1.29	5.38	0.01	0.76	0.05	0.81	0.03	0.05	0.07	0.00	765.74	0.04	0.04	0.04	766.60
Total	8.09	2.72	6.58	0.02	0.76	0.05	0.92	0.03	0.05	0.18		2,482.38		0.07	0.03	2,493.68

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.53	1.29	5.38	0.01	0.76	0.05	0.81	0.03	0.05	0.07		765.74		0.04		766.60
Unmitigated	0.53	1.29	5.38	0.01	0.76	0.05	0.81	0.03	0.05	0.07		765.74		0.04		766.60
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Heavy Industry	84.94	84.94	84.94	228,800		228,800	

Total	84.94	84.94	84.94	84.94	228.800	228.800

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

8 of 9

Oxy Offsite Operational Emission Estimation-Well Drilling Workers and Contractors Commute
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.57	1.41	5.37	0.01	0.76	0.81	0.03	0.07	718.60	0.04			719.50
Total	8.13	2.84	6.57	0.02	0.76	0.92	0.03	0.18	2,435.24	0.07	0.03		2,446.58

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.57	1.41	5.37	0.01	0.76	0.05	0.81	0.03	0.05	0.07		718.60		0.04		719.50
Total	8.13	2.84	6.57	0.02	0.76	0.05	0.92	0.03	0.05	0.18		2,435.24		0.07	0.03	2,446.58

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.57	1.41	5.37	0.01	0.76	0.05	0.81	0.03	0.05	0.07		718.60		0.04		719.50
Unmitigated	0.57	1.41	5.37	0.01	0.76	0.05	0.81	0.03	0.05	0.07		718.60		0.04		719.50
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Heavy Industry	84.94	84.94	84.94	228,800	228,800		228,800

Total	84.94	84.94	84.94	84.94	228.800	228.800

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Natural Gas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

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7.0 Water Detail

7.1 Mitigation Measures Water

8.1 Mitigation Measures Waste

Appendix A-22: Baseline CalEEMod Output Files –
Workover Rig

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 10/13/2011

Oxy Offsite Operational Emission Estimation-Baseline Workover Rig Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Utility Company	Los Angeles Department of Water & Power
Climate Zone	9	Precipitation Freq (Days)		

1.3 User Entered Comments

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Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.07	0.58	0.46	0.00	0.02	0.02	0.04	0.00	0.02	0.03	0.00	60.72	60.72	0.00	0.00	60.78
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.45	0.84	0.68	0.00	0.02	0.02	0.06	0.00	0.02	0.05	353.83	12,461.04	12,814.87	63.69	1.16	14,514.16

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.07	0.58	0.46	0.00	0.02	0.02	0.04	0.00	0.02	0.03	0.00	60.72	60.72	0.00	0.00	60.78
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.45	0.84	0.68	0.00	0.02	0.02	0.06	0.00	0.02	0.05	353.83	12,461.04	12,814.87	63.69	1.16	14,514.16

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Appendix B

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.07	0.58	0.46	0.00	0.02	0.02	0.04	0.00	0.02	0.03	0.00	60.72	60.72	0.00	0.00	60.78
Unmitigated	0.07	0.58	0.46	0.00	0.02	0.02	0.04	0.00	0.02	0.03	0.00	60.72	60.72	0.00	0.00	60.78
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	30,507	30,507
Total	11.33	11.33	11.33	30,507	30,507

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

Appendix B

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
NaturalGas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
NaturalGas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Appendix B

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Appendix B

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					353.83	20.91	0.00	792.95
Unmitigated					353.83	20.91	0.00	792.95
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Baseline Workover Rig
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Rate And Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Rate And Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.00	0.00	0.11	1,716.64	0.03	0.03	1,727.08
Mobile	0.36	3.21	2.34	0.00	0.11	0.13	0.24	0.01	0.13	369.55	0.02		369.90
Total	7.92	4.64	3.54	0.01	0.11	0.13	0.35	0.01	0.13	2,086.19	0.05	0.03	2,096.98

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.36	3.21	2.34	0.00	0.11	0.13	0.24	0.01	0.13	0.14		369.55		0.02		369.90
Total	7.92	4.64	3.54	0.01	0.11	0.13	0.35	0.01	0.13	0.25		2,086.19		0.05	0.03	2,096.98

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.36	3.21	2.34	0.00	0.11	0.13	0.24	0.01	0.13	0.14		369.55		0.02		369.90
Unmitigated	0.36	3.21	2.34	0.00	0.11	0.13	0.24	0.01	0.13	0.14		369.55		0.02		369.90
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	30,507	30,507		30,507

Total	11.33	11.33	11.33	11.33	30.507	30.507

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategoryUnmitigated

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

8 of 9

Oxy Offsite Operational Emission Estimation-Baseline Workover Rig
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
 - Construction Phase - No Construction Phase
 - Off-road Equipment - No Construction emissions
 - Trips and VMT - No Construction emissions
 - On-road Fugitive Dust - No construction emission
 - Grading - No Construction Phase
 - Vehicle Trips - Based on the information provided by Mark
 - Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
 - Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
 - Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
 - Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.00	0.00	0.11	1,716.64	0.03	0.03	1,727.08
Mobile	0.38	3.35	2.61	0.00	0.11	0.13	0.24	0.01	0.13	365.46	0.02		365.83
Total	7.94	4.78	3.81	0.01	0.11	0.13	0.35	0.01	0.13	2,082.10	0.05	0.03	2,092.91

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.38	3.35	2.61	0.00	0.11	0.13	0.24	0.01	0.13	0.14		365.46		0.02		365.83
Total	7.94	4.78	3.81	0.01	0.11	0.13	0.35	0.01	0.13	0.25		2,082.10		0.05	0.03	2,092.91

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.38	3.35	2.61	0.00	0.11	0.13	0.24	0.01	0.13	0.14		365.46		0.02		365.83
Unmitigated	0.38	3.35	2.61	0.00	0.11	0.13	0.24	0.01	0.13	0.14		365.46		0.02		365.83
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	30,507	30,507		30,507

Total	11.33	11.33	11.33	11.33	30.507	30.507

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

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Appendix A-23: Baseline CalEEMod Output Files –
Warehouse

Oxy Onsite Operational Emission Estimation-Baseline Warehouse
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Unrefrigerated Warehouse-No Rail	77.36	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Los Angeles Department of Water & Power
Climate Zone	9	2.2	
		Precipitation Freq (Days)	
		33	

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.06	0.44	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	37.29	37.29	0.00	0.00	37.39
Total	0.06	0.44	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	37.29	37.29	0.00	0.00	37.39

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.06	0.44	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	37.29	37.29	0.00	0.00	37.39
Total	0.06	0.44	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	37.29	37.29	0.00	0.00	37.39

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Mitigated Operational

B-251

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.06	0.43	0.26	0.00		0.03	0.03		0.03	0.03	0.00	35.79	35.79	0.00	0.00	35.89
Total	0.06	0.43	0.26	0.00		0.03	0.03		0.03	0.03	0.00	35.79	35.79	0.00	0.00	35.89

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.49	0.00	0.00	1.50
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.49	0.00	0.00	1.50

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Off-Road	0.06	0.43	0.26	0.00	0.03	0.03	0.03	0.00	35.79	35.79	0.00	0.00	35.89
Total	0.06	0.43	0.26	0.00	0.03	0.03	0.03	0.00	35.79	35.79	0.00	0.00	35.89

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.49	0.00	0.00	1.50
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.49	0.00	0.00	1.50

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.17	0.42	1.67	0.00	0.27	0.02	0.29	0.01	0.02	0.03	0.00	253.35	253.35	0.01	0.00	253.56
Unmitigated	0.17	0.42	1.67	0.00	0.27	0.02	0.29	0.01	0.02	0.03	0.00	253.35	253.35	0.01	0.00	253.56
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Unrefrigerated Warehouse-No Rail	167.10	167.10	167.10	503,923	503,923
Total	167.10	167.10	167.10	503,923	503,923

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Unrefrigerated Warehouse-No Rail	8.90	13.30	7.40	59.00	0.00	41.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Biogenic CO ₂	NBiogenic CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
tons/yr																
MT/yr																
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	189.48	189.48	0.00	0.00	190.10
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	189.48	189.48	0.00	0.00	190.10
Natural Gas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.76	3.76	0.00	0.00	3.78
Natural Gas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.76	3.76	0.00	0.00	3.78
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
Unrefrigerated Warehouse-No.Rail	70397.6	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.76	3.76	0.00	0.00	3.78
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.76	3.76	0.00	0.00	3.78

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
Unrefrigerated Warehouse-No.Rail	70397.6	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.76	3.76	0.00	0.00	3.78
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.76	3.76	0.00	0.00	3.78

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kWh								
Unrefrigerated Warehouse-No.Rail	337290					189.48	0.00	0.00	190.10
Total						189.48	0.00	0.00	190.10

Mitigated

	Electricity Use	ROG	NOx	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kWh								

Unrefrigerated Warehouse-No Rail	337290					189.48	0.00	0.00	190.10
Total						189.48	0.00	0.00	190.10

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.37	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.37	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.09					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.28					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.37	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coaling	0.09					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.28					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.37	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail**7.1 Mitigation Measures Water**

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					2,786.70	11.68	0.31	3,128.81
Unmitigated					2,786.70	11.68	0.31	3,128.81
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr							MT/yr

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons								
Unrefrigerated Warehouse-No.Rail	835.49					169.60	10.02	0.00	380.08
Total						169.60	10.02	0.00	380.08

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons								
Unrefrigerated Warehouse-No.Rail	835.49					169.60	10.02	0.00	380.08
Total						169.60	10.02	0.00	380.08

9.0 Vegetation

Oxy Onsite Operational Emission Estimation-Baseline Warehouse
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Unrefrigerated Warehouse-No Rail	77.36	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Los Angeles Department of Water & Power
Climate Zone	9	2.2	
		Precipitation Freq (Days)	
		33	

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	5.87	43.53	26.73	0.04	0.01	2.72	2.73	0.01	2.72	2.73	0.00	4,120.11	0.00	0.53	0.00	4,131.22
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	5.87	43.53	26.73	0.04	0.01	2.72	2.73	0.01	2.72	2.73	0.00	4,120.11	0.00	0.53	0.00	4,131.22
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Area	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.69	0.00	0.00	22.83
Mobile	0.93	2.27	9.20	0.02	1.67	0.10	1.77	0.06	0.16	1,602.51	0.07		1,604.07
Total	2.95	2.29	9.22	0.02	1.67	0.10	1.77	0.06	0.16	1,625.20	0.07	0.00	1,626.90

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.69	0.00	0.00	0.00	22.83
Mobile	0.93	2.27	9.20	0.02	1.67	0.10	1.77	0.06	0.10	0.16	0.07	1,602.51	0.07			1,604.07
Total	2.95	2.29	9.22	0.02	1.67	0.10	1.77	0.06	0.10	0.16		1,625.20		0.07	0.00	1,626.90

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	5.76	43.43	25.53	0.04		2.72	2.72		2.72	2.72		3,946.48		0.52		3,957.35
Total	5.76	43.43	25.53	0.04		2.72	2.72		2.72	2.72		3,946.48		0.52		3,957.35

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.10	1.20	0.00	0.01	0.01	0.01	0.01	0.01	0.01		173.63		0.01		173.87
Total	0.10	0.10	1.20	0.00	0.01	0.01	0.01	0.01	0.01	0.01		173.63		0.01		173.87

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	5.76	43.43	25.53	0.04		2.72	2.72		2.72	2.72	0.00	3,946.48		0.52		3,957.35
Total	5.76	43.43	25.53	0.04		2.72	2.72		2.72	2.72	0.00	3,946.48		0.52		3,957.35

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.10	1.20	0.00	0.01	0.01	0.01	0.01	0.01	0.01		173.63		0.01		173.87
Total	0.10	0.10	1.20	0.00	0.01	0.01	0.01	0.01	0.01	0.01		173.63		0.01		173.87

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.93	2.27	9.20	0.02	1.67	0.10	1.77	0.06	0.10	0.16		1,602.51		0.07		1,604.07
Unmitigated	0.93	2.27	9.20	0.02	1.67	0.10	1.77	0.06	0.10	0.16		1,602.51		0.07		1,604.07
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Unrefrigerated Warehouse-No Rail	167.10	167.10	167.10	503,923	503,923

Total	167.10	167.10	167.10	167.10	503.923	503.923

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Unrefrigerated Warehouse-No Rail	8.90	13.30	7.40	59.00	0.00	41.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
lb/day																
NaturalGas	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	22.83
Mitigated NaturalGas	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	22.83
Unmitigated Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

Land Use	NaturalGas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
lb/day																	
Land Use	kBTU																
Unrefrigerated Warehouse-No Rail	192.87	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00			22.69		0.00	22.83
Total		0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00			22.69	0.00	0.00	22.83

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
Unrefrigerated Warehouse-No.Rail	0.19287	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00		22.69		0.00	0.00	22.83
Total		0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00		22.69		0.00	0.00	22.83

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	2.02	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	2.02	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategoryUnmitigated

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

8 of 9

Oxy Onsite Operational Emission Estimation-Baseline Warehouse
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Unrefrigerated Warehouse-No Rail	77.36	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Los Angeles Department of Water & Power
Climate Zone	9	2.2	
		Precipitation Freq (Days)	
		33	

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	5.88	43.55	26.67	0.04	0.01	2.72	2.73	0.01	2.72	2.73	0.00	4,107.36	0.00	0.53	0.00	4,118.46
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	5.88	43.55	26.67	0.04	0.01	2.72	2.73	0.01	2.72	2.73	0.00	4,107.36	0.00	0.53	0.00	4,118.46
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Area	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.69	0.00	0.00	22.83
Mobile	0.98	2.46	9.09	0.01	1.67	0.10	1.77	0.06	0.10	1.505.48	0.06		1,506.75
Total	3.00	2.48	9.11	0.01	1.67	0.10	1.77	0.06	0.10	1,528.17	0.06	0.00	1,529.58

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day															
Area	2.02	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00		22.69		0.00	0.00	22.83
Mobile	0.98	2.46	9.09	0.01	1.67	0.10	1.77	0.06	0.10	0.16		1,505.48		0.06		1,506.75
Total	3.00	2.48	9.11	0.01	1.67	0.10	1.77	0.06	0.10	0.16		1,528.17		0.06	0.00	1,529.58

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	5.76	43.43	25.53	0.04		2.72	2.72		2.72	2.72		3,946.48		0.52		3,957.35
Total	5.76	43.43	25.53	0.04		2.72	2.72		2.72	2.72		3,946.48		0.52		3,957.35

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.11	0.12	1.14	0.00	0.01	0.01	0.01	0.01	0.01	0.01		160.88		0.01		161.11
Total	0.11	0.12	1.14	0.00	0.01	0.01	0.01	0.01	0.01	0.01		160.88		0.01		161.11

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	5.76	43.43	25.53	0.04		2.72	2.72		2.72	2.72	0.00	3,946.48		0.52		3,957.35
Total	5.76	43.43	25.53	0.04		2.72	2.72		2.72	2.72	0.00	3,946.48		0.52		3,957.35

Mitigated Construction Off-Site

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.11	0.12	1.14	0.00	0.01	0.01	0.01	0.01	0.01	0.01		160.88		0.01		161.11
Total	0.11	0.12	1.14	0.00	0.01	0.01	0.01	0.01	0.01	0.01		160.88		0.01		161.11

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated	0.98	2.46	9.09	0.01	1.67	0.10	1.77	0.06	0.10	0.16		1,505.48		0.06		1,506.75
Unmitigated	0.98	2.46	9.09	0.01	1.67	0.10	1.77	0.06	0.10	0.16		1,505.48		0.06		1,506.75
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT		Mitigated Annual VMT	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
Unrefrigerated Warehouse-No Rail	167.10	167.10	167.10	503,923		503,923	

Total	167.10	167.10	167.10	167.10	503.923	503.923

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Unrefrigerated Warehouse-No Rail	8.90	13.30	7.40	59.00	0.00	41.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
lb/day																
NaturalGas	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00			22.69	0.00	0.00	22.83
Mitigated NaturalGas	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00			22.69	0.00	0.00	22.83
Unmitigated Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

Land Use	NaturalGas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
lb/day																	
Land Use	kBTU																
Unrefrigerated Warehouse-No Rail	192.87	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00			22.69	0.00	0.00	22.83
Total		0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00			22.69	0.00	0.00	22.83

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
Unrefrigerated Warehouse-No.Rail	0.19287	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00		22.69		0.00	0.00	22.83
Total		0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00		22.69		0.00	0.00	22.83

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	2.02	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	2.02	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategoryUnmitigated

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

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Appendix A-24: Project CalEEMod Output Files – NGL
Hauling (Air Basin)

Oxy Offsite Operational Emission Estimation-Future Project-NGL Hauling
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Related Operational default values are assumed to be equal to Office Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Related Operational default values are assumed to be equal to Office Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Mitigated Operational

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3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Off-Road	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.10	1.03	0.55	0.00	0.05	0.05	0.10	0.01	0.05	0.05	0.00	169.59	169.59	0.00	0.00	169.67
Unmitigated	0.10	1.03	0.55	0.00	0.05	0.05	0.10	0.01	0.05	0.05	0.00	169.59	169.59	0.00	0.00	169.67
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Land Use					
General Heavy Industry	2.83	2.83	2.83	92,757	92,757
Total	2.83	2.83	2.83	92,757	92,757

4.3 Trip Type Information

	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Land Use						
General Heavy Industry	8.90	13.30	90.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Appendix B

Category	ROG	NOx	CO	SO2	tons/yr				MT/yr							
					Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Natural Gas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Natural Gas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOX	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	Natural Gas Use	ROG	NOX	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	ROG	NOX	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kWh								
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOX	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kWh								

6.0 Area Detail

6.2 Area by SubCategory

Unmitigated

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Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail**7.1 Mitigation Measures Water**

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons		tons/yr				MT/yr		
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons		tons/yr				MT/yr		
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Future Project-NGL Hauling Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Los Angeles Department of Water & Power
Climate Zone	9	2.2	Utility Company
		Precipitation Freq (Days)	
		33	

1.3 User Entered Comments

Project Characteristics -
 Land Use - Project description
 Construction Phase - No Construction Phase
 Off-road Equipment - No Construction emissions
 Trips and VMT - No Construction emissions
 On-road Fugitive Dust - No construction emission
 Grading - No Construction Phase
 Vehicle Trips - Based on the information provided by Mark
 Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
 Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
 Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to Office Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to Office Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary**2.1 Overall Construction (Maximum Daily Emission)****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day				
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	1,727.08	
Mobile	0.57	5.64	2.99	0.01	0.32	0.59	0.03	0.26	0.29	0.03	1,027.90	0.02		1,028.40	
Total	8.13	7.07	4.19	0.02	0.32	0.70	0.03	0.26	0.40	0.03	2,744.54	0.05	0.03	2,755.48	

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.57	5.64	2.99	0.01	0.32	0.26	0.59	0.03	0.26	0.29		1,027.90		0.02		1,028.40
Total	8.13	7.07	4.19	0.02	0.32	0.26	0.70	0.03	0.26	0.40		2,744.54		0.05	0.03	2,755.48

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail**4.1 Mitigation Measures Mobile**

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated	0.57	5.64	2.99	0.01	0.32	0.26	0.59	0.03	0.26	0.29		1,027.90		0.02		1,028.40
Unmitigated	0.57	5.64	2.99	0.01	0.32	0.26	0.59	0.03	0.26	0.29		1,027.90		0.02		1,028.40
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Land Use					
General Heavy Industry	2.83	2.83	2.83	92,757	92,757
Total	2.83	2.83	2.83	92,757	92,757

4.3 Trip Type Information

	Miles		Trip %	
	H-W or C-W	H-S or C-C	H-W or C-W	H-S or C-C
Land Use				
General Heavy Industry	8.90	13.30	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day															
NaturalGas Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
NaturalGas Unmitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU							lb/day						lb/day			
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU							lb/day						lb/day			
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category							lb/day						lb/day			
Mitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day															
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day															
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Future Project-NGL Hauling
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	1,727.08	
Mobile	0.58	6.01	3.05	0.01	0.32	0.27	0.03	0.29	1,026.78	0.02		1,027.28	
Total	8.14	7.44	4.25	0.02	0.32	0.27	0.03	0.40	2,743.42	0.05	0.03	2,754.36	

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.58	6.01	3.05	0.01	0.32	0.27	0.59	0.03	0.27	0.29		1,026.78		0.02		1,027.28
Total	8.14	7.44	4.25	0.02	0.32	0.27	0.70	0.03	0.27	0.40		2,743.42		0.05	0.03	2,754.36

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.58	6.01	3.05	0.01	0.32	0.27	0.59	0.03	0.27	0.29		1,026.78		0.02		1,027.28
Unmitigated	0.58	6.01	3.05	0.01	0.32	0.27	0.59	0.03	0.27	0.29		1,026.78		0.02		1,027.28
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Heavy Industry	2.83	2.83	2.83	92,757		92,757	

Total	2.83	2.83	2.83	2.83	92.757	92.757

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	90.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Natural Gas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

Land Use	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

B-305

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategoryUnmitigated

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

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Appendix A-25: Project CalEEMod Output Files – NGL
Hauling (Statewide)

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 6/13/2011

Oxy Offsite Operational Emission Estimation-Future Project-NGL Hauling-GHG Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Utility Company	Los Angeles Department of Water & Power
Climate Zone	9	2.2		
		Precipitation Freq (Days)		

1.3 User Entered Comments

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Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Recreational default values are assumed to be equal to Strip Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Recreational default values are assumed to be equal to Strip Mall

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.15	1.47	0.78	0.00	0.08	0.07	0.15	0.01	0.07	0.08	0.00	244.35	244.35	0.01	0.00	244.47
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,198.40	10,198.40	42.73	1.14	11,451.56
Total	1.53	1.73	1.00	0.00	0.08	0.07	0.17	0.01	0.07	0.10	353.83	12,644.67	12,998.50	63.70	1.16	14,697.85

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.15	1.47	0.78	0.00	0.08	0.07	0.15	0.01	0.07	0.08	0.00	244.35	244.35	0.01	0.00	244.47
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,198.40	10,198.40	42.73	1.14	11,451.56
Total	1.53	1.73	1.00	0.00	0.08	0.07	0.17	0.01	0.07	0.10	353.83	12,644.67	12,998.50	63.70	1.16	14,697.85

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Appendix B

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.15	1.47	0.78	0.00	0.08	0.07	0.15	0.01	0.07	0.08	0.00	244.35	244.35	0.01	0.00	244.47
Unmitigated	0.15	1.47	0.78	0.00	0.08	0.07	0.15	0.01	0.07	0.08	0.00	244.35	244.35	0.01	0.00	244.47
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	2.83	2.83	2.83	133,982	133,982
Total	2.83	2.83	2.83	133,982	133,982

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	130.00	0.00	0.00	100.00

Appendix B

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
NaturalGas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
NaturalGas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Appendix B

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					353.83	20.91	0.00	792.95
Unmitigated					353.83	20.91	0.00	792.95
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 6/13/2011

Oxy Offsite Operational Emission Estimation-Future Project-NGL Hauling-GHG Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

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Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to "Strip Mall"

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.82	8.07	4.25	0.01	0.47	0.38	0.85	0.04	0.38	0.42		1,480.84		0.03		1,481.54
Total	8.38	9.50	5.45	0.02	0.47	0.38	0.96	0.04	0.38	0.53		3,197.48		0.06	0.03	3,208.62

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.82	8.07	4.25	0.01	0.47	0.38	0.85	0.04	0.38	0.42		1,480.84		0.03		1,481.54
Total	8.38	9.50	5.45	0.02	0.47	0.38	0.96	0.04	0.38	0.53		3,197.48		0.06	0.03	3,208.62

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3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

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4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.82	8.07	4.25	0.01	0.47	0.38	0.85	0.04	0.38	0.42		1,480.84		0.03		1,481.54
Unmitigated	0.82	8.07	4.25	0.01	0.47	0.38	0.85	0.04	0.38	0.42		1,480.84		0.03		1,481.54
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	2.83	2.83	2.83	133,982	133,982
Total	2.83	2.83	2.83	133,982	133,982

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	130.00	0.00	0.00	100.00

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5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
NaturalGas Unmitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	14,591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

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7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 6/13/2011

Oxy Offsite Operational Emission Estimation-Future Project-NGL Hauling-GHG Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

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Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to "Strip Mall"

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.82	8.61	4.29	0.01	0.47	0.38	0.85	0.04	0.38	0.42		1,479.72		0.03		1,480.42
Total	8.38	10.04	5.49	0.02	0.47	0.38	0.96	0.04	0.38	0.53		3,196.36		0.06	0.03	3,207.50

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.82	8.61	4.29	0.01	0.47	0.38	0.85	0.04	0.38	0.42		1,479.72		0.03		1,480.42
Total	8.38	10.04	5.49	0.02	0.47	0.38	0.96	0.04	0.38	0.53		3,196.36		0.06	0.03	3,207.50

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

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4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.82	8.61	4.29	0.01	0.47	0.38	0.85	0.04	0.38	0.42		1,479.72		0.03		1,480.42
Unmitigated	0.82	8.61	4.29	0.01	0.47	0.38	0.85	0.04	0.38	0.42		1,479.72		0.03		1,480.42
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	2.83	2.83	2.83	133,982	133,982
Total	2.83	2.83	2.83	133,982	133,982

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	130.00	0.00	0.00	100.00

Appendix B

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
NaturalGas Unmitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	14,591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Appendix B

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Appendix B

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Appendix A-26: Project CalEEMod Output Files – Slurry
Hauling (Air Basin)

Oxy Offsite Operational Emission Estimation-Future Project Solid and Slurry Hauling
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Utility Company	Los Angeles Department of Water & Power
Climate Zone	9	2.2		
		Precipitation Freq (Days)		
		33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Area	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.42	4.10	2.20	0.00	0.21	0.19	0.41	0.02	0.19	0.21	0.00	0.00	0.00	0.00	0.00
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.80	4.36	2.42	0.00	0.21	0.19	0.43	0.02	0.19	0.23	353.83	13,078.68	13,432.51	63.71	1.16

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
MT/yr																
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.42	4.10	2.20	0.00	0.21	0.19	0.41	0.02	0.19	0.21	0.00	678.36	678.36	0.02	0.00	678.69
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.80	4.36	2.42	0.00	0.21	0.19	0.43	0.02	0.19	0.23	353.83	13,078.68	13,432.51	63.71	1.16	15,132.07

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
MT/yr																

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
MT/yr																

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
tons/yr																
MT/yr																

Off-Road	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00	0.04	0.04	0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.42	4.10	2.20	0.00	0.21	0.19	0.41	0.02	0.19	0.21	0.00	678.36	678.36	0.02	0.00	678.69
Unmitigated	0.42	4.10	2.20	0.00	0.21	0.19	0.41	0.02	0.19	0.21	0.00	678.36	678.36	0.02	0.00	678.69
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
General Heavy Industry	11.33	11.33	11.33	371,027	371,027
Total	11.33	11.33	11.33	371,027	371,027

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	90.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Appendix B

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Natural Gas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Natural Gas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOX	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	Natural Gas Use	ROG	NOX	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	ROG	NOX	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kWh								
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOX	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kWh								

6.0 Area Detail

6.2 Area by SubCategory

Unmitigated

8 of 11

Mitigated

	ROG	NOx	CO	SO ₂	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail**7.1 Mitigation Measures Water**

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	ROG	NOx	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	ROG	NOx	CO	SO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	Mgal	tons/yr				MT/yr			

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons								
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons								
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Future Project Solid and Slurry Hauling
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	2.29	22.54	11.97	0.02	1.30	1.06	0.11	2.36	4,111.61	0.09	0.09	0.09	4,113.59
Total	9.85	23.97	13.17	0.03	1.30	1.06	0.11	2.47	5,828.25	0.12	0.03	0.03	5,840.67

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11	0.00	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	2.29	22.54	11.97	0.02	1.30	1.06	2.36	0.11	1.06	1.17	0.09	4,111.61	0.09	0.09	0.09	4,113.59
Total	9.85	23.97	13.17	0.03	1.30	1.06	2.47	0.11	1.06	1.28	0.12	5,828.25	0.03	0.03	0.03	5,840.67

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	2.29	22.54	11.97	0.02	1.30	1.06	2.36	0.11	1.06	1.17		4,111.61		0.09		4,113.59
Unmitigated	2.29	22.54	11.97	0.02	1.30	1.06	2.36	0.11	1.06	1.17		4,111.61		0.09		4,113.59
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	371,027	371,027		371,027

Total	11.33	11.33	11.33	11.33	371.027	371.027

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	90.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Oxy Offsite Operational Emission Estimation-Future Project Solid and Slurry Hauling
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization Urban Wind Speed (m/s) 2.2 Utility Company Los Angeles Department of Water & Power

Climate Zone 9 Precipitation Freq (Days) 33

1.3 User Entered Comments

Project Characteristics -
Land Use - Project description
Construction Phase - No Construction Phase
Off-road Equipment - No Construction emissions
Trips and VMT - No Construction emissions
On-road Fugitive Dust - No construction emission
Grading - No Construction Phase
Vehicle Trips - Based on the information provided by Mark
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary**2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall OperationalUnmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	1,727.08	
Mobile	2.31	24.02	12.18	0.02	1.30	1.06	0.11	2.36	4,107.12	0.09		4,109.11	
Total	9.87	25.45	13.38	0.03	1.30	1.06	0.11	2.47	5,823.76	0.12	0.03	5,836.19	

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	2.31	24.02	12.18	0.02	1.30	1.06	2.36	0.11	1.06	1.17		4,107.12		0.09		4,109.11
Total	9.87	25.45	13.38	0.03	1.30	1.06	2.47	0.11	1.06	1.28		5,823.76		0.12	0.03	5,836.19

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	2.31	24.02	12.18	0.02	1.30	1.06	2.36	0.11	1.06	1.17		4,107.12		0.09		4,109.11
Unmitigated	2.31	24.02	12.18	0.02	1.30	1.06	2.36	0.11	1.06	1.17		4,107.12		0.09		4,109.11
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	371,027	371,027		371,027

Total	11.33	11.33	11.33	11.33	371.027	371.027

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	90.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Natural Gas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

Land Use	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategoryUnmitigated

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

8 of 9

Appendix A-27: Project CalEEMod Output Files – Slurry
Hauling (Statewide)

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 9/7/2011

Oxy Offsite Operational Emission Estimation-Future Project Solid and Slurry Hauling-GHG Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	Utility Company	Los Angeles Department of Water & Power
Climate Zone	9	2.2		
		Precipitation Freq (Days)		

1.3 User Entered Comments

33

Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.69	6.76	3.56	0.01	0.35	0.32	0.68	0.03	0.32	0.36	0.00	1,126.94	1,126.94	0.03	0.00	1,127.48
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	2.07	7.02	3.78	0.01	0.35	0.32	0.70	0.03	0.32	0.38	353.83	13,527.26	13,881.09	63.72	1.16	15,580.86

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.69	6.76	3.56	0.01	0.35	0.32	0.68	0.03	0.32	0.36	0.00	1,126.94	1,126.94	0.03	0.00	1,127.48
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	2.07	7.02	3.78	0.01	0.35	0.32	0.70	0.03	0.32	0.38	353.83	13,527.26	13,881.09	63.72	1.16	15,580.86

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Appendix B

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.69	6.76	3.56	0.01	0.35	0.32	0.68	0.03	0.32	0.36	0.00	1,126.94	1,126.94	0.03	0.00	1,127.48
Unmitigated	0.69	6.76	3.56	0.01	0.35	0.32	0.68	0.03	0.32	0.36	0.00	1,126.94	1,126.94	0.03	0.00	1,127.48
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	618,378	618,378
Total	11.33	11.33	11.33	618,378	618,378

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	150.00	0.00	0.00	100.00

Appendix B

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
NaturalGas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
NaturalGas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Appendix B

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Appendix B

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					353.83	20.91	0.00	792.95
Unmitigated					353.83	20.91	0.00	792.95
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Future Project Solid and Slurry Hauling-GHG
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	1,727.08	
Mobile	3.76	37.12	19.49	0.04	2.16	1.76	0.19	3.93	6,829.24	0.15	0.15	6,832.47	
Total	11.32	38.55	20.69	0.05	2.16	1.76	0.19	4.04	8,545.88	0.18	0.03	8,559.55	

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11	0.00	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	3.76	37.12	19.49	0.04	2.16	1.76	3.93	0.19	1.76	1.95	0.15	6,829.24	0.15	0.15	0.03	6,832.47
Total	11.32	38.55	20.69	0.05	2.16	1.76	4.04	0.19	1.76	2.06	0.18	8,545.88	0.18	0.03	0.03	8,559.55

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	3.76	37.12	19.49	0.04	2.16	1.76	3.93	0.19	1.76	1.95		6,829.24		0.15		6,832.47
Unmitigated	3.76	37.12	19.49	0.04	2.16	1.76	3.93	0.19	1.76	1.95		6,829.24		0.15		6,832.47
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	618,378	618,378		618,378

Total	11.33	11.33	11.33	11.33	618.378	618.378

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	150.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Natural Gas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

B-376

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

8 of 9

Oxy Offsite Operational Emission Estimation-Future Project Solid and Slurry Hauling-GHG
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	1,727.08	
Mobile	3.78	39.62	19.65	0.04	2.16	1.77	3.93	0.19	1.77	1.95	0.15	6,827.99	
Total	11.34	41.05	20.85	0.05	2.16	1.77	4.04	0.19	1.77	2.06	0.18	8,555.07	

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	7.40	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11	0.00	0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	3.78	39.62	19.65	0.04	2.16	1.77	3.93	0.19	1.77	1.95		6,824.74		0.15		6,827.99
Total	11.34	41.05	20.85	0.05	2.16	1.77	4.04	0.19	1.77	2.06		8,541.38		0.18	0.03	8,555.07

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	3.78	39.62	19.65	0.04	2.16	1.77	3.93	0.19	1.77	1.95		6,824.74		0.15		6,827.99
Unmitigated	3.78	39.62	19.65	0.04	2.16	1.77	3.93	0.19	1.77	1.95		6,824.74		0.15		6,827.99
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	618,378	618,378		618,378

Total	11.33	11.33	11.33	11.33	618.378	618.378

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	150.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

8 of 9

Appendix A-28: Project CalEEMod Output Files –
Production and Well Drilling Workers

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 6/10/2011

Oxy Offsite Operational Emission Estimation-Future Project Well Drilling-Well Production Workers and Contractors Commute

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

33

Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Recreational default values are assumed to be equal to Strip Mall

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.01	0.04	0.14	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	21.75	21.75	0.00	0.00	21.77
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.39	0.30	0.36	0.00	0.02	0.00	0.04	0.00	0.00	0.02	353.83	12,422.07	12,775.90	63.69	1.16	14,475.15

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.01	0.04	0.14	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	21.75	21.75	0.00	0.00	21.77
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.39	0.30	0.36	0.00	0.02	0.00	0.04	0.00	0.00	0.02	353.83	12,422.07	12,775.90	63.69	1.16	14,475.15

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Appendix B

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										Mt/yr					
Mitigated	0.01	0.04	0.14	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	21.75	21.75	0.00	0.00	21.77
Unmitigated	0.01	0.04	0.14	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	21.75	21.75	0.00	0.00	21.77
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	14.16	14.16	14.16	43,287	43,287
Total	14.16	14.16	14.16	43,287	43,287

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	66.67	0.00	33.33

Appendix B

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
NaturalGas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
NaturalGas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Appendix B

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Appendix B

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					353.83	20.91	0.00	792.95
Unmitigated					353.83	20.91	0.00	792.95
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Oxy Offsite Operational Emission Estimation-Future Project Well Drilling-Well Production Workers an
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Related Operational default values are assumed to be equal to Office Mall

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Heat Related Operational default values are assumed to be equal to Office Mall

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	0.00	1,716.64	0.03	0.03	1,727.08
Mobile	0.08	0.19	0.79	0.00	0.14	0.01	0.00	0.15	0.00	137.61	0.01	0.01	137.74
Total	7.64	1.62	1.99	0.01	0.14	0.01	0.00	0.26	0.00	1,854.25	0.04	0.03	1,864.82

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11	0.00	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.08	0.19	0.79	0.00	0.14	0.01	0.15	0.00	0.01	0.01	0.00	137.61	0.01	0.01	0.01	137.74
Total	7.64	1.62	1.99	0.01	0.14	0.01	0.26	0.00	0.01	0.12	0.00	1,854.25	0.04	0.03	0.03	1,864.82

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.08	0.19	0.79	0.00	0.14	0.01	0.15	0.00	0.01	0.01		137.61		0.01		137.74
Unmitigated	0.08	0.19	0.79	0.00	0.14	0.01	0.15	0.00	0.01	0.01		137.61		0.01		137.74
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Heavy Industry	14.16	14.16	14.16	43,287		43,287	

Total	14.16	14.16	14.16	14.16	43.287	43.287

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	66.67	0.00	33.33

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11	1,716.64		0.03	0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategoryUnmitigated

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

8 of 9

Oxy Offsite Operational Emission Estimation-Future Project Well Drilling-Well Production Workers an
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)	33		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Project description
- Construction Phase - No Construction Phase
- Off-road Equipment - No Construction emissions
- Trips and VMT - No Construction emissions
- On-road Fugitive Dust - No construction emission
- Grading - No Construction Phase
- Vehicle Trips - Based on the information provided by Mark
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Vehicle Emission Factors - Based on the total number of vehicle types commute to the site
- Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Use Defined Commercial default values are assumed to be equal to Office Mail

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															

Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.11	0.00	0.11	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.08	0.21	0.78	0.00	0.14	0.15	0.00	0.01	129.27	0.01	0.01	0.01	129.38
Total	7.64	1.64	1.98	0.01	0.14	0.26	0.00	0.01	1,845.91	0.04	0.03	0.03	1,856.46

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day																
Area	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.16	1.43	1.20	0.01	0.00	0.00	0.11	0.00	0.00	0.11	0.00	1,716.64	0.03	0.03	0.03	1,727.08
Mobile	0.08	0.21	0.78	0.00	0.14	0.01	0.15	0.00	0.01	0.01	0.00	129.27	0.01	0.01	0.01	129.38
Total	7.64	1.64	1.98	0.01	0.14	0.01	0.26	0.00	0.01	0.12	0.00	1,845.91	0.04	0.03	0.03	1,856.46

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

Category	ROG	NOX	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
lb/day																
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

Category	ROG	NOX	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
lb/day																
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

Category	ROG	NOX	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
lb/day																
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.08	0.21	0.78	0.00	0.14	0.01	0.15	0.00	0.01	0.01		129.27		0.01		129.38
Unmitigated	0.08	0.21	0.78	0.00	0.14	0.01	0.15	0.00	0.01	0.01		129.27		0.01		129.38
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Heavy Industry	14.16	14.16	14.16	43,287		43,287	

Total	14.16	14.16	14.16	14.16	43.287	43.287

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	66.67	0.00	33.33

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
NaturalGas	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Unmitigated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.11	0.11	0.00	0.11	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Land Use	kBTU																
General Heavy Industry	14.5914	0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01	0.00	0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

6.0 Area Detail**6.1 Mitigation Measures Area**

B-412

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Category																
Mitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
SubCategory																

Mitigated

7.0 Water Detail

8.0 Waste Detail

8 of 9

Appendix A-29: Project CalEEMod Output Files –
Workover Rig

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 6/23/2011

Oxy Offsite Operational Emission Estimation-Workover Rig Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

33

Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01
Total	0.10	0.80	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.84	69.84	0.01	0.00	70.01

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.05	0.45	0.33	0.00	0.02	0.02	0.03	0.00	0.02	0.02	0.00	60.82	60.82	0.00	0.00	60.86
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.43	0.71	0.55	0.00	0.02	0.02	0.05	0.00	0.02	0.04	353.83	12,461.14	12,814.97	63.69	1.16	14,514.24

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	2,200.92	2,200.92	0.05	0.02	2,208.87
Mobile	0.05	0.45	0.33	0.00	0.02	0.02	0.03	0.00	0.02	0.02	0.00	60.82	60.82	0.00	0.00	60.86
Waste						0.00	0.00		0.00	0.00	353.83	0.00	353.83	20.91	0.00	792.95
Water						0.00	0.00		0.00	0.00	0.00	10,199.40	10,199.40	42.73	1.14	11,451.56
Total	1.43	0.71	0.55	0.00	0.02	0.02	0.05	0.00	0.02	0.04	353.83	12,461.14	12,814.97	63.69	1.16	14,514.24

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1.72	0.00	0.00	1.73

Appendix B

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.05	0.45	0.33	0.00	0.02	0.02	0.03	0.00	0.02	0.02	0.00	60.82	60.82	0.00	0.00	60.86
Unmitigated	0.05	0.45	0.33	0.00	0.02	0.02	0.03	0.00	0.02	0.02	0.00	60.82	60.82	0.00	0.00	60.86
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	30,507	30,507
Total	11.33	11.33	11.33	30,507	30,507

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

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5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,916.71	1,916.71	0.04	0.02	1,922.93
NaturalGas Mitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
NaturalGas Unmitigated	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Heavy Industry	5.32586e+006	0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94
Total		0.03	0.26	0.22	0.00		0.00	0.02		0.00	0.02	0.00	284.21	284.21	0.01	0.01	285.94

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Heavy Industry	3.41184e+006					1,916.71	0.04	0.02	1,922.93
Total						1,916.71	0.04	0.02	1,922.93

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.33					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	1.02					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.35	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					10,199.40	42.73	1.14	11,451.56
Unmitigated					10,199.40	42.73	1.14	11,451.56
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Heavy Industry	1392.18 / 0					10,199.40	42.73	1.14	11,451.56
Total						10,199.40	42.73	1.14	11,451.56

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8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					353.83	20.91	0.00	792.95
Unmitigated					353.83	20.91	0.00	792.95
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Heavy Industry	1743.08					353.83	20.91	0.00	792.95
Total						353.83	20.91	0.00	792.95

9.0 Vegetation

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 6/23/2011

Oxy Offsite Operational Emission Estimation-Workover Rig Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

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Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	9.96	79.99	47.33	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,711.16	0.00	0.89	0.00	7,729.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.27	2.47	1.63	0.00	0.11	0.09	0.20	0.01	0.09	0.10		370.34		0.01		370.59
Total	7.83	3.90	2.83	0.01	0.11	0.09	0.31	0.01	0.09	0.21		2,086.98		0.04	0.03	2,097.67

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.27	2.47	1.63	0.00	0.11	0.09	0.20	0.01	0.09	0.10		370.34		0.01		370.59
Total	7.83	3.90	2.83	0.01	0.11	0.09	0.31	0.01	0.09	0.21		2,086.98		0.04	0.03	2,097.67

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62
Total	0.12	0.12	1.38	0.00	0.01	0.01	0.02	0.01	0.01	0.02		200.34		0.01		200.62

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4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.27	2.47	1.63	0.00	0.11	0.09	0.20	0.01	0.09	0.10		370.34		0.01		370.59
Unmitigated	0.27	2.47	1.63	0.00	0.11	0.09	0.20	0.01	0.09	0.10		370.34		0.01		370.59
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	30,507	30,507
Total	11.33	11.33	11.33	30,507	30,507

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

Appendix B

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
NaturalGas Unmitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	14,591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Appendix B

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Appendix B

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Appendix B

CalEEMod Version: CalEEMod.2011.1.1

Date: 6/23/2011

Oxy Offsite Operational Emission Estimation-Workover Rig Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	283.14	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Los Angeles Department of Water & Power
Climate Zone	9		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

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Project Characteristics -

Land Use - Project description

Construction Phase - No Construction Phase

Off-road Equipment - No Construction emissions

Trips and VMT - No Construction emissions

On-road Fugitive Dust - No construction emission

Grading - No Construction Phase

Vehicle Trips - Based on the information provided by Mark

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Vehicle Emission Factors - Based on the total number of vehicle types commute to the site

Road Dust -

Energy Use -

Water And Wastewater - User Defined Commercial default values are assumed to be equal to General Office Buildings.

Solid Waste - User Defined Commercial default values are assumed to be equal to General Office Buildings.

User Defined Commercial default values are assumed to be equal to "Strip Mall"

Construction Off-road Equipment Mitigation -

Appendix B

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	9.97	80.01	47.27	0.07	0.01	4.11	4.12	0.01	4.11	4.12	0.00	7,696.45	0.00	0.89	0.00	7,715.23
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.28	2.55	1.90	0.00	0.11	0.09	0.20	0.01	0.09	0.10		365.85		0.01		366.11
Total	7.84	3.98	3.10	0.01	0.11	0.09	0.31	0.01	0.09	0.21		2,082.49		0.04	0.03	2,093.19

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Mobile	0.28	2.55	1.90	0.00	0.11	0.09	0.20	0.01	0.09	0.10		365.85		0.01		366.11
Total	7.84	3.98	3.10	0.01	0.11	0.09	0.31	0.01	0.09	0.21		2,082.49		0.04	0.03	2,093.19

Appendix B

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10		7,510.82		0.88		7,529.33

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33
Total	9.84	79.87	45.95	0.07		4.10	4.10		4.10	4.10	0.00	7,510.82		0.88		7,529.33

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90
Total	0.13	0.14	1.32	0.00	0.01	0.01	0.02	0.01	0.01	0.02		185.63		0.01		185.90

Appendix B

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.28	2.55	1.90	0.00	0.11	0.09	0.20	0.01	0.09	0.10		365.85		0.01		366.11
Unmitigated	0.28	2.55	1.90	0.00	0.11	0.09	0.20	0.01	0.09	0.10		365.85		0.01		366.11
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	11.33	11.33	11.33	30,507	30,507
Total	11.33	11.33	11.33	30,507	30,507

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	8.90	13.30	7.40	0.00	0.00	100.00

Appendix B

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
NaturalGas Unmitigated	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	14591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	14,591.4	0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08
Total		0.16	1.43	1.20	0.01		0.00	0.11		0.00	0.11		1,716.64		0.03	0.03	1,727.08

Appendix B

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.40	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.80					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.61					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	7.41	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Appendix B

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Appendix B

Project Construction Emissions Estimates

Table B-1. Construction Schedule and Equipment Quantity

[illegible]

Table B-1. Construction Schedule and Equipment Quantity

Table 01 - Construction Schedule and Equipment (Continued)																																																						
Location & Activities		Dates		Quantity	Week #	Days																																																
		Start	End	(Weeks)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40									
Pipeline Construction		10/2/2013	12/17/2013	11	40	30																																																
On	Crane Trucks	10/2/2013	10/2/2013	1	1																																																	
On	Generator set	10/2/2013	12/17/2013	1	1	43	50																																															
On	Generator set	10/30/2013	12/10/2013	4	2	44	49																																															
On	Sideboom	10/30/2013	12/10/2013	4	2	44	49																																															
On	Tactor/loader/backhoe	10/2/2013	10/15/2013	2	1	40	41																																															
On	Welders	10/2/2013	10/15/2013	2	1	40	41																																															
On	Delivery Trucks	10/30/2013	12/10/2013	4	2	44	49																																															
On	Crane - Truck	10/23/2013	10/29/2013	1	1	43	43																																															
On	Generator set - pickup	10/30/2013	12/10/2013	4	1	44	49																																															
On	Sideboom - pickup	10/30/2013	12/10/2013	4	6	44	49																																															
On	Tactor/loader/backhoe - pickup	10/2/2013	10/15/2013	2	8	40	41																																															
On	Welders - pickup	10/30/2013	12/10/2013	4	8	44	49																																															
Pipeline Repairs		7/24/2013	9/24/2013	9	30	38																																																
On	Crane	8/7/2013	9/3/2013	4	1	32	35																																															
On	Dump Trucks	7/24/2013	9/24/2013	8	1	30	38																																															
On	Generator set	7/31/2013	9/24/2013	8	2	31	38																																															
On	Sideboom	7/31/2013	9/24/2013	8	2	31	38																																															
On	Tactor/loader/backhoe	7/24/2013	8/20/2013	4	1	30	33																																															
On	Welders	7/31/2013	9/24/2013	8	2	31	38																																															
Delivery Trucks		8/7/2013	9/3/2013	4	1	32	35																																															
On	Crane - Truck	7/31/2013	9/24/2013	8	1	31	38																																															

4) A start date of January 1, 2013, was assumed for purposes of this analysis. Regardless of certification date, the activities, days required for each activity, and total construction days will not change. Thus, the results will not change even if the start date changes.

- 1) A start date of January 1, 2013, was assumed for this analysis, regardless of certification date, the activities, days required for each activity, and total construction days will not change. Thus, the results will not change even if the start date changes.
- 2) SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-1. Construction Schedule and Equipment Quantity

[illegible]

Table B-1. Construction Schedule and Equipment Quantity

[illegible]

(1) A start date of January 1, 2013, was assumed for purposes of this analysis. Regardless of certification date, the activities, days required for each activity, and total construction days will not change. Thus, the results will not change even if the start date changes.

(2) SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

(2) SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE construction emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Appendix B

Table B-2(a). Construction Equipment

**Oxy USA Inc. | LA Basin Asset
Proposed Dominguez Production Facility
Construction Equipment**

	Schedule ⁽¹⁾		Onsite			Offsite			Traveled Distance (miles/trip)	Round Trips/Day
	Start (Week #)	Finish (Week #)	Construction Equipment			Construction Equipment				
			Qty	Dur	Hrs/Day	Qty	Dur	Hrs/Day		
Demolition/Site Prep Equipment										
Excavator	1	15	2	10w	8					
Loader	1	15	2	10w	8					
Ram Hoe	1	15	4	10w	8					
Dump Truck (See Table B-3(a))										
Backhoe	1	15	2	10w	8					
Pickup Truck	1	15				2	15w	4	20	2
Water Truck	1	15	1	15w	2					
Well Cellars / Wall										
Trackhoe	16	40	1	5w	8					
Loader	16	40	1	5w	8					
Dozer										
Roller	16	40	1	10w	8					
Backhoe	16	40	1	5w	8					
Dump Truck (See Table B-3(a))										
Water Truck	16	19	1	4w	2					
Plate Compactors	16	40	1	10w	8					
Cranes	16	40	2	24w	8					
Generator	16	40	1	24w	8					
Forklift	16	40	1	24w	8					
Air Compressor	16	40	1	16w	8					
Welding Equipment (Diesel)	16	40	1	10w	8					
Pick-up	16	40				2	25w	4	20	2
Process Equipment Areas										
Trackhoe	20	75	1	40w	8					
Loader	20	75	1	40w	8					
Dozer	20	75	1	4w	8					
Roller	20	75	1	12w	8					
Backhoe	20	75	1	4w	8					
Paver	20	75	1	5w	8					
Dump Truck (See Table B-3(a))										
Water Truck	20	75	1	50w	2					
Plate Compactors	20	75	1	35w	8					
Cranes	20	75	2	50w	8					
Generator	20	75	1	50w	8					
Forklift	20	75	1	50w	8					
Air Compressor	20	75	2	25w	8					
Welding Equipment (Diesel)	20	75	4	30w	8					
Pick-up	20	75				4	55w	4	20	2

Appendix B

Table B-2(a). Construction Equipment

**Oxy USA Inc. | LA Basin Asset
Proposed Dominguez Production Facility
Construction Equipment**

	Schedule ⁽¹⁾		Onsite			Offsite			Traveled Distance (miles/trip)	Round Trips/Day
	Start (Week #)	Finish (Week #)	Construction Equipment			Construction Equipment				
			Qty	Dur	Hrs/Day	Qty	Dur	Hrs/Day		
Tanks (4 x 5,000 Bbls)										
Automatic Floor Welder	25	60	1	32w	8					
Automatic Horizontal Seam Welder	25	60	1	32w	8					
Crane	25	60	1	32w	8					
Manlift	25	60	1	32w	8					
Welding Equipment (Diesel)	25	60	1	32w	8					
Pick-up						2	32w	4	20	2
Pipeline Construction										
Crane	40	50				1	1w	4	40	1
Dump Trucks	40	50				1	2w	6	80	4
Generator set	40	50				2	4w	8	2	1
Sideboom	40	50				2	4w	8	2	6
Tractor/loader/backhoe	40	50				1	2w	8	2	8
Welders	40	50				2	4w	8	2	8
Pipeline Repairs										
Crane	30	38				1	4w	4	40	1
Dump Trucks	30	38				1	8w	6	80	4
Generator set	30	38				2	8w	8	2	1
Sideboom	30	38				2	8w	8	2	6
Tractor/loader/backhoe	30	38				1	4w	8	2	8
Welders	30	38				2	8w	8	2	8

Notes:

(1) Construction schedule for overall site is anticipated to be 18 months. Refer to Table B-1 for detailed breakdown of activities

(2) Construction equipment includes on site and pipeline construction equipment

(3) Well drilling is part of operation activities

Appendix B

Table B-2(b). Construction Equipment

**Oxy USA Inc. | LA Basin Asset
Proposed Dominguez Production Facility
Construction Equipment - SCE 16 KV Power Feed**

	Schedule ⁽¹⁾		Onsite			Offsite			Traveled Distance (miles/trip)	Round Trips/Day
	Start (Week #)	Finish (Week #)	Construction Equipment		Construction Equipment					
			Qty	Dur (Wks)	Hrs/Day	Qty	Dur (Wks)	Hrs/Day		
Off-Site Equipment										
Loader						1	10	8		
Roller						1	11	8		
Backhoe						1	16	8		
Paver						1	3	8		
Dump Truck (See Table B-3(b))										
Plate Compactors						1	11	8		
Cranes						1	8	8		
Boring Machine ⁽²⁾										
Generator						1	8	8		
Air Compressor						1	2	8		
Welding Equipment (Diesel)						1	6	8		
Pick-up						1	16	4	20	2
Off-Site Equipment -HDD Section										
Boring Machine ⁽²⁾						1	4	8		
Water pump						1	4	16		
Slurry Mixing Tank						1	4	16		
Cuttings Separation Equipment						1	4	16		
Slurry Pump						1	4	16		
Cuttings settlement tank						2	4	16		
Backhoe						1	1	3		
Cranes						2	1	8		
On-Site Equipment										
Loader			1	2	8					
Backhoe			1	2	8					
Dump Truck (See Table B-3(b))										
Plate Compactors			1	2	8					
Cranes			1	2	8					
Generator			1	3	8					
Air Compressor			1	3	8					
Welding Equipment (Diesel)			1	4	8					
Pick-up						1	8	4	20	2

Notes:

(1) Construction schedule is assumed to be 4 months offsite and 2 months onsite. Refer to Table B-1 for detailed breakdown of activities

(2) For Boring Machine, 24 hour operation will occur for will last for 1 week. Otherwise 8 hours/day.

Appendix B

Table B-3(a). Equipment Delivery Truck Trips

**Oxy USA Inc. | LA Basin Asset
Proposed Dominguez Production Facility
Vehicle Trip Estimation - Construction Materials**

Item	Quantity	Truck Capacity	Truck Quant	Schedule ⁽⁵⁾		Equipment Type ⁽⁴⁾
				Start (Week #)	Finish (Week #)	
1. Building Demolition ⁽¹⁾						
Building Walls	1,740 Tons	10 Tons/Truck	174	1	10	Dump Truck
Building Floors	3,607 Tons	10 Tons/Truck	361	1	10	Dump Truck
Building Roof	195 Tons	10 Tons/Truck	19	1	10	Dump Truck
Parking Areas	6,583 Tons	10 Tons/Truck	658	1	10	Dump Truck
Misc Materials	10% Additional Trucks		121	1	10	Dump Truck
TOTAL			1,334			
2. Process Area Equipment Delivery ⁽²⁾						
Pipe	400 Tons	13 Tons/Truck	31	30	65	Flatbed Truck & Trailer
Equipment	26 Process Vessels	1 Items/Truck	26	30	65	Flatbed Truck & Trailer
	3 Storage Vessels	1 Items/Truck	3	30	65	Flatbed Truck & Trailer
	2 Compressors & Blowers	1 Items/Truck	2	30	65	Flatbed Truck & Trailer
	46 Pumps	4 Items/Truck	12	30	65	Flatbed Truck & Trailer
	15 Solids Separation Equip.	1 Items/Truck	15	30	65	Flatbed Truck & Trailer
	2 Process Heaters	1 Items/Truck	2	30	65	Flatbed Truck & Trailer
	4 Heat Exchangers	1 Items/Truck	4	30	65	Flatbed Truck & Trailer
	6 Package Units	1 Items/Truck	6	30	65	Flatbed Truck & Trailer
	2 Miscellaneous Equipment	1 Items/Truck	2	30	65	Flatbed Truck & Trailer
Tanks (4)	118 Tons	15 Tons/Truck	16	30	65	Flatbed Truck & Trailer
Electrical Equipment			10	30	65	Flatbed Truck & Trailer
MCC Building			2	30	65	Flatbed Truck & Trailer
Control Room Material			15	30	65	Flatbed Truck & Trailer
Maintenance Building Material			15	30	65	Flatbed Truck & Trailer
Misc Materials	10% Additional Trucks		16	30	65	Flatbed Truck & Trailer
			176			
3. Construction Material ⁽³⁾						
Earth	6,700 CY (Export)	12 CY/Truck	558	1	40	Dump Truck
Concrete	4,700 CY	9 CY/Truck	522	18	60	Cement Mixer Truck
Steel	850 Tons	15 Tons/Truck	57	36	65	Flatbed Truck & Trailer
Paving	2,000 Tons	20 Tons/Truck	100	60	75	Dump Truck
Construction Equipment			66	1	78	Flatbed Truck & Trailer
Misc Materials	10% Additional Trucks		130	1	78	Dump Truck
			1,434			
TOTAL			2,943			

Notes:

- 1 Estimated materials for demolition of a 410' x 190' tilt-up concrete warehouse plus parking areas. Assume concrete will be broken up on site and hauled offsite for crushing and recycling.
- 2 Estimated equipment delivery for construction of oil processing area (does not include well drilling). Assume delivery trucks will be tractor and flatbed trailer arriving full and leaving empty.
- 3 Estimated construction materials delivery for construction of oil processing area plus concrete portion of well cellars. Assumes that all excavated soil is exported.
- 4 Anticipated equipment type shown in table.
- 5 Construction schedule for overall site (excluding well construction) is anticipated to be 18 months.

Appendix B

Table B-3(b). Equipment Delivery Truck Trips

**Oxy USA Inc. | LA Basin Asset
Proposed Dominguez Production Facility
Vehicle Trip Estimation - SCE 16 KV Power Feed**

Item	Quantity	Truck Capacity	Truck Quant	Schedule ⁽⁵⁾		Equipment Type ⁽⁴⁾
				Start (Week #)	Finish (Week #)	
1. Building Demolition ⁽¹⁾						
Building Walls	- Tons	10 Tons/Truck	-			Dump Truck
Building Floors	- Tons	10 Tons/Truck	-			Dump Truck
Building Roof	- Tons	10 Tons/Truck	-			Dump Truck
Parking Areas	- Tons	10 Tons/Truck	-			Dump Truck
Misc Materials	0% Additional Trucks		-			Dump Truck
TOTAL			-			
2. Process Area Equipment Delivery ⁽²⁾						
Pipe	- Tons	13 Tons/Truck	-			Flatbed Truck & Trailer
Equipment	- Process Vessels	1 Items/Truck	-			Flatbed Truck & Trailer
	- Storage Vessels	1 Items/Truck	-			Flatbed Truck & Trailer
	- Compressors & Blowers	1 Items/Truck	-			Flatbed Truck & Trailer
	- Pumps	4 Items/Truck	-			Flatbed Truck & Trailer
	- Solids Separation Equip.	1 Items/Truck	-			Flatbed Truck & Trailer
	- Process Heaters	1 Items/Truck	-			Flatbed Truck & Trailer
	- Heat Exchangers	1 Items/Truck	-			Flatbed Truck & Trailer
	- Package Units	1 Items/Truck	-			Flatbed Truck & Trailer
	- Miscellaneous Equipment	1 Items/Truck	-			Flatbed Truck & Trailer
Tanks (4)	- Tons	15 Tons/Truck	-			Flatbed Truck & Trailer
Electrical Equipment	10 Items	1 Items/Truck	10			Flatbed Truck & Trailer
MCC Building	1 Items	1.0 Items/Truck	1			Flatbed Truck & Trailer
Baker Tanks			8			Flatbed Truck & Trailer
Maintenance Building Material			-			Flatbed Truck & Trailer
Misc Materials	10% Additional Trucks		2			Flatbed Truck & Trailer
			21			
3. Construction Material ⁽³⁾						
Earth	2,173 CY (Export)	12 CY/Truck	181			Dump Truck
Concrete	1,141 CY	9 CY/Truck	127			Cement Mixer Truck
Steel	5 Tons	15 Tons/Truck	0			Flatbed Truck & Trailer
Gravel	65 Tons	20 Tons/Truck	3			Dump Truck
Construction Equipment			25			Flatbed Truck & Trailer
Misc Materials	10% Additional Trucks		34			Dump Truck
			370			
TOTAL			391			

Notes:

- 1 No Demolition
- 2 Estimated equipment delivery for construction of power feed to site and on-site
- 3 Estimated construction materials delivery for construction of power feed to site
- 4 Construction schedule is assumed to be 4 months offsite and 2 months onsite.
- 5 See schedule
- 6 This estimate is very preliminary, based on limited information from SCE.

Table B-4. CalEEMod Input Parameters

ProjectName	Oxy
LocationScope	AB
EMIFAC_ID	SC
WindSpeed	2.2
PrecipitationFrequency	31
ClimateZone	9
UrbanizationLevel	Urban
OperationalYear	2013
UtilityCompany	Southern California Edison
CO2IntensityFactor	641.26
CH4IntensityFactor	0.029
N2OIntensityFactor	0.011
TotalPopulation	0
TotalLotAcreage	6.5
UsingHistoricalEnergyUseData	0
LandUseType	Industrial
LandUseSubType	User Defined Industrial
LandUseUnitAmount	1
LandUseSizeMetric	User Defined Unit
LotAcreage	6.5
LandUseSquareFeet	0
Population	0

Note:

CO₂, CH₄, and N₂O intensity factors were obtained from the Local Government Reporting Protocol (2006) and E-Grid. They do not account for the future effect of the Renewable Portfolio Standards.

Table B-5. CalEEMod Input Parameters

Equipment	OffRoadEquipmentType	NumDaysWeek ⁽¹⁾	Amount ⁽²⁾	UsageHours ⁽²⁾	HorsePower ⁽³⁾	LoadFactor ⁽³⁾
Air Compressor	Air Compressors	5	1	8	78	0.48
Backhoe	Tractors/Loaders/Backhoes	5	1	8	75	0.55
Boring Machine	Bore/Drill Rigs	5	1	8	82	0.75
Crane	Cranes	5	1	8	208	0.43
Cuttings Separation Equipment	Other Material Handling Equipment	5	1	8	50	0.59
Dozer	Rubber Tired Dozers	5	1	8	358	0.59
Excavator	Excavators	5	1	8	157	0.57
Forklift	Forklifts	5	1	8	149	0.3
Generator	Generator Sets	5	1	8	84	0.74
Loader	Tractors/Loaders/Backhoes	5	1	8	75	0.55
Manlift	Aerial Lifts	5	1	8	34	0.46
Paver	Paver	5	1	8	89	0.62
Paving Equipment	Paving Equipment	5	1	8	82	0.53
Pick-up	Tractors/Loaders/Backhoes	5	1	8	75	0.55
Plate Compactor	Plate Compactors	5	1	8	8	0.43
Pump	Pumps	5	1	8	84	0.74
Ram Hoe	Tractors/Loaders/Backhoes	5	1	8	75	0.55
Roller	Rollers	5	1	8	84	0.56
Trackhoe	Tractors/Loaders/Backhoes	5	1	8	75	0.55
Water Truck	Off-Highway Trucks	5	1	8	381	0.57
Welding Equipment	Welders	5	1	8	46	0.45

Notes:

- (1) Number of days per week based on project estimates
(2) Amount based on a unit equipment approach
(3) Horsepower and load factors are based on default CalEEMod assumptions; load factors have not been adjusted per ARB guidance

Table B-6. CalEEMod Input Parameters

WorkerTripLength	10.8
VendorTripLength	7.3
HaulingTripLength	20
WorkerVehicleClass	LD_Mix
VendorVehicleClass	HDT_Mix
HaulingVehicleClass	HDT
WorkerPercentPave	100
VendorPercentPave	100
HaulingPercentPave	100
RoadSiltLoading	0.1
MaterialSiltContent	8.5
MaterialMoistureContent	0.5
AverageVehicleWeight	2.4
MeanVehicleSpeed	40

Notes:

- (1) Trip length, paved road conditions, and speed assumptions are based on CalEEMod default
- (2) Worker commute vehicles trips are assigned to be 18 trips per day and hauling truck trips to be 100 trips per day and then ratio to their actual usage in calculation. This is done to address the CalEEMod's sensitivity to small unit emissions because the output only displays up to two decimal places.

Table B-7. CalEEMod Input Parameters

PhaseName	Demolition	Grading
DemolitionSizeMetric	12125	
DemolitionUnitAmount	Tons	
MaterialImported		0
MaterialExported		1000
GradingSizeMetric		Cubic Yards
ImportExportPhased		0
MeanVehicleSpeed		7.1
AcresOfGrading		0
MaterialMoistureContentBulldozing		7.9
MaterialMoistureContentTruckLoading		12
MaterialSiltContent		6.9

Note:

Demolition and grading size metrics, material conditions, and vehicle speeds based on CalEEMod default assumptions

Table B-8. Workdays and Number of Workers

Work weeks (Facility Construction)
52 wks in 2013
26 wks in 2014

Work weeks (Pipeline Construction)
20 wks in 2013
0 wks in 2014

Work weeks (SCE Construction)
18 wks in 2013
0 wks in 2014

Workers
70 avg day for facility construction
120 peak day for facility construction
10 avg day for pipeline construction
20 peak day for pipeline construction
20 avg day for SCE construction
25 peak day for SCE construction

Note:

Number of work weeks and workers are based on project specific estimates

Demolition
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	9	Precipitation Freq (days)	31		

1.3 User Entered Comments

Project Characteristics -
Construction Phase - Excavator, Loader, Ram hoe, Backhoe
Demolition -
Trips and VMT - not estimated on-road trips

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	0.96	7.13	5.32	0.01	0.00	0.41	0.41	0.00	0.41	0.41	0.00	896.14	0.00	0.09	0.00	897.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	0.96	7.13	5.32	0.01	0.00	0.41	0.41	0.00	0.41	0.41	0.00	896.14	0.00	0.09	0.00	897.96
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Excavator - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.96	7.13	5.32	0.01		0.41	0.41		0.41	0.41		896.14		0.09		897.96
Total	0.96	7.13	5.32	0.01		0.41	0.41		0.41	0.41		896.14		0.09		897.96

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.2 Excavator - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.96	7.13	5.32	0.01		0.41	0.41		0.41	0.41	0.00	896.14		0.09		897.96
Total	0.96	7.13	5.32	0.01		0.41	0.41		0.41	0.41	0.00	896.14		0.09		897.96

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Loader - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31		413.07		0.05		414.11
Total	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31		413.07		0.05		414.11

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Loader - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31	0.00	413.07		0.05		414.11
Total	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31	0.00	413.07		0.05		414.11

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.4 Ram Hoe - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31		413.07		0.05		414.11
Total	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31		413.07		0.05		414.11

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.4 Ram Hoe - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31	0.00	413.07		0.05		414.11
Total	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31	0.00	413.07		0.05		414.11

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.5 Backhoe - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31		413.07		0.05		414.11
Total	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31		413.07		0.05		414.11

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.5 Backhoe - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31	0.00	413.07		0.05		414.11
Total	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31	0.00	413.07		0.05		414.11

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

Land Use	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	kBTU							lb/day						lb/day			
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
							lb/day						lb/day			
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

WellCellsars
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	9	Precipitation Freq (Days)	31		

1.3 User Entered Comments

- Project Characteristics -
Land Use - Oxy Site Acreage
Construction Phase - Model Well Cellsars / Wall as Site Preparation
Off-road Equipment - Air Compressor
Off-road Equipment - Backhoe
Off-road Equipment - Crane
Off-road Equipment - Forklift

- Off-road Equipment - Generator
- Off-road Equipment - Plate Compactor
- Off-road Equipment - Roller
- Off-road Equipment - Trackhoe
- Off-road Equipment - Welding Equipment
- Trips and VMT - vehicle emissions estimated separately

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	0.87	7.94	3.91	0.01	0.00	0.46	0.46	0.00	0.46	0.46	0.00	895.64	0.00	0.08	0.00	897.28
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	0.87	7.94	3.91	0.01	0.00	0.46	0.46	0.00	0.46	0.46	0.00	895.64	0.00	0.08	0.00	897.28
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Trackhoe - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31		413.07		0.05		414.11
Total	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31		413.07		0.05		414.11

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.2 Trackhoe - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31	0.00	413.07		0.05		414.11
Total	0.55	3.65	2.82	0.00		0.31	0.31		0.31	0.31	0.00	413.07		0.05		414.11

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Roller - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.79	4.99	3.24	0.00		0.43	0.43		0.43	0.43		471.05		0.07		472.53
Total	0.79	4.99	3.24	0.00		0.43	0.43		0.43	0.43		471.05		0.07		472.53

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Roller - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.79	4.99	3.24	0.00		0.43	0.43		0.43	0.43	0.00	471.05		0.07		472.53
Total	0.79	4.99	3.24	0.00		0.43	0.43		0.43	0.43	0.00	471.05		0.07		472.53

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.4 Plate Compactor - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.04	0.25	0.21	0.00		0.01	0.01		0.01	0.01		34.45		0.00		34.52
Total	0.04	0.25	0.21	0.00		0.01	0.01		0.01	0.01		34.45		0.00		34.52

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.4 Plate Compactor - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.04	0.25	0.21	0.00		0.01	0.01		0.01	0.01	0.00	34.45		0.00		34.52
Total	0.04	0.25	0.21	0.00		0.01	0.01		0.01	0.01	0.00	34.45		0.00		34.52

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.5 Crane - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.83	7.94	2.35	0.01		0.28	0.28		0.28	0.28		895.64		0.07		897.20
Total	0.83	7.94	2.35	0.01		0.28	0.28		0.28	0.28		895.64		0.07		897.20

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.5 Crane - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.83	7.94	2.35	0.01		0.28	0.28		0.28	0.28	0.00	895.64		0.07		897.20
Total	0.83	7.94	2.35	0.01		0.28	0.28		0.28	0.28	0.00	895.64		0.07		897.20

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.6 Generator - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.87	6.00	3.91	0.01		0.46	0.46		0.46	0.46		622.46		0.08		624.10
Total	0.87	6.00	3.91	0.01		0.46	0.46		0.46	0.46		622.46		0.08		624.10

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.6 Generator - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.87	6.00	3.91	0.01		0.46	0.46		0.46	0.46	0.00	622.46		0.08		624.10
Total	0.87	6.00	3.91	0.01		0.46	0.46		0.46	0.46	0.00	622.46		0.08		624.10

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.7 Forklift - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.45	3.38	2.64	0.00		0.19	0.19		0.19	0.19		447.62		0.04		448.46
Total	0.45	3.38	2.64	0.00		0.19	0.19		0.19	0.19		447.62		0.04		448.46

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.7 Forklift - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.45	3.38	2.64	0.00		0.19	0.19		0.19	0.19	0.00	447.62		0.04		448.46
Total	0.45	3.38	2.64	0.00		0.19	0.19		0.19	0.19	0.00	447.62		0.04		448.46

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.8 Air Compressor - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.65	3.94	2.59	0.00		0.36	0.36		0.36	0.36		374.92		0.06		376.14
Total	0.65	3.94	2.59	0.00		0.36	0.36		0.36	0.36		374.92		0.06		376.14

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.8 Air Compressor - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.65	3.94	2.59	0.00		0.36	0.36		0.36	0.36	0.00	374.92		0.06		376.14
Total	0.65	3.94	2.59	0.00		0.36	0.36		0.36	0.36	0.00	374.92		0.06		376.14

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.9 Welding Equipment - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.77	2.02	2.18	0.00		0.19	0.19		0.19	0.19		207.29		0.07		208.74
Total	0.77	2.02	2.18	0.00		0.19	0.19		0.19	0.19		207.29		0.07		208.74

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.9 Welding Equipment - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.77	2.02	2.18	0.00		0.19	0.19		0.19	0.19	0.00	207.29		0.07		208.74
Total	0.77	2.02	2.18	0.00		0.19	0.19		0.19	0.19	0.00	207.29		0.07		208.74

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category																
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Process Equipment
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	9	Precipitation Freq (days)	31		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Oxy site acreage
- Construction Phase - Process Equipment Area
- Off-road Equipment - Dozer 2013
- Off-road Equipment - Crane
- Off-road Equipment - Generator
- Off-road Equipment - Forklift

Off-road Equipment - Air Compressor
 Off-road Equipment - Welder
 Off-road Equipment - Paving equipment
 Trips and VMT - no on-road estimated

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	2.56	21.80	11.36	0.02	6.02	0.90	6.93	3.31	0.90	4.21	0.00	2,115.13	0.00	0.23	0.00	2,119.98
2014	0.82	7.26	3.87	0.01	0.00	0.43	0.43	0.00	0.43	0.43	0.00	895.64	0.00	0.07	0.00	897.19
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day											lb/day				
2013	2.56	21.80	11.36	0.02	6.02	0.90	6.93	3.31	0.90	4.21	0.00	2,115.13	0.00	0.23	0.00	2,119.98
2014	0.82	7.26	3.87	0.01	0.00	0.43	0.43	0.00	0.43	0.43	0.00	895.64	0.00	0.07	0.00	897.19
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Dozer - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					6.02	0.00	6.02	3.31	0.00	3.31						0.00
Off-Road	2.56	21.80	11.36	0.02		0.90	0.90		0.90	0.90		2,115.13		0.23		2,119.98
Total	2.56	21.80	11.36	0.02	6.02	0.90	6.92	3.31	0.90	4.21		2,115.13		0.23		2,119.98

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.2 Dozer - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					6.02	0.00	6.02	3.31	0.00	3.31						0.00
Off-Road	2.56	21.80	11.36	0.02		0.90	0.90		0.90	0.90	0.00	2,115.13		0.23		2,119.98
Total	2.56	21.80	11.36	0.02	6.02	0.90	6.92	3.31	0.90	4.21	0.00	2,115.13		0.23		2,119.98

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Crane - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.78	7.26	2.25	0.01		0.25	0.25		0.25	0.25		895.64		0.07		897.10
Total	0.78	7.26	2.25	0.01		0.25	0.25		0.25	0.25		895.64		0.07		897.10

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Crane - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.78	7.26	2.25	0.01		0.25	0.25		0.25	0.25	0.00	895.64		0.07		897.10
Total	0.78	7.26	2.25	0.01		0.25	0.25		0.25	0.25	0.00	895.64		0.07		897.10

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.4 Generator - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.79	5.64	3.87	0.01		0.42	0.42		0.42	0.42		622.46		0.07		623.96
Total	0.79	5.64	3.87	0.01		0.42	0.42		0.42	0.42		622.46		0.07		623.96

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.4 Generator - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.79	5.64	3.87	0.01		0.42	0.42		0.42	0.42	0.00	622.46		0.07		623.96
Total	0.79	5.64	3.87	0.01		0.42	0.42		0.42	0.42	0.00	622.46		0.07		623.96

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.5 Forklift - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.41	3.08	2.64	0.00		0.17	0.17		0.17	0.17		447.62		0.04		448.40
Total	0.41	3.08	2.64	0.00		0.17	0.17		0.17	0.17		447.62		0.04		448.40

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.5 Forklift - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.41	3.08	2.64	0.00		0.17	0.17		0.17	0.17	0.00	447.62		0.04		448.40
Total	0.41	3.08	2.64	0.00		0.17	0.17		0.17	0.17	0.00	447.62		0.04		448.40

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.6 Air Compressor - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.59	3.70	2.56	0.00		0.33	0.33		0.33	0.33		374.92		0.05		376.04
Total	0.59	3.70	2.56	0.00		0.33	0.33		0.33	0.33		374.92		0.05		376.04

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.6 Air Compressor - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.59	3.70	2.56	0.00		0.33	0.33		0.33	0.33	0.00	374.92		0.05		376.04
Total	0.59	3.70	2.56	0.00		0.33	0.33		0.33	0.33	0.00	374.92		0.05		376.04

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.7 Welding Equipment - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.69	1.94	2.10	0.00		0.17	0.17		0.17	0.17		207.29		0.06		208.60
Total	0.69	1.94	2.10	0.00		0.17	0.17		0.17	0.17		207.29		0.06		208.60

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.7 Welding Equipment - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.69	1.94	2.10	0.00		0.17	0.17		0.17	0.17	0.00	207.29		0.06		208.60
Total	0.69	1.94	2.10	0.00		0.17	0.17		0.17	0.17	0.00	207.29		0.06		208.60

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.8 Paving Equipment - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.82	4.98	3.13	0.00		0.43	0.43		0.43	0.43		435.20		0.07		436.75
Total	0.82	4.98	3.13	0.00		0.43	0.43		0.43	0.43		435.20		0.07		436.75

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.8 Paving Equipment - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.82	4.98	3.13	0.00		0.43	0.43		0.43	0.43	0.00	435.20		0.07		436.75
Total	0.82	4.98	3.13	0.00		0.43	0.43		0.43	0.43	0.00	435.20		0.07		436.75

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category																
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Tanks
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	9	Precipitation Freq (Days)	31		

1.3 User Entered Comments

Project Characteristics -
Land Use - Oxy Site Acreage
Construction Phase - Tanks
Off-road Equipment - Manlift 2013
Off-road Equipment - Manlift 2014
Trips and VMT - no on-road estimated

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	0.46	1.46	1.39	0.00	0.00	0.12	0.12	0.00	0.12	0.12	0.00	156.62	0.00	0.04	0.00	157.49
2014	0.42	1.40	1.34	0.00	0.00	0.11	0.11	0.00	0.11	0.11	0.00	156.62	0.00	0.04	0.00	157.40
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	0.46	1.46	1.39	0.00	0.00	0.12	0.12	0.00	0.12	0.12	0.00	156.62	0.00	0.04	0.00	157.49
2014	0.42	1.40	1.34	0.00	0.00	0.11	0.11	0.00	0.11	0.11	0.00	156.62	0.00	0.04	0.00	157.40
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Manlift - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.46	1.46	1.39	0.00		0.12	0.12		0.12	0.12		156.62		0.04		157.49
Total	0.46	1.46	1.39	0.00		0.12	0.12		0.12	0.12		156.62		0.04		157.49

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.2 Manlift - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.46	1.46	1.39	0.00		0.12	0.12		0.12	0.12	0.00	156.62		0.04		157.49
Total	0.46	1.46	1.39	0.00		0.12	0.12		0.12	0.12	0.00	156.62		0.04		157.49

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Manlift2 - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.42	1.40	1.34	0.00		0.11	0.11		0.11	0.11		156.62		0.04		157.40
Total	0.42	1.40	1.34	0.00		0.11	0.11		0.11	0.11		156.62		0.04		157.40

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Manlift2 - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Off-Road	0.42	1.40	1.34	0.00		0.11	0.11		0.11	0.11	0.00	156.62		0.04		157.40
Total	0.42	1.40	1.34	0.00		0.11	0.11		0.11	0.11	0.00	156.62		0.04		157.40

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT		Mitigated Annual VMT	
	Weekday	Saturday	Sunday				
User Defined Industrial	0.00	0.00	0.00				
Total	0.00	0.00	0.00				

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day															
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

SCE
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	9	Precipitation Freq (Days)	31		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - SCE
- Construction Phase -
- Off-road Equipment - Boring Machine
- Off-road Equipment - Cuttings Separation
- Off-road Equipment - Pavers
- Off-road Equipment - SCE

Off-road Equipment - Slurry Pump
Off-road Equipment - Water Pump
Trips and VMT - no on-road estimated

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	1.30	6.67	4.04	0.01	0.00	0.58	0.58	0.00	0.58	0.58	0.00	622.46	0.00	0.12	0.00	624.92
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	1.30	6.67	4.04	0.01	0.00	0.58	0.58	0.00	0.58	0.58	0.00	622.46	0.00	0.12	0.00	624.92
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Boring Machine - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.36	3.66	3.75	0.01		0.20	0.20		0.20	0.20		615.85		0.03		616.51
Total	0.36	3.66	3.75	0.01	0.00	0.20	0.20	0.00	0.20	0.20		615.85		0.03		616.51

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.2 Boring Machine - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.36	3.66	3.75	0.01		0.20	0.20		0.20	0.20	0.00	615.85		0.03		616.51
Total	0.36	3.66	3.75	0.01	0.00	0.20	0.20	0.00	0.20	0.20	0.00	615.85		0.03		616.51

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Paver - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	1.11	6.67	4.04	0.01		0.58	0.58		0.58	0.58		552.57		0.10		554.65
Total	1.11	6.67	4.04	0.01	0.00	0.58	0.58	0.00	0.58	0.58		552.57		0.10		554.65

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.3 Paver - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	1.11	6.67	4.04	0.01		0.58	0.58		0.58	0.58	0.00	552.57		0.10		554.65
Total	1.11	6.67	4.04	0.01	0.00	0.58	0.58	0.00	0.58	0.58	0.00	552.57		0.10		554.65

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.4 Water Pump - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.90	6.09	3.97	0.01		0.49	0.49		0.49	0.49		622.46		0.08		624.17
Total	0.90	6.09	3.97	0.01	0.00	0.49	0.49	0.00	0.49	0.49		622.46		0.08		624.17

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.4 Water Pump - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.90	6.09	3.97	0.01		0.49	0.49		0.49	0.49	0.00	622.46		0.08		624.17
Total	0.90	6.09	3.97	0.01	0.00	0.49	0.49	0.00	0.49	0.49	0.00	622.46		0.08		624.17

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.5 Cutting Separation Equipment - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	1.30	3.02	3.65	0.00		0.31	0.31		0.31	0.31		295.41		0.12		297.87
Total	1.30	3.02	3.65	0.00	0.00	0.31	0.31	0.00	0.31	0.31		295.41		0.12		297.87

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.5 Cutting Separation Equipment - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	1.30	3.02	3.65	0.00		0.31	0.31		0.31	0.31	0.00	295.41		0.12		297.87
Total	1.30	3.02	3.65	0.00	0.00	0.31	0.31	0.00	0.31	0.31	0.00	295.41		0.12		297.87

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.6 Slurry Pump - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.90	6.09	3.97	0.01		0.49	0.49		0.49	0.49		622.46		0.08		624.17
Total	0.90	6.09	3.97	0.01	0.00	0.49	0.49	0.00	0.49	0.49		622.46		0.08		624.17

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

3.6 Slurry Pump - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.90	6.09	3.97	0.01		0.49	0.49		0.49	0.49	0.00	622.46		0.08		624.17
Total	0.90	6.09	3.97	0.01	0.00	0.49	0.49	0.00	0.49	0.49	0.00	622.46		0.08		624.17

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %	
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C
User Defined Industrial	9.50	7.30	7.30	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day															
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

Land Use	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	kBTU							lb/day						lb/day			
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
							lb/day						lb/day			
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Dust
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	9	Precipitation Freq (Days)	31		

1.3 User Entered Comments

- Project Characteristics -
Land Use - Oxy site acreage
Construction Phase - Demolition dust; period is define by trucks needed to haul material
Off-road Equipment - Dumy default
Trips and VMT - no on-road estimated
Demolition -
Off-road Equipment - one dozer

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary**2.1 Overall Construction (Maximum Daily Emission)****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	2.56	21.80	11.36	0.02	6.02	0.90	6.93	3.31	0.90	4.21	0.00	2,115.13	0.00	0.23	0.00	2,119.98
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	2.56	21.80	11.36	0.02	2.35	0.90	3.25	1.29	0.90	2.20	0.00	2,115.13	0.00	0.23	0.00	2,119.98
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

3.0 Construction Detail

3.1 Mitigation Measures Construction

Water Exposed Area

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Vendor					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Worker					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Total					0.00	0.00	0.00	0.00	0.00	0.00						0.00

3.2 Demo Dust - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.19	0.00	5.19	0.00	0.00	0.00						0.00
Total					5.19	0.00	5.19	0.00	0.00	0.00						0.00

3.2 Demo Dust - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					2.02	0.00	2.02	0.00	0.00	0.00						0.00
Total					2.02	0.00	2.02	0.00	0.00	0.00						0.00

3.3 Rubber Tired Dozers - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					6.02	0.00	6.02	3.31	0.00	3.31						0.00
Off-Road	2.56	21.80	11.36	0.02		0.90	0.90		0.90	0.90		2,115.13		0.23		2,119.98
Total	2.56	21.80	11.36	0.02	6.02	0.90	6.92	3.31	0.90	4.21		2,115.13		0.23		2,119.98

3.3 Rubber Tired Dozers - 2013

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.35	0.00	2.35	1.29	0.00	1.29						0.00
Off-Road	2.56	21.80	11.36	0.02		0.90	0.90		0.90	0.90	0.00	2,115.13		0.23		2,119.98
Total	2.56	21.80	11.36	0.02	2.35	0.90	3.25	1.29	0.90	2.19	0.00	2,115.13		0.23		2,119.98

3.3 Rubber Tired Dozers - 2013

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT		Mitigated Annual VMT	
	Weekday	Saturday	Sunday				
User Defined Industrial	0.00	0.00	0.00				
Total	0.00	0.00	0.00				

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU																
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category																
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Vehicles
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	9	Precipitation Freq (Days)	31		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - Oxy acreage
- Construction Phase -
- Trips and VMT - vehicle trips
- Off-road Equipment - no on-road estimated

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	0.62	5.44	4.05	0.01	2.59	0.24	2.83	0.01	0.22	0.23	0.00	1,024.71	0.00	0.04	0.00	1,025.48
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2013	0.62	5.44	4.05	0.01	0.04	0.24	0.28	0.01	0.22	0.23	0.00	1,024.71	0.00	0.04	0.00	1,025.48
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Vehicles - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.52	5.34	2.89	0.01	2.35	0.23	2.59	0.01	0.21	0.22		831.63		0.03		832.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.10	1.16	0.00	0.23	0.01	0.24	0.00	0.01	0.01		193.08		0.01		193.31
Total	0.62	5.44	4.05	0.01	2.58	0.24	2.83	0.01	0.22	0.23		1,024.71		0.04		1,025.48

3.2 Vehicles - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.52	5.34	2.89	0.01	0.03	0.23	0.26	0.01	0.21	0.22		831.63		0.03		832.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.10	1.16	0.00	0.01	0.01	0.02	0.00	0.01	0.01		193.08		0.01		193.31
Total	0.62	5.44	4.05	0.01	0.04	0.24	0.28	0.01	0.22	0.23		1,024.71		0.04		1,025.48

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00	-	-
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day															
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day															
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Vehicles 2014
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	9	Precipitation Freq (Days)	31		

1.3 User Entered Comments

Project Characteristics -
Land Use - Oxy acreage
Construction Phase -
Trips and VMT - vehicle trips
Off-road Equipment - no off-road estimated

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2014	0.56	4.86	3.67	0.01	2.59	0.21	2.80	0.01	0.19	0.21	0.00	1,024.09	0.00	0.03	0.00	1,024.79
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2014	0.56	4.86	3.67	0.01	0.04	0.21	0.25	0.01	0.19	0.21	0.00	1,024.09	0.00	0.03	0.00	1,024.79
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Vehicles - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.47	4.77	2.60	0.01	2.35	0.20	2.56	0.01	0.19	0.20		834.36		0.02		834.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.09	1.07	0.00	0.23	0.01	0.24	0.00	0.01	0.01		189.72		0.01		189.94
Total	0.56	4.86	3.67	0.01	2.58	0.21	2.80	0.01	0.20	0.21		1,024.08		0.03		1,024.78

3.2 Vehicles - 2014

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Hauling	0.47	4.77	2.60	0.01	0.03	0.20	0.23	0.01	0.19	0.20		834.36		0.02		834.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.09	1.07	0.00	0.01	0.01	0.02	0.00	0.01	0.01		189.72		0.01		189.94
Total	0.56	4.86	3.67	0.01	0.04	0.21	0.25	0.01	0.20	0.21		1,024.08		0.03		1,024.78

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
User Defined Industrial	0.00	0.00	0.00				
Total	0.00	0.00	0.00				

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day															
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day															
User Defined Industrial	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

On-site water truck emissions

CY	Emissions (lb/day)									
	ROG	CO	NOx	CO2	SO2	PM10exh	PM10tire	PM10brk	PM10dust	CH4
2013	0.041	0.067	0.129	17.442	0.000	0.008	0.000	0.000	0.438	0.002
2014	0.036	0.060	0.113	17.442	0.000	0.006	0.000	0.000	0.438	0.002

MPH	Emission Factors (g/mile)									
	ROG	CO	NOx	CO2	SO2	PM10exh	PM10tire	PM10brk	CH4	
0	10.794	45.978	114.9	6,617	0.063	1.292	0	0	0.501	
5	8.935	14.76	28.358	3,845	0.037	1.674	0.036	0.028	0.415	
10	4.945	10.392	19.767	3,165	0.03	1.145	0.036	0.028	0.23	
15	2.358	7.22	14.38	2,596	0.025	0.757	0.036	0.028	0.11	
20	1.272	5.358	12.182	2,183	0.021	0.535	0.036	0.028	0.059	
25	1.036	4.602	11.533	2,043	0.02	0.453	0.036	0.028	0.048	
30	0.847	3.972	11.009	1,924	0.018	0.395	0.036	0.028	0.039	
35	0.705	3.467	10.609	1,828	0.017	0.359	0.036	0.028	0.033	
40	0.61	3.088	10.334	1,753	0.017	0.347	0.036	0.028	0.028	
45	0.562	2.834	10.183	1,701	0.016	0.358	0.036	0.028	0.026	
50	0.56	2.706	10.158	1,671	0.016	0.392	0.036	0.028	0.026	
55	0.605	2.704	10.257	1,662	0.016	0.449	0.036	0.028	0.028	
60	0.697	2.827	10.48	1,676	0.016	0.529	0.036	0.028	0.032	
65	0.836	3.077	10.829	1,712	0.016	0.633	0.036	0.028	0.039	

Unpaved Road Dust (AP-42, Chapter 13.2.2)

$$E = k * (s/12)^a * (W/3)^b$$

E = size-specific emission factor (lb/VMT)

s = sfc material silt content (%)

W = mean vehicle weight (tons)

For industrial roads,

PM10 PM2.5

k = 1.5 0.15 (lb/VMT)

a = 0.9 0.9

b = 0.45 0.45

For construction sites,

s = 8.50%

For Class 8 HHD,

W = 23.25

MPH	Emission Factors (g/mile)									
	ROG	CO	NOx	CO2	SO2	PM10exh	PM10tire	PM10brk	CH4	
0	10.314	45.306	116.22	6,617	0.063	1.14	0	0	0.479	
5	7.951	13.294	24.929	3,845	0.037	1.392	0.036	0.028	0.369	
10	4.391	9.224	17.465	3,165	0.03	0.957	0.036	0.028	0.204	
15	2.091	6.309	12.745	2,596	0.025	0.637	0.036	0.028	0.097	
20	1.135	4.653	10.764	2,183	0.021	0.453	0.036	0.028	0.053	
25	0.929	4.021	10.151	2,043	0.02	0.386	0.036	0.028	0.043	
30	0.763	3.496	9.653	1,924	0.018	0.339	0.036	0.028	0.035	
35	0.637	3.08	9.27	1,828	0.017	0.311	0.036	0.028	0.03	
40	0.552	2.772	9.002	1,753	0.017	0.304	0.036	0.028	0.026	
45	0.506	2.571	8.849	1,701	0.016	0.316	0.036	0.028	0.024	
50	0.501	2.479	8.81	1,671	0.016	0.347	0.036	0.028	0.023	
55	0.536	2.495	8.887	1,662	0.016	0.399	0.036	0.028	0.025	
60	0.61	2.618	9.079	1,676	0.016	0.47	0.036	0.028	0.028	
65	0.725	2.849	9.386	1,712	0.016	0.561	0.036	0.028	0.034	

Assume on-site travel for water trucks is at 5mph

2 hours/day of operation

2204.6 grams/lb (conversion factor)

Table B-9(a). Unit emissions for construction equipment

Off-Road Equipment	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	HP	Modeled As...
2013 lb/day/unit Emissions ⁽¹⁾												
Excavator	0.64	4.78	3.56	0.01	0.00	0.27	0.27	0.00	0.27	0.27	157	Excavators
Loader	0.37	2.45	1.89	0.00	0.00	0.21	0.21	0.00	0.21	0.21	75	Tractors/Loaders/Backhoes
Ram Hoe	0.37	2.45	1.89	0.00	0.00	0.21	0.21	0.00	0.21	0.21	75	Tractors/Loaders/Backhoes
Backhoe	0.37	2.45	1.89	0.00	0.00	0.21	0.21	0.00	0.21	0.21	75	Tractors/Loaders/Backhoes
Pump	0.60	4.08	2.66	0.01	0.00	0.33	0.33	0.00	0.33	0.33	84	Pumps
Boring Machine	0.24	2.45	2.51	0.01	0.00	0.13	0.13	0.00	0.13	0.13	82	Bore/Drill Rigs
Trackhoe	0.37	2.45	1.89	0.00	0.00	0.21	0.21	0.00	0.21	0.21	75	Tractors/Loaders/Backhoes
Roller	0.53	3.34	2.17	0.00	0.00	0.29	0.29	0.00	0.29	0.29	84	Rollers
Water Truck ⁽²⁾	0.04	0.13	0.07	0.00	0.44	0.01	0.45	0.04	0.01	0.05	N/A	EMFAC HHDT at 5mph
Plate Compactor	0.03	0.17	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8	Plate Compactors
Crane	0.56	5.32	1.57	0.01	0.00	0.19	0.19	0.00	0.19	0.19	208	Cranes
Generator	0.58	4.02	2.62	0.01	0.00	0.31	0.31	0.00	0.31	0.31	84	Generator Sets
Forklift	0.30	2.26	1.77	0.00	0.00	0.13	0.13	0.00	0.13	0.13	149	Forklifts
Air Compressor	0.44	2.64	1.74	0.00	0.00	0.24	0.24	0.00	0.24	0.24	78	Air Compressors
Welder	0.52	1.35	1.46	0.00	0.00	0.13	0.13	0.00	0.13	0.13	46	Welders
Paver	0.74	4.47	2.71	0.01	0.00	0.39	0.39	0.00	0.39	0.39	89	Paver
Dozer ⁽³⁾	1.72	14.61	7.61	0.01	2.35	0.60	2.95	1.29	0.60	1.89	358	Rubber Tired Dozers
Cuttings Separation	0.87	2.02	2.45	0.00	0.00	0.21	0.21	0.00	0.21	0.21	50	Other Material Handling Equipment
Material Lift	0.31	0.98	0.93	0.00	0.00	0.08	0.08	0.00	0.08	0.08	34	Aerial Lifts
2014												
Water Truck ⁽²⁾	0.04	0.11	0.06	0.00	0.44	0.01	0.44	0.04	0.01	0.05	N/A	EMFAC HHDT at 5mph
Crane	0.52	4.86	1.51	0.01	0.00	0.17	0.17	0.00	0.17	0.17	208	Cranes
Generator	0.53	3.78	2.59	0.01	0.00	0.28	0.28	0.00	0.28	0.28	84	Generator Sets
Forklift	0.27	2.06	1.77	0.00	0.00	0.11	0.11	0.00	0.11	0.11	149	Forklifts
Air Compressor	0.40	2.48	1.72	0.00	0.00	0.22	0.22	0.00	0.22	0.22	78	Air Compressors
Welder	0.46	1.30	1.41	0.00	0.00	0.11	0.11	0.00	0.11	0.11	46	Welders
Paving Equipment	0.55	3.34	2.10	0.00	0.00	0.29	0.29	0.00	0.29	0.29	82	Paving Equipment
Manlift	0.28	0.94	0.90	0.00	0.00	0.07	0.07	0.00	0.07	0.07	34	Aerial Lifts

Notes:

- (1) Exhaust emissions (i.e. excluding dust) are reduced by 33% to correct for a load factor overestimate in CalEEMod
- (2) EMFAC 2007, v2.3, SCAB average for 2013 and 2014, 70F and 40% RH; water trucks are modeled as HHDT traveling at 5mph on-site; dust estimates using EPA AP-42 methodologies
- (3) Bulldozing dust from the use of a dozer during grading; factor used here assumes watering 3 times a day (mitigation from CalEEMod) and results in 61% PM reduction

Table B-9(b). Unit emissions for vehicles and demolition dust

Off-site Hauler / HHD	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total
2013	lb/10-trips Emissions ⁽¹⁾									
Pick up (10 trips)	0.10	1.07	0.58	0.00	0.47	0.05	0.52	0.00	0.04	0.04
2014										
Pick up (10 trips)	0.09	0.95	0.52	0.00	0.47	0.04	0.51	0.00	0.04	0.04

Off-site Worker Commute / Gas LDA	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total
2013	lb/trip Emissions ⁽¹⁾									
Off-Site Commute	0.01	0.01	0.13	0.00	0.03	0.00	0.03	0.00	0.00	0.00
2014										
Off-Site Commute	0.01	0.01	0.12	0.00	0.03	0.00	0.03	0.00	0.00	0.00

On-site Demolition Dust	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total
2013	lb/day Emissions ⁽²⁾									
Demo Dust	0.00	0.00	0.00	0.00	4.67	0.00	4.67	0.70	0.00	0.70

Notes:

(1) On-road vehicle emissions are scaled according to the number of trips modeled: (a) Emissions for delivery / hauling trucks were estimated for 100 trips to address CalEEMod's insensitivity to small unit emissions; note that hauling truck emissions are presented for 10 trips. (b) Emissions for workers commute were estimated for 18 trips by CalEEMod default. Vehicle emissions are also multiplied by 2 to account for round-trips

(2) On-site demolition dust represent fugitive dust related to dismemberment of a building; it is modeled using CalEEMod with 10% reduction applied by watering disturbed areas at the end of each day in compliance with SCAQMD Rule 403. Also note that PM_{2.5} in the output is 0.00 lbs/day, which is a bug in the model. A PM_{2.5}/PM₁₀ ratio of 0.15 is used to estimate the PM_{2.5} daily emissions. This ratio is a ratio of the k values (particle size multiplier) for PM₁₀ and PM_{2.5} from the original EPA AP-42 document (Chapter 13.2.4) for which this CalEEMod calculations references.

Table B-10. Mitigated Project: Tier 3 adjustment factors

Year	Off-road Equipment	HP	ROG			CO			NOx			PM		
			CalEEMod	Tier 3	Ratio	CalEEMod	Tier 3	Ratio	CalEEMod	Tier 3	Ratio	CalEEMod	Tier 3	Ratio
2013	Excavator	157	0.61	0.4	0.655	3.38	3.7	1.096	4.523	2.6	0.575	0.26	0.22	0.849
	Loader	75	0.76	0.5	0.656	3.88	3.7	0.955	5.015	3	0.598	0.42	0.3	0.714
	Ram Hoe	75	0.76	0.5	0.656	3.88	3.7	0.955	5.015	3	0.598	0.42	0.3	0.714
	Backhoe	75	0.76	0.5	0.656	3.88	3.7	0.955	5.015	3	0.598	0.42	0.3	0.714
	Pump	84	0.82	0.5	0.608	3.62	3.7	1.021	5.563	3	0.539	0.44	0.3	0.677
	Boring Machine	82	0.33	0.5	1.520	3.46	3.7	1.069	3.38	3	0.888	0.19	0.3	1.587
	Trackhoe	75	0.76	0.5	0.656	3.88	3.7	0.955	5.015	3	0.598	0.42	0.3	0.714
	Roller	84	0.95	0.5	0.526	3.91	3.7	0.945	6.024	3	0.498	0.51	0.3	0.584
	Plate Compactor	8	0.66	0.66	1.000	3.47	0	0.000	4.142	4.142	1.000	0.16	0.16	1.000
	Crane	208	0.53	0.4	0.759	1.49	2.6	1.741	5.04	2.6	0.516	0.18	0.15	0.847
	Generator	84	0.79	0.5	0.631	3.57	3.7	1.037	5.478	3	0.548	0.42	0.3	0.708
	Forklift	149	0.57	0.4	0.697	3.35	3.7	1.105	4.286	2.6	0.607	0.25	0.22	0.894
	Air Compressor	78	0.98	0.5	0.510	3.92	3.7	0.944	5.978	3	0.502	0.54	0.3	0.552
	Welder	46	2.10	1.5	0.714	5.97	4.1	0.687	5.526	4.9	0.887	0.52	0.45	0.870
2014	Paver	89	1.14	0.5	0.439	4.15	3.7	0.891	6.863	3	0.437	0.60	0.3	0.502
	Dozer	358	0.69	0.4	0.581	3.05	2.6	0.852	5.858	2.6	0.444	0.24	0.15	0.617
	Cuttings Separation	50	2.50	2.9	1.161	7.03	3.7	0.526	5.817	4.9	0.842	0.60	0.3	0.504
	Manlift	34	1.68	1.5	0.895	5.04	4.1	0.813	5.307	4.9	0.923	0.44	0.45	1.016
	Crane	208	0.50	0.4	0.806	1.43	2.6	1.822	4.605	2.6	0.565	0.16	0.15	0.938
	Generator	84	0.72	0.5	0.693	3.53	3.7	1.048	5.147	3	0.583	0.39	0.3	0.779
	Forklift	149	0.53	0.4	0.760	3.35	3.7	1.103	3.905	2.6	0.666	0.21	0.22	1.028
	Air Compressor	78	0.90	0.5	0.555	3.88	3.7	0.954	5.608	3	0.535	0.50	0.3	0.606
	Welder	46	1.90	1.5	0.789	5.75	4.1	0.713	5.308	4.9	0.923	0.47	0.45	0.951
	Paving Equipment	82	1.07	0.5	0.467	4.09	3.7	0.904	6.508	3	0.461	0.56	0.3	0.535
Note:	Manlift	34	1.51	1.5	0.993	4.86	4.1	0.843	5.091	4.9	0.962	0.40	0.45	1.114

Note:

Tier 3 emission standards based on EPA engine standards: <http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm>

Table B-11(a). Mitigated Project: Unit emissions for construction equipment

Off-Road Equipment	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	HP	Modeled As...
2013 lb/day/unit Emissions ^{(1), (2)}												
Excavator	0.42	2.75	3.91	0.01	0.00	0.23	0.23	0.00	0.27	0.27	157	Excavators
Loader	0.24	1.46	1.80	0.00	0.00	0.15	0.15	0.00	0.21	0.21	75	Tractors/Loaders/Backhoes
Ram Hoe	0.24	1.46	1.80	0.00	0.00	0.15	0.15	0.00	0.21	0.21	75	Tractors/Loaders/Backhoes
Backhoe	0.24	1.46	1.80	0.00	0.00	0.15	0.15	0.00	0.21	0.21	75	Tractors/Loaders/Backhoes
Pump	0.37	2.20	2.72	0.01	0.00	0.22	0.22	0.00	0.33	0.33	84	Pumps
Boring Machine ⁽⁵⁾	0.24	2.45	2.51	0.01	0.00	0.13	0.13	0.00	0.13	0.13	82	Bore/Drill Rigs
Trackhoe	0.24	1.46	1.80	0.00	0.00	0.15	0.15	0.00	0.21	0.21	75	Tractors/Loaders/Backhoes
Roller	0.28	1.66	2.05	0.00	0.00	0.17	0.17	0.00	0.29	0.29	84	Rollers
Water Truck ⁽³⁾	0.04	0.13	0.07	0.00	0.44	0.01	0.45	0.04	0.01	0.05	N/A	EMFAC HHDT at 5mph
Plate Compactor	0.03	0.17	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	8	Plate Compactors
Crane	0.42	2.74	2.74	0.01	0.00	0.16	0.16	0.00	0.19	0.19	208	Cranes
Generator	0.37	2.20	2.72	0.01	0.00	0.22	0.22	0.00	0.31	0.31	84	Generator Sets
Forklift	0.21	1.37	1.95	0.00	0.00	0.11	0.11	0.00	0.13	0.13	149	Forklifts
Air Compressor	0.22	1.32	1.64	0.00	0.00	0.13	0.13	0.00	0.24	0.24	78	Air Compressors
Welder	0.52	1.35	1.46	0.00	0.00	0.13	0.13	0.00	0.13	0.13	46	Welders
Paver	0.33	1.95	2.41	0.01	0.00	0.19	0.19	0.00	0.39	0.39	89	Paver
Dozer ⁽⁴⁾	1.00	6.48	6.48	0.01	2.35	0.37	2.72	1.29	0.60	1.89	358	Rubber Tired Dozers
Cuttings Separation ⁽⁵⁾	0.87	2.02	2.45	0.00	0.00	0.21	0.21	0.00	0.21	0.21	50	Other Material Handling Equipment
Manlift	0.31	0.98	0.93	0.00	0.00	0.08	0.08	0.00	0.08	0.08	34	Aerial Lifts
2014												
Water Truck ⁽³⁾	0.06	0.11	17.44	0.00	0.44	0.01	0.44	0.04	0.01	0.05	N/A	EMFAC HHDT at 5mph
Crane	0.42	2.75	2.75	0.01	0.00	0.16	0.16	0.00	0.17	0.17	208	Cranes
Generator	0.37	2.20	2.72	0.01	0.00	0.22	0.22	0.00	0.28	0.28	84	Generator Sets
Forklift	0.21	1.37	1.95	0.00	0.00	0.12	0.12	0.00	0.11	0.11	149	Forklifts
Air Compressor	0.22	1.33	1.64	0.00	0.00	0.13	0.13	0.00	0.22	0.22	78	Air Compressors
Welder	0.46	1.30	1.41	0.00	0.00	0.11	0.11	0.00	0.11	0.11	46	Welders
Paving Equipment	0.26	1.54	1.90	0.00	0.00	0.15	0.15	0.00	0.29	0.29	82	Paving Equipment
Manlift	0.28	0.94	0.90	0.00	0.00	0.07	0.07	0.00	0.07	0.07	34	Aerial Lifts

Notes:

- (1) Exhaust emissions (i.e. excluding dust) are reduced by 33% to correct for a load factor overestimate in CalEEMod
- (2) Ratios of Tier 3 to default emission factors (from Table B-10) of ROG, NOx, CO, PM₁₀, and PM_{2.5} for equipment over 50 horsepower are applied to reflect the Tier 3 equipment mitigation; however, this mitigation does not apply to SCE off-site construction
- (3) EMFAC 2007, v2.3, SCAB average for 2013 and 2014, 70F and 40% RH; water trucks are modeled as HHDT traveling at 5mph on-site; dust estimates using EPA AP-42 methodologies
- (4) Bulldozing dust from the use of a dozer during grading; factor used here assumes watering 3 times a day (mitigation from CalEEMod) and results in 61% PM reduction
- (5) Boring machine and cuttings separations were exclusively used for SCE off-site construction and thus Tier 3 mitigation is not applied

Table B-11(b). Mitigated Project: Unit emissions for vehicles and demolition dust

Off-site Hauler / HHD		ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total
2013		lb/10-trips Emissions ⁽¹⁾									
Pick up (10 trips)		0.10	1.07	0.58	0.00	0.47	0.05	0.52	0.00	0.04	0.04
2014											
Pick up (10 trips)		0.09	0.95	0.52	0.00	0.47	0.04	0.51	0.00	0.04	0.04

Off-site Worker Commute / Gas LDA		ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total
2013		lb/trip Emissions ⁽¹⁾									
Off-Site Commute		0.01	0.01	0.13	0.00	0.03	0.00	0.03	0.00	0.00	0.00
2014											
Off-Site Commute		0.01	0.01	0.12	0.00	0.03	0.00	0.03	0.00	0.00	0.00

On-site Demolition Dust		ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total
2013		lb/day Emissions ⁽²⁾									
Demo Dust		0.00	0.00	0.00	0.00	4.67	0.00	4.67	0.70	0.00	0.70

Notes:

- (1) On-road vehicle emissions are scaled according to the number of trips modeled: (a) Emissions for delivery / hauling trucks were estimated for 100 trips to address CalEEMod's insensitivity to small unit emissions; note that hauling truck emissions are presented for 10 trips. (b) Emissions for workers commute were estimated for 18 trips by CalEEMod default. Vehicle emissions are also multiplied by 2 to account for round-trips
- (2) On-site demolition dust represent fugitive dust related to dismemberment of a building; it is modeled using CalEEMod with 10% reduction applied by watering disturbed areas at the end of each day in compliance with SCAQMD Rule 403. Also note that PM_{2.5} in the output is 0.00 lbs/day, which is a bug in the model. A PM_{2.5}/PM₁₀ ratio of 0.15 is used to estimate the PM_{2.5} daily emissions. This ratio is a ratio of the k values (particle size multiplier) for PM₁₀ and PM_{2.5} from the original EPA AP-42 document (Chapter 13.2.4) for which this CalEEMod calculations references.

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Table B-12(a). Project: Construction ROG emissions by equipment and by week

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE construction emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-12(a). Project: Construction ROG emissions by

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

NOx

[illegible]

B-590

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE construction emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

NOx

[illegible]

B-592

Table B-12(b). Project: Construction NOx emissions by
Oxy Construction On- and Off-site Emissions (lb/day)

8

[illegible]

Oxy Construction On- and Off-site Emissions (lb/day)

[illegible]

Table B-12(c). Project: Construction CO emissions by e

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-12(d). Project: Construction SOx emissions by equipment and by week

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Table B-12(d). Projected Construction SOx emissions by equipment and by week

Total On and Off-Site Emissions (lb/day)
(daily peak emission is highlighted in pink)

SCE Construction Emissions (lb/day)
(daily peak emission is highlighted in pink)

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-12(d). Project: Construction SOx emissions by
Oxy Construction On- and Off-site Emissions (lb/day)
SOx

[illegible]

B-600

SOX	SOX		
	On-Site Construction	Off-Site Emissions (lb/day)	
On-Site Construction	On	Cane	
	Off	Dump Trucks	
	On	Generator set	
	On	Sidewalk	
	On	Tractor/loader/backhoe	
	On	Welders	
	Off	Delivery Trucks	
	Off	Generator set, pickup	
	Off	Sidewalk - pickup	
	Off	Tractor/loader/backhoe - pickup	
	Off	Welders - pickup	
	Off-Site Construction	On	Cane
		Off	Dump Trucks
		On	Generator set
		On	Sidewalk
On		Tractor/loader/backhoe	
On		Welders	
Off		Delivery Trucks	
Off		Generator set, pickup	
Off		Sidewalk - pickup	
Off		Tractor/loader/backhoe - pickup	
Off		Welders - pickup	
Off-Site SCE Construction		Off	Loader
		Off	Roller
		Off	Backhoe
		Off	Paver
	Off	Plate Compactors	
	Off	Cranes	
	Off	Generator (not used)	
	Off	Generator	
	Off	Air Compressor	
	Off	Welding Equipment (Diesel)	
	Off	Pick-up	
	Off-Site Equipment - HDD Section	Off	Boring Machine
		Off	Water pump
		Off	Slurry Mixing Tank
		Off	Cuttings Separation Equipment
Off		Slurry Pump	
Off		Cuttings settlement tank	
Off		Backhoe	
Off		Cranes	
SCE Construction Delivery Trucks		Off	Electrical Equipment - Flatbed
		Off	MCC Building - Flatbed
		Off	Baker Tanks
		Off	Misc Materials - Flatbed
		Off	Earth
		Off	Concrete
		Off	Steel
	Off	Gravel	
	Off	Construction Equipment	
	Off	Misc Materials	
	On-Site SCE Construction	Off	Backhoe
		On	Plate Compactors
		On	Cranes
		On	Generator
		On	Air Compressor
On		Welding Equipment (Diesel)	
Off		Pick-up	
Employee Commute (Assume Peak Activities)		Off	Facility Construction
		Off	Pipeline Construction
		Off	SCE Construction
		Total On and Off-Site Emissions (lb/day)	
		(daily peak emission is highlighted in pink)	
		SCE Construction Emissions (lb/day)	
		(daily peak emission is highlighted in pink)	
		Note:	

Table B-12(e). Project: Construction PM10 emissions by equipment and by week

[illegible]

B-602

Table B-12(e). Project: Construction PM10 emissions by equipment and by week

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-12(e). Project: Construction PM10 emissions b

B-604

Table B-12(e). Project: Construction PM10 emissions b

Total On and Off-Site Emissions (lb/day)
(daily peak emission is highlighted in pink)

missions b

[illegible]

B-606

Table B-12(f). Project: Construction PM2.5 emissions by equipment and by week

[illegible]

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE construction emissions for CEQA significance determination.

Table B-12(f). Project: Construction PM2.5 emissions t
Oxy Construction On- and Off-site Emissions (lb/day)
PM2.5

B-608

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-13(a). Mitigated Project: Construction ROG emissions by equipment and by week

Day			Construction On- and Off-site Emissions (lb/day)			ROG		
Demolition / Site Preparation								
On	Excavator	On	0.421	0.842	0.842	0.842	0.842	0.421
On	Loader	On	0.484	0.484	0.484	0.484	0.484	
On	Ram Hoe	On	0.967	0.967	0.967	0.967	0.967	
On	Backhoe	On	0.242	0.484	0.484	0.242	0.242	0.242
On	Pickup Truck	On	0.021	0.021	0.021	0.021	0.021	0.021
On	Water Truck	On	0.041	0.041	0.041	0.041	0.041	0.041
Delivery Trucks								
Off	Building Walls - Dump Truck	On	0.177	0.177	0.187	0.177	0.177	
Off	Building Floors - Dump Truck	On	0.374	0.374	0.374	0.374	0.374	
Off	Building Roof - Dump Truck	On	0.374	0.374	0.374	0.374	0.374	
Off	Drilling - Dump Truck	On	0.676	0.676	0.686	0.686	0.686	
Off	Paving - Dump Truck	On	0.676	0.676	0.686	0.686	0.686	
Off	Misc Materials - Dump Truck	On	0.125	0.125	0.125	0.125	0.125	0.135
Well Coffers / Wall								
On	Truckhoe	On	0.242	0.242	0.242	0.242	0.242	
On	Loader	On	0.242	0.242	0.242	0.242	0.242	
On	Doser (not used)	On						
On	Roller	On	0.279	0.279	0.279	0.279	0.279	
On	Backhoe	On	0.041	0.041	0.041	0.041	0.041	
On	Water Truck	On	0.027	0.027	0.027	0.027	0.027	0.027
On	Plate Compactors	On	0.422	0.844	0.844	0.844	0.844	0.844
On	Cranes	On	0.368	0.368	0.368	0.368	0.368	0.368
On	Generator	On	0.21	0.21	0.21	0.21	0.21	0.21
On	Formit	On	0.21	0.21	0.21	0.21	0.21	0.21
On	AI Compressor	On	0.222	0.222	0.222	0.222	0.222	0.222
On	Blowing Equipment (Diesel)	On	0.516	0.516	0.516	0.516	0.516	0.516
Off	Pick-up	On	0.021	0.021	0.021	0.021	0.021	0.021
Process Equipment Areas								
On	Truckhoe	On	0.242	0.484	0.484	0.484	0.484	0.484
On	Loader	On	0.242	0.484	0.484	0.484	0.484	0.484
On	Doser	On	0.997	0.997	0.997	0.997	0.997	
On	Roller	On	0.279	0.279	0.279	0.279	0.279	
On	Backhoe	On	0.242	0.242	0.242	0.242	0.242	0.242
On	Paving Equipment	On	0.041	0.041	0.041	0.041	0.041	0.041
On	Water Truck	On	0.027	0.027	0.027	0.027	0.027	0.027
On	Plate Compactors	On	0.054	0.054	0.054	0.054	0.054	0.054
On	Cranes	On	0.844	0.844	0.844	0.844	0.844	0.844
On	Generator	On	0.368	0.368	0.368	0.368	0.368	0.368
On	Formit	On	0.21	0.21	0.21	0.21	0.21	0.21
On	AI Compressor	On	0.222	0.222	0.222	0.222	0.222	0.222
On	Blowing Equipment (Diesel)	On	0.516	0.516	0.516	0.516	0.516	0.516
Off	Pick-up	On	0.021	0.021	0.021	0.021	0.021	0.021
Delivery Trucks								
Off	Pipe - Flatbed	On	0.021	0.042	0.042	0.042	0.042	0.042
Off	Process Vessels - Flatbed	On						
Off	Storage Vessels - Flatbed	On						
Off	Compressors & Blowers - Flatbed	On						
Off	Pumps - Flatbed	On						
Off	Solids Separation Equip. - Flatbed	On						
Off	Process Heaters - Flatbed	On						
Off	Heat Exchangers - Flatbed	On						
Off	Package Units - Flatbed	On						
Off	Miscellaneous Equipment - Flatbed	On						
Off	Tanks (4) - Flatbed	On						
Off	Electrical Equipment - Flatbed	On						
Off	Process Vessels - Flatbed	On						
Off	Maintenance Building Material - Flatbed	On						
Off	Misc Materials - Flatbed	On						
Tanks								
On	Automatic Floor Welder	On	0.516	0.516	0.516	0.516	0.516	0.516
On	Automatic Horizontal Seam Welder	On	0.516	0.516	0.516	0.516	0.516	0.516
On	Crane	On	0.422	0.422	0.422	0.422	0.422	0.422
On	Manlift	On	0.308	0.308	0.308	0.308	0.308	0.308
On	Welding Equipment (Diesel)	On	0.516	0.516	0.516	0.516	0.516	0.516
Off	Pick-up	On	0.021	0.021	0.021	0.021	0.021	0.021
Construction Material Delivery Trucks								
Off	Earth - Dump Truck	On	0.146	0.146	0.146	0.146	0.146	0.146
Off	Concrete - Cement River Truck	On	0.125	0.125	0.125	0.125	0.125	0.125
Off	Gravel - Dump Truck	On	0.104	0.052	0.052	0.104	0.052	0.052
Off	Paving - Dump Truck	On	0.01	0.01	0.01	0.01	0.01	0.01
Off	Construction Equipment - Flatbed	On	0.01	0.01	0.01	0.01	0.01	0.01
Off	Misc Materials - Dump Truck	On	0.01	0.01	0.01	0.01	0.01	0.01

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE construction emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-13(a). Mitigated Project: Construction ROG and
Oxy Construction On- and Off-site Emissions (lb/day)

[illegible]

B-612

Table B-13(a). Mitigated Project: Construction ROG en

Table B-13(b). Mitigated Project: Construction NOx emissions from On- and Off-site Emissions (lb/day)

[illegible]

B-614

Table B-13(b). Mitigated Project: Construction NOx emissions by equipment and by week

(daily peak emission is highlighted in pink)

SCE Construction Emissions (lb/day)

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE construction emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-13(b). Mitigated Project: Construction NOx em
Oxy Construction On- and Off-site Emissions (lb/day)
NOx

B-616

Table B-13(b). Mitigated Project: Construction NOx emissions

Oxy Construction On- and Off-site Emissions (lb/day)

[illegible]

B-618

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-13(c). Mitigated Project: Construction CO emi:

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-13(d). Mitigated Project: Construction SO_x emissions by equipment and by week

Dry Construction On- and Off-site Emissions (lb/day)		
Demolition / Site Preparation		
On	Excavator	
On	Loader	
On	Ram Hoe	
On	Backhoe	
On	Water Truck	
On	Water Truck	
On	Delivery Trucks	
Off	Building Walls - Dump Truck	
Off	Building Floors - Dump Truck	
Off	Building Roof - Dump Truck	
Off	Parking Areas - Dump Truck	
Off	Misc Materials - Dump Truck	
Well Cellars / Wall		
On	Truckhoe	
On	Loader	
On	Doser (not used)	
On	Roller	
On	Backhoe	
On	Water Truck	
On	Pile Compactors	
On	Caisson Drilling	
On	Generator	
On	Forklift	
On	Air Compressor	
On	Welding Equipment (Diesel)	
Off	Pick-up	
Process Equipment Areas		
On	Truckhoe	
On	Loader	
On	Doser	
On	Roller	
On	Backhoe	
On	Paving Equipment	
On	Water Truck	
On	Pile Compactors	
On	Caisson Drilling	
On	Generator	
On	Forklift	
On	Air Compressor	
On	Welding Equipment (Diesel)	
Off	Pick-up	
Delivery Trucks		
Off	Pipe - Flatbed	
Off	Process Vessels - Flatbed	
Off	Storage Vessels - Flatbed	
Off	Compressors & Blowers - Flatbed	
Off	Pumps - Flatbed	
Off	Solids Separation Equip. - Flatbed	
Off	Process Heaters - Flatbed	
Off	Heat Exchangers - Flatbed	
Off	Package Units - Flatbed	
Off	Miscellaneous Equipment - Flatbed	
Off	Pipes - Flatbed	
Off	Structural Steel - Flatbed	
Off	MC Building - Flatbed	
Off	Control Room Material - Flatbed	
Off	Maintenance Building Material - Flatbed	
Off	Misc Materials - Flatbed	
Tanks		
On	Automatic Floor Welder	
On	Automatic Horizontal Seam Welder	
On	Crane	
On	Manlift	
On	Welding Equipment (Diesel)	
Off	Pick-up	
Construction Material Delivery Trucks		
Off	Earth - Dump Truck	
Off	Construction Material - Dump Truck	
Off	Steel - Flatbed	
Off	Paving - Dump Truck	
Off	Construction Equipment - Flatbed	
Off	Misc Materials - Dump Truck	

B-622

Table B-13(d). Mitigated Project: Construction SOx emissions by equipment and by week

Table B-13(d). Mitigated Project: Construction SOxem

B-624

Table B-13(d). Mitigated Project: Construction SO₂em

Total On and Off-Site Emissions (lb/day)
(daily peak emission is highlighted in pink)

Table B-13(e). Mitigated Project: Construction PM10 emissions by equipment and by week

[illegible]

B-626

Table B-13(e). Mitigated Project: Construction PM10 emissions by equipment and by week

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE construction emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-13(e). Mitigated Project: Construction PM10 e

B-628

Table B-13(e). Mitigated Project: Construction PM10 e
Oxy Construction On- and Off-site Emissions (lb/day)
PM10

B-629

Table B-13(f). Mitigated Project: Construction PM_{2.5} emissions by equipment and by week

B-630

Note: * SCE On-Site Construction shares equipment with the Oxy facility construction. SCE on-site construction emissions are evaluated to estimate SCE emissions only and are not added to the total Oxy construction emissions for CEQA significance determination.

Table B-13(f). Mitigated Project: Construction PM2.5 e

B-632

Table B-13(f). Mitigated Project: Construction PM_{2.5} e
Oxy Construction On- and Off-site Emissions (lb/day)
PM_{2.5}

Table B-14. Maximum Daily Mass Emissions by Construction Phase

Peak Daily Emissions (lb/day)	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
On-site																
Demolition / Site Preparation	0	0	0	0	5.11	0	7.33	0	0	0	0	0	0	0	0	0
Well Cellars / Wall	4.05	28.25	16.40	0.02	0	1.80	0	0	1.80	1.80	0	3,137	0	0.36	0	3,145
Process Equipment Areas	3.56	27.17	15.44	0.02	0	1.66	0	1.33	1.66	1.71	0	3,088	0	0.31	0	3,094
Tanks	2.41	10.36	6.89	0.01	0	0.65	0	0	0.65	0.65	0	1,122	0	0.21	0	1,126
Total On-Site	10.03	65.78	38.73	0.05	5.11	4.11	7.33	1.33	4.11	4.16	0	7,347	0	0.89	0	7,366
Off-site																
Demolition / Site Preparation	0	0	0	0	6.298	0	7.02	0	0	0	0	0	0	0	0	0
Well Cellars / Wall	0.02	0.21	0.12	0.0004	0	0.01	0	0.0004	0.01	0.01	0	33.27	0	0.001	0	33.29
Process Equipment Areas	0.04	0.43	0.23	0.002	0	0.02	0	0.001	0.02	0.02	0	66.53	0	0.002	0	66.57
Tanks	0.02	0.21	0.12	0.0004	0	0.01	0	0	0.01	0.01	0	33.27	0	0.001	0	33.29
Construction Material Delivery Trucks	0.29	2.99	1.62	0.01	1.081	0.13	0.77	0.01	0.12	0.12	0	465.71	0	0.02	0	466.02
Pipeline Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pipeline Repairs	4.02	26.75	14.62	0.03	0	1.56	0	0	1.56	1.56	0	3,008	0	0.36	0	3,015
Facility Workers Commute	1.33	1.33	15.47	0	3.05	0.13	3.18	0.01	0.13	0.15	0	2,574	0	0.13	0	2,577
Pipeline Workers Commute	0.22	0.22	2.58	0	0	0.02	0	0	0.02	0.02	0	429	0	0.02	0	430
SCE Offsite Construction	6.42	35.84	28.94	0.05	0.05	2.81	2.86	0.00	2.81	2.81	0	4,126	0	0.58	0	4,138
SCE Delivery	0.28	2.88	1.56	0.01	1.88	0.12	1.39	0.01	0.11	0.12	0	449	0	0.02	0	449
SCE Workers Commute	0.28	0.28	3.22	0	0.63	0.03	0.66	0.00	0.03	0.03	0	536	0	0.03	0	537
Total Off-Site	12.93	71.16	68.46	0.10	13.03	4.85	15.88	0.03	4.82	4.85	0	11,721	0	1.16	0	11,745
Total	22.96	136.94	107.20	0.14	18.14	8.96	23.21	1.37	8.93	9.01	0	19,068	0	2.04	0	19,111

Table B-15. Mitigated Maximum Daily Mass Emissions by Construction Phase

Peak Daily Emissions (lb/day)	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
On-site																
Demolition / Site Preparation	0	0	0	0	5.11	0	6.77	0	0	0	0	0	0	0	0	0
Well Cellars / Wall	2.89	16.13	18.66	0.02	0	1.36	0	0	1.36	1.36	0	3,137	0	0.36	0	3,145
Process Equipment Areas	2.48	15.38	17.72	0.02	0	1.26	0	1.33	1.26	1.31	0	3,088	0	0.31	0	3,094
Tanks	2.28	7.78	8.06	0.01	0	0.62	0	0	0.62	0.62	0	1,122	0	0.21	0	1,126
Total On-Site	7.65	39.29	44.44	0.05	5.11	3.24	6.77	1.33	3.24	3.28	0	7,347	0	0.89	0	7,366
Off-site																
Demolition / Site Preparation	0	0	0	0	6.30	0	7.02	0	0	0	0	0	0	0	0	0
Well Cellars / Wall	0.02	0.21	0.12	0.0004	0	0.01	0	0.0004	0.01	0.01	0	33.27	0	0.001	0	33.29
Process Equipment Areas	0.04	0.43	0.23	0.002	0	0.02	0	0.001	0.02	0.02	0	66.53	0	0.002	0	66.57
Tanks	0.02	0.21	0.12	0.0004	0	0.01	0	0	0.01	0.01	0	33.27	0	0.001	0	33.29
Construction Material Delivery Trucks	0.29	2.99	1.62	0.01	1.08	0.13	0.77	0.01	0.12	0.12	0	465.71	0	0.02	0	466.02
Pipeline Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pipeline Repairs	3.13	15.69	17.64	0.03	0	1.25	0	0	1.25	1.25	0	3,008	0	0.36	0	3,015
Facility Workers Commute	1.33	1.33	15.47	0	3.05	0.13	3.18	0.01	0.13	0.15	0	2,574	0	0.13	0	2,577
Pipeline Workers Commute	0.22	0.22	2.58	0	0	0.02	0	0	0.02	0.02	0	429	0	0.02	0	430
SCE Offsite Construction	6.42	35.84	28.94	0.05	0.05	2.81	2.86	0.0002	2.19	2.19	0	4,126	0	0.58	0	4,138
SCE Delivery	0.28	2.88	1.56	0.01	1.88	0.12	1.39	0.01	0.11	0.12	0	449	0	0.02	0	449
SCE Workers Commute	0.28	0.28	3.22	0	0.63	0.03	0.66	0.003	0.03	0.03	0	536	0	0.03	0	537
Total Off-Site	12.04	60.10	71.49	0.10	13.03	4.54	15.88	0.03	3.89	3.92	0	11,721	0	1.16	0	11,745
Total	19.69	99.39	115.93	0.14	18.14	7.78	22.66	1.37	7.13	7.20	0	19,068	0	2.04	0	19,111

Appendix C

Health Risk Assessment

C.1 Health Risk Assessment

This Appendix describes the human health risk assessment (HRA) approach used to evaluate toxic air contaminant (TAC) emissions from the Project in comparison to South Coast Air Quality Management District's (SCAQMD's) health risk significance thresholds. The HRA is conducted in accordance with SCAQMD risk assessment procedures, which are based on CARB's Air Toxics Hot Spots Program Risk Assessment Guidelines¹ and the state Office of Environmental Health Hazard Assessment (OEHHA). Simplifying assumptions are also obtained from the SCAQMD's risk assessment guidelines.

Health risks were calculated using the methodology referenced above and described below. Air dispersion modeling was conducted with an air dispersion software program (AERMOD), and the health risk analysis was conducted using manual calculations based on data from the Hotspots Analysis and Reporting Program (HARP). The detailed methodology for the health risk estimates is further described below.

C.1.1 Hazard Assessment

Identification of chemicals of potential concern and specification of their toxicities are described below.

C.1.1.1 Chemicals of Potential Concern

The Chemicals of Potential Concern (COPC) were identified based on the emission inventory for the Project's operation phase. COPCs that are associated with the operation of the Project are included in these appendices and are summarized in Tables C-1 and C-2. Details of the emission inventory are provided in Appendices A and B. Toxicity weightings were developed for each COPC based upon the SCAQMD's Risk Assessment Procedures for Rules 1401 and 212, Attachment L². Weighted emissions used to estimate cancer and non-cancer health effects are presented in Tables C-3 – C-6.

C.1.1.2 Toxicities

Compounds were evaluated for their potential health effects in two categories, carcinogenic and non-carcinogenic. Most regulatory agencies consider carcinogens to pose a risk of cancer at all exposure levels (i.e., a "no-threshold" assumption); that is, any increase in dose is assumed to be associated with an increase in the probability of developing cancer. In contrast, non-carcinogens generally are thought to produce adverse health effects only when some minimum exposure level is reached (i.e., a threshold).

Toxicity studies with laboratory animals or epidemiological studies of human populations are relied upon to develop toxicity criteria. The toxicities of many of the volatile COPCs emitted from the Project are relatively well-known and their toxicity criteria have been well established. Toxicological values used in this assessment, which are taken from SCAQMD permit application package "L", Tables Effective for Applications deemed completed on or after July 1, 2005.⁴ The

¹ Cal/EPA. 2003. The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health hazard Assessment. August.

² SCAQMD. 2009. Permit Application Package "L". For use in conjunction with Risk Assessment Procedures for Rules 1401 and 212. Version 7.0. Available: <http://www.aqmd.gov/prdas/pdf/1401AttL2.pdf>. Accessed September 17, 2010.

SCAQMD Risk Assessment Procedures are based on guidance provided by OEHHA and CARB.³

The toxicity values typically are assigned for each compound by OEHHA. OEHHA currently allows the use of Diesel Exhaust Particulate Matter (DPM) as a surrogate to calculate the cancer and chronic non-cancer impacts associated with diesel exhaust. This health risk analysis uses these toxicity values for DPM. Speciation profiles from California Air Resources Board (CARB) were used to determine the acute non-cancer impacts associated with diesel exhaust. Values for these toxicity values are shown in Table C- 7.

C.1.2 Exposure Assessment

The health risk posed by the identified COPCs requires an assessment of the fate and transport of potential emissions to receptors and an estimation of exposure at a receptor(s). The fate and transport of COPCs are estimated using air dispersion modeling tools. Exposure is characterized by pathways, including inhalation. The primary non-inhalation pathways include dermal exposure, water ingestion, crop ingestion (direct deposition), and soil ingestion. The secondary non-inhalation pathways include ingestion of mother's milk, fish, dairy products, all types of meat and eggs, and crop ingestion (root uptake). All of these exposure pathways are conservatively included and evaluated per the SCAQMD multipathway factors.

The water ingestion pathway is not likely to be a significant factor considered since the drinking water supply in the vicinity of the Project is not derived from local surface water. Exposure pathways for ingestion of fish, dairy, animal, and agricultural produce are also not likely to be significant factors because recreational fishing areas, animal and dairy farms, and commercial agricultural areas are beyond the Project's likely zone of impact (ZOI). Inhalation, dermal absorption, and soil ingestion pathways are the most likely pathways for residential and sensitive receptors.

Additional assumptions are also made to estimate cancer risk exposure. Per SCAQMD HRA guidance, continuous exposure of 24-hours per day for a 70-year lifetime is assumed for residents. This is a highly conservative assumption, since most people do not remain at home all day nor are home every day, typically change residences every 7 to 9 years. For off-site workers, SCAQMD guidance suggests that the exposure be based on a 40 year working lifetime and 250 days per year. This is a highly conservative assumption, since most people do not remain at the same job for 40 years nor are they at work every day. The SCAQMD also suggests specific daily breathing rates and exposure value factors for estimating cancer risks. These exposure assumptions can be adjusted for specific situations. For this HRA, the residential and worker exposure assumptions were used as shown in Table C-8.

Based on this approach, the potential excess cancer risk associated with exposure to a carcinogen is estimated to be the product of the annual average concentration and the cancer potency (CP) for that carcinogen, the daily breathing rate (DBR), the exposure value factor

³ SCAQMD. 2009. Risk Assessment Procedures for Rules 1401 and 202. Version 7.0. pg 1. Available: <http://www.aqmd.gov/prdas/pdf/riskassessmentprocedures-v7.pdf>. Accessed September 2011.

(EVF), and the multipathway factor (for chemicals having impacts due to multiple pathways). The equation used to calculate the potential excess cancer risk is:

$$Risk_i = C_i \times CP_i \times DBR \times EVF \times MP$$

where

Risk _i	= Lifetime excess cancer risk from exposure to chemical _i
C _i	= Representative air concentration for chemical _i (µg/m ³)
CP _i	= Cancer potency _i (mg/kg-day) ⁻¹
DBR	= Daily breathing rate (L/kg body weight-day)
EVF	= Exposure value factor (unitless)
MP	= Multi-pathway factor (unitless)

An estimate of an individual's incremental excess cancer risk from exposure to the emissions is calculated by summing the chemical-specific excess cancer risks. To obtain an estimate of total risk from all carcinogens emitted from the Project, cancer risks were summed across all exposure pathways for potential carcinogens of concern. Cancer risks are calculated for long-term exposures.

The potential for chronic non-carcinogenic health effects is evaluated by calculating the total hazard index (HI) for the Project emissions. This HI represents the sum of the hazard quotients (HQs) developed for each individual Project-related chemical, where a HQ is the ratio of the representative air concentration of the chemical to the chemical specific non-cancer reference exposure level (REL). The non-cancer RELs represent the daily average exposure concentration at (or below) which no adverse health effects are anticipated. The equations used to calculate the chemical-specific HQs and HIs are:

$$HQ_i = C_i \times MP / REL_i$$

$$HI = \sum HQ_i$$

where

HQ _i	= Hazard quotient for chemical _i
C _i	= Average daily air concentration for chemical _i (µg/m ³)
REL _i	= Noncancer reference exposure level for chemical _i (µg/m ³)
HI	= Hazard index
MP	= Multi-pathway factor (unitless)

C.1.3 Receptors

The SCAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities.⁴ The Project is located within an area that is zoned light commercial and industrial. The following on-line public databases were

⁴ SCAQMD. 1993. CEQA Air Quality Handbook. April.

searched to identify non-residential sensitive receptors (such as daycare centers, schools, hospitals, and other care facilities⁵) that are located near the Project:

- California Community Care Licensing Division
(http://cclid.ca.gov/docs/cclid_search/cclid_search.aspx)
- California Department of Education, California School Directory
(<http://www.cde.ca.gov/re/sd/>)
- California Office of Statewide Health Planning and Development, Automated Licensing Information and Report Tracking System
(<http://gis.oshpd.ca.gov/atlas/healthcareatlas/mapframeset.aspx>)

Databases were searched for all zip codes surrounding the Project Site and no sensitive receptors were located within one-quarter of a mile from the Project site.

For purposes of the risk assessment, receptors located in residential and commercial/industrial areas were identified. Commercial/industrial areas include all types of businesses located near the Project, and would be the location for worker receptors. The locations of all receptors are illustrated in Figure C-1.

C.1.3 Risk Characterization

The results from the health risk calculations provide an estimate of the potential risks and hazards to individuals through inhalation of ambient air and other selected pathways as discussed above. The estimated risks and hazards include: lifetime excess cancer risk estimates, cumulative chronic HI estimates, and cumulative acute HI estimates for the receptor locations of concern.

The cancer risks from exposure to multiple carcinogens and multiple pathways are summed across all exposure pathways for all sources contributing to the overall exposure that may potentially impact the receptor.⁶ Project cancer risks are compared to the risk significance threshold of ten in a million (1×10^{-5}) pursuant to the SCAQMD CEQA Significance Thresholds, which is also consistent with the California Air Toxics “Hotspots” Assessment and Information Act (AB2588).

Chronic and Acute hazard quotients are compared to an acceptable hazard benchmark of one (1.0) pursuant to the SCAQMD CEQA Significance Thresholds. An HQ greater than one indicates that exposure to that contaminant may cause adverse health effects in exposed populations. It is important to note, however, that the level of concern associated with exposure to non-carcinogenic compounds does not increase linearly as the HQ exceeds one. Typically, compound-specific HQs are summed to calculate pathway HI values. This approach can result in a situation where HI values exceed unity even when no compound-specific HQs exceed unity (i.e., adverse systemic health effects would be expected to occur only if the receptor were exposed to several contaminants simultaneously).

⁵ For purposes of this analysis, retirement homes are included in this grouping of nonresidential sensitive receptors.

⁶ USEPA. 1989. Risk Assessment Guidance for Superfund Volume I, Human Health Evaluation Manual (Part A). USEPA 540/1-89-002, Office of Emergency and Remedial Response, Washington, DC.

C.1.4 Uncertainty Characterization

In any risk evaluation, a number of assumptions are made in order to estimate human exposure and to calculate potential risks. These assumptions may, however, introduce uncertainty in risk calculations. Regulatory guidance requires that conservative assumptions be used to provide an upper-bound estimate of the risk and to avoid underestimating the potential exposures and associated health risks. The key sources of uncertainty in this health risk evaluation include:

- Identification of Project-related chemicals
- Estimation of exposure concentrations
- Identification of exposure pathways
- Exposure assumptions
- Chemical toxicity.

The HRA included in this report incorporates various conservative assumptions. For example, risk is calculated for residential exposure using the standard upper-bound assumptions that every resident is exposed for every hour of every operational day for 70-years. However, it is unlikely that any person will actually be present for the entire duration of operational activities. Similarly for off-site worker exposure, risk is calculated using the standard upper-bound assumption that all off-site workers are exposed to operational emissions continuously every working day (e.g., 250 days as estimated based on a standard five day work week) for every working hour (e.g., 8 hours as estimated based on a standard work day) for 40 years. It is unlikely that such exposures actually will occur. Furthermore, for both residential and off-site workers, risks are calculated assuming continuous exposure to outdoor/ambient concentrations, even though people typically spend more than 90% of their time indoors. Levels of outdoor-generated pollutants are typically higher outdoors than indoors (often significantly). People also move from place to place (and often away from Project emissions) during the day for work, school, shopping, or other purposes. For this reason, the estimated cancer risks and noncancer hazard indices reported in this analysis are likely upper-bound estimates for potential exposure to Project-related emissions. The actual risk of cancer or noncancer effects from the Project is likely to be lower than presented herein.

Table C-1. Average Annual Emissions (lb/year)-Project's Operation¹

TACs	CAS #	Unit 8: Emergency Flare	Unit 10: Carbon Adsorber (Slurry System)	Unit 11: Process Heater	Unit 12: Truck Loading	Unit 13: Emergency Generator	Unit 14: Carbon Adsorber (Sump Water)	Facility Fugitive Sources for Permitted Equipment	Workover Rig	Workover Venting	Backhoe
DPM	9901	---	---	---	---	8.42E+00	---	---	7.60E+01	---	1.17E+01
Benzene	71432	4.18E-01	6.38E-02	1.48E-01	1.49E-01	3.48E-01	6.38E-02	6.90E+00	1.90E+00	6.38E-01	4.41E-01
Ethyl Benzene	100414	3.79E+00	1.48E-02	1.76E-01	3.45E-02	2.04E-02	1.48E-02	1.52E+00	2.90E-01	1.48E-01	6.73E-02
Hexane	110543	7.62E-02	6.00E-01	1.18E-01	8.13E-01	5.03E-02	6.00E-01	5.47E+01	1.49E-01	5.45E-04	3.46E-02
Toluene	108883	1.52E-01	1.14E-01	6.77E-01	2.65E-01	1.97E-01	1.14E-01	1.17E+01	1.40E+00	1.14E+00	3.25E-01
Xylene	1330207	7.62E-02	9.66E-02	5.03E-01	2.25E-01	7.93E-02	9.66E-02	9.91E+00	9.89E-01	9.66E-01	2.30E-01
Formaldehyde	50000	3.07E+00	---	3.14E-01	---	3.23E+00	---	---	1.40E+01	---	3.24E+00
Ammonia	7664417	---	---	8.18E+01	---	1.50E+00	---	---	---	---	---
Naphthalene	91203	2.89E-02	---	7.67E-03	---	3.68E-02	---	---	8.08E-02	---	1.87E-02
Total PAHs (excluding naphthalene)	1150&1151	7.88E-03	---	2.56E-03	---	6.77E-02	---	---	---	---	---
Acetaldehyde	75070	1.13E-01	---	7.92E-02	---	1.46E+00	---	---	6.99E+00	---	1.62E+00
Acrolein	107028	2.63E-02	---	6.90E-02	---	6.34E-02	---	---	---	---	---
Ethylene Glycol	107211	---	0.00E+00	---	1.70E-04	---	0.00E+00	---	0.00E+00	---	---
1,3-Butadiene	106990	---	---	---	---	4.07E-01	---	---	1.81E-01	---	4.19E-02
Cadmium	7440439	---	---	---	---	2.81E-03	---	---	3.04E-03	---	4.68E-04
Hexavalent chromium	18540299	---	---	---	---	1.87E-04	---	---	---	---	---
Methyl Alcohol	67561	---	---	---	---	---	---	---	2.85E-02	---	6.62E-03
Methyl Ethyl Ketone	78933	---	---	---	---	---	---	---	1.40E+00	---	3.26E-01
Propylene	115071	---	---	---	---	---	---	---	2.47E+00	---	5.73E-01
Styrene	100425	---	---	---	---	---	---	---	5.51E-02	---	1.28E-02
Arsenic	7440382	---	---	---	---	2.99E-03	---	---	3.80E-04	---	5.85E-05
Lead	7439921	---	---	---	---	1.55E-02	---	---	3.19E-03	---	4.91E-04
Nickel	7440020	---	---	---	---	7.29E-03	---	---	1.44E-03	---	2.22E-04
Copper	7440508	---	---	---	---	7.67E-03	---	---	1.90E-03	---	2.92E-04
Hydrogen Chloride	7647010	---	---	---	---	3.48E-01	---	---	---	---	---
Manganese	7439965	---	---	---	---	5.80E-03	---	---	3.04E-03	---	4.68E-04
Mercury	7439976	---	---	---	---	3.74E-03	---	---	2.28E-03	---	3.51E-04
Selenium	7782492	---	---	---	---	4.11E-03	---	---	7.60E-04	---	1.17E-04
Chlorine	7782505	---	---	---	---	---	---	---	2.61E-02	---	4.02E-03

1. Detailed calculations and assumptions are found in Appendix A, Tables 7 through 15.

Table C-2. Maximum Hourly Emissions (lb/hr)- Project's Operation¹

TACs	CAS #	Unit 8: Emergency Flare	Unit 10: Carbon Adsorber (Slurry System)	Unit 11: Process Heater	Unit 12: Truck Loading	Unit 13: Emergency Generator	Unit 14: Carbon Adsorber (Sump Water)	Facility Fugitive Sources for Permitted Equipment	Workover Rig	Workover Venting	Backhoe
DPM	9901	--	--	--	--	1.68E-01	--	--	1.51E-02	--	1.34E-03
Benzene	71432	4.77E-05	7.30E-06	5.04E-05	2.04E-04	6.97E-03	7.30E-06	7.87E-04	3.77E-04	1.27E-04	8.49E-04
ethylbenzene	100414	4.33E-04	1.69E-06	6.00E-05	4.74E-05	4.08E-04	1.69E-06	1.74E-04	5.75E-05	2.94E-05	1.29E-04
n-hexane	110543	8.70E-06	6.87E-05	4.00E-05	1.12E-03	1.01E-03	6.87E-05	6.25E-03	2.96E-05	1.08E-07	6.66E-05
Toluene	108883	1.74E-05	1.30E-05	2.30E-04	3.64E-04	3.94E-03	1.30E-05	1.34E-03	2.78E-04	2.26E-04	6.25E-04
Xylene	1330207	8.70E-06	1.11E-05	1.71E-04	3.09E-04	1.59E-03	1.11E-05	1.13E-03	1.96E-04	2.24E-03	4.41E-04
Formaldehyde	50000	3.51E-04	--	1.07E-04	--	6.46E-02	--	--	2.77E-03	--	6.24E-03
Ammonia	7664417	--	--	2.78E-02	--	2.99E-02	--	--	--	--	--
Naphthalene	91203	3.30E-06	--	2.61E-06	--	7.37E-04	--	--	1.60E-05	--	3.60E-05
Total PAHs (excluding naphthalene)	115081151	9.00E-07	--	8.70E-07	--	1.35E-03	--	--	--	--	--
Acetaldehyde	75070	1.29E-05	--	2.70E-05	--	2.93E-02	--	--	1.39E-03	--	3.12E-03
Acrolein	107028	3.00E-06	--	2.35E-05	--	1.27E-03	--	--	--	--	--
Ethylene Glycol	107211	--	0.00E+00	--	2.34E-07	--	0.00E+00	--	0.00E+00	--	--
1,3-Butadiene	106990	--	--	--	--	8.13E-03	--	--	3.58E-05	--	8.06E-05
Cadmium	7440439	--	--	--	--	5.61E-05	--	--	6.03E-07	--	8.99E-07
Hexavalent chromium	18540299	--	--	--	--	3.74E-06	--	--	--	--	--
Methyl Alcohol	67561	--	--	--	--	--	--	--	5.65E-06	--	1.27E-05
Methyl Ethyl Ketone	78933	--	--	--	--	--	--	--	2.78E-04	--	6.26E-04
Propylene	115071	--	--	--	--	--	--	--	4.90E-04	--	1.10E-03
Styrene	100425	--	--	--	--	--	--	--	1.09E-05	--	2.46E-05
Arsenic	7440382	--	--	--	--	5.98E-05	--	--	7.54E-08	--	1.12E-07
Lead	7439921	--	--	--	--	3.10E-04	--	--	6.33E-07	--	9.44E-07
Nickel	7440020	--	--	--	--	1.46E-04	--	--	2.87E-07	--	4.27E-07
Copper	7440508	--	--	--	--	1.53E-04	--	--	3.77E-07	--	5.62E-07
Hydrogen Chloride	7647010	--	--	--	--	6.97E-03	--	--	--	--	--
Manganese	7439965	--	--	--	--	1.16E-04	--	--	6.03E-07	--	8.99E-07
Mercury	7439976	--	--	--	--	7.48E-05	--	--	4.52E-07	--	6.75E-07
Selenium	7782492	--	--	--	--	8.23E-05	--	--	1.51E-07	--	2.25E-07
Chlorine	7782505	--	--	--	--	--	--	--	5.19E-06	--	7.73E-06

1. Detailed calculations and assumptions are found in Appendix A, Tables 7 through 15.

Table C-3. Weighted Emission Rates in (g/s)(m³/μg³) x 10⁻⁶ Used to Estimate Cancer Risk for Residential Receptors^{1,2} - Project's Operation

TACs	CAS #	Unit 8: Emergency Flare	Unit 10: Carbon Adsorber (Slurry System)	Unit 11: Process Heater	Unit 12: Truck Loading	Unit 13: Emergency Generator	Unit 14: Carbon Adsorber (Sump Water)	Facility Fugitive Sources for Permitted Equipment	Workover Rig	Workover Venting	Backhoe
DPM	9901	--	--	--	--	3.86E-02	--	--	3.49E-01	--	5.36E-02
Benzene	71432	1.74E-04	2.66E-05	6.18E-05	6.19E-05	N/A	2.66E-05	2.88E-03	N/A	2.66E-04	N/A
Ethyl Benzene	100414	1.38E-04	5.37E-07	6.40E-06	1.25E-06	N/A	5.37E-07	5.53E-05	N/A	5.37E-06	N/A
Hexane	110543	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	108883	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Xylene	1330207	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Formaldehyde	50000	2.69E-04	--	2.75E-05	--	N/A	--	--	N/A	--	N/A
Ammonia	7664417	--	--	N/A	--	N/A	--	--	N/A	--	N/A
Naphthalene	91203	1.45E-05	--	3.84E-06	--	N/A	--	--	N/A	--	N/A
Total PAHs (excluding naphthalene)	1150&1151	3.82E-03	--	1.24E-03	--	N/A	--	--	N/A	--	N/A
Acetaldehyde	75070	4.71E-06	--	3.30E-06	--	N/A	--	--	N/A	--	N/A
Acrolein	107028	N/A	--	N/A	--	N/A	--	--	N/A	--	N/A
Ethylene Glycol	107211	--	N/A	--	N/A	N/A	N/A	--	N/A	--	N/A
1,3-Butadiene	106990	--	--	--	--	N/A	--	--	N/A	--	N/A
Cadmium	7440439	--	--	--	--	N/A	--	--	N/A	--	N/A
Hexavalent chromium	18540299	--	--	--	--	N/A	--	--	N/A	--	N/A
Arsenic	7440382	--	--	--	--	N/A	--	--	N/A	--	N/A
Lead	7439921	--	--	--	--	N/A	--	--	N/A	--	N/A
Nickel	7440020	--	--	--	--	N/A	--	--	N/A	--	N/A
Copper	7440508	--	--	--	--	N/A	--	--	N/A	--	N/A
Hydrogen Chloride	7647010	--	--	--	--	N/A	--	--	N/A	--	N/A
Manganese	7439965	--	--	--	--	N/A	--	--	N/A	--	N/A
Mercury	7439976	--	--	--	--	N/A	--	--	N/A	--	N/A
Selenium	7782492	--	--	--	--	N/A	--	--	N/A	--	N/A
Chlorine	7782505	--	--	--	--	N/A	--	--	N/A	--	N/A
Total		4.42E-03	2.71E-05	1.34E-03	6.32E-05	3.86E-02	2.71E-05	2.93E-03	3.49E-01	2.71E-04	5.36E-02

1. Estimated based on the annual average emissions that are presented in Appendix A for each TAC.

2. Risk Weighted Emission Rate = Cancer Potency (CP) x Base emission rate x DBR x EVF x AFann x 10⁻⁶ x Multipathway Factor (MP)

Table C-4. Weighted Emission Rates in (g/s)(m³/μg³) x 10⁶ Used to Estimate Cancer Risk for Worker Receptors^{1,2} - Project's Operation

TACs	CAS #	Unit 8: Emergency Flare	Unit 10: Carbon Adsorber (Slurry System)	Unit 11: Process Heater	Unit 12: Truck Loading	Unit 13: Emergency Generator	Unit 14: Carbon Adsorber (Sump Water)	Facility Fugitive Sources for Permitted Equipment	Workover Rig	Workover Venting	Backhoe
DPM	9901	--	--	--	--	7.54E-03	--	--	6.81E-02	--	1.05E-02
Benzene	71432	3.40E-05	5.19E-06	1.21E-05	1.21E-05	N/A	5.19E-06	5.62E-04	N/A	5.19E-05	N/A
Ethyl Benzene	100414	2.69E-05	1.05E-07	1.25E-06	2.44E-07	N/A	1.05E-07	1.08E-05	N/A	1.05E-06	N/A
Hexane	110543	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	108883	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Xylene	130207	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Formaldehyde	50000	5.25E-05	--	5.37E-06	--	N/A	--	--	N/A	--	N/A
Ammonia	7664417	--	--	N/A	--	N/A	--	--	N/A	--	N/A
Naphthalene	91203	2.83E-06	--	7.49E-07	--	N/A	--	--	N/A	--	N/A
Total PAHs (excluding naphthalene)	11508&1151	3.66E-04	--	1.19E-04	--	N/A	--	--	N/A	--	N/A
Acetaldehyde	75070	9.20E-07	--	6.45E-07	--	N/A	--	--	N/A	--	N/A
Acrolein	107028	N/A	--	N/A	--	N/A	--	--	N/A	--	N/A
Ethylene Glycol	107211	--	N/A	--	N/A	N/A	N/A	--	N/A	--	N/A
1,3-Butadiene	106990	--	--	--	--	N/A	--	--	N/A	--	N/A
Cadmium	7440439	--	--	--	--	N/A	--	--	N/A	--	N/A
Hexavalent chromium	18540299	--	--	--	--	N/A	--	--	N/A	--	N/A
Arsenic	7440382	--	--	--	--	N/A	--	--	N/A	--	N/A
Lead	7439921	--	--	--	--	N/A	--	--	N/A	--	N/A
Nickel	7440020	--	--	--	--	N/A	--	--	N/A	--	N/A
Copper	7440508	--	--	--	--	N/A	--	--	N/A	--	N/A
Hydrogen Chloride	7647010	--	--	--	--	N/A	--	--	N/A	--	N/A
Manganese	7439965	--	--	--	--	N/A	--	--	N/A	--	N/A
Mercury	7439976	--	--	--	--	N/A	--	--	N/A	--	N/A
Selenium	7782492	--	--	--	--	N/A	--	--	N/A	--	N/A
Chlorine	7782505	--	--	--	--	N/A	--	--	N/A	--	N/A
Total		4.83E-04	5.30E-06	1.39E-04	1.23E-05	7.54E-03	5.30E-06	5.72E-04	6.81E-02	5.30E-05	1.05E-02

1. Estimated based on the annual average emissions that are presented in Appendix A for each TAC.

2. Risk Weighted Emission Rate = Cancer Potency (CP) x Base emission rate x DBR x EVF x AFann x 10-6 x Multipathway Factor (MP)

Table C-5. Weighted Emission Rates in (g/s)/(µg/m³) Used to Estimate Chronic Non-Cancer Assessment^{1,2} -Project's Operation

TACs	CAS #	Unit 8: Emergency Flare ¹	Unit 10: Carbon Adsorber (Slurry System)	Unit 11: Process Heater	Unit 12: Truck Loading	Unit 13: Emergency Generator	Unit 14: Carbon Adsorber (Sump Water)	Facility Fugitive Sources for Permitted Equipment	Workover Rig	Workover Venting	Backhoe
DPM	9901	--	--	--	--	2.42E-05	--	--	2.19E-04	--	3.36E-05
Benzene	71432	1.00E-07	1.53E-08	3.55E-08	3.56E-08	N/A	1.53E-08	1.65E-06	N/A	1.53E-07	N/A
Ethyl Benzene	100414	2.73E-08	1.06E-10	1.27E-09	2.48E-10	N/A	1.06E-10	1.10E-08	N/A	1.06E-09	N/A
Hexane	110543	1.57E-10	1.23E-09	2.41E-10	1.67E-09	N/A	1.23E-09	1.12E-07	N/A	1.12E-12	N/A
Toluene	108883	7.31E-09	5.45E-09	3.25E-08	1.27E-08	N/A	5.45E-09	5.62E-07	N/A	5.45E-08	N/A
Xylene	1330207	1.57E-09	1.99E-09	1.03E-08	4.62E-09	N/A	1.99E-09	2.04E-07	N/A	1.98E-08	N/A
Formaldehyde	50000	4.91E-06	--	5.02E-07	--	N/A	--	--	N/A	--	N/A
Ammonia	7664417	--	--	5.88E-06	--	N/A	--	--	N/A	--	N/A
Naphthalene	91203	4.62E-08	--	1.22E-08	--	N/A	--	--	N/A	--	N/A
Total PAHs (excluding naphthalene)	11508&1151	N/A	--	N/A	--	N/A	--	--	N/A	--	N/A
Acetaldehyde	75070	1.16E-08	--	8.14E-09	--	N/A	--	--	N/A	--	N/A
Acrolein	107028	1.08E-06	--	2.83E-06	--	N/A	--	--	N/A	--	N/A
Ethylene Glycol	107211	--	0.00E+00	--	6.12E-12	N/A	0.00E+00	--	N/A	--	N/A
1,3-Butadiene	106990	--	--	--	--	N/A	--	--	N/A	--	N/A
Cadmium	7440439	--	--	--	--	N/A	--	--	N/A	--	N/A
Hexavalent chromium	18540299	--	--	--	--	N/A	--	--	N/A	--	N/A
Arsenic	7440382	--	--	--	--	N/A	--	--	N/A	--	N/A
Lead	7439921	--	--	--	--	N/A	--	--	N/A	--	N/A
Nickel	7440020	--	--	--	--	N/A	--	--	N/A	--	N/A
Copper	7440508	--	--	--	--	N/A	--	--	N/A	--	N/A
Hydrogen Chloride	7647010	--	--	--	--	N/A	--	--	N/A	--	N/A
Manganese	7439965	--	--	--	--	N/A	--	--	N/A	--	N/A
Mercury	7439976	--	--	--	--	N/A	--	--	N/A	--	N/A
Selenium	7782492	--	--	--	--	N/A	--	--	N/A	--	N/A
Chlorine	7782505	--	--	--	--	N/A	--	--	N/A	--	N/A
Total		6.18E-06	2.41E-08	9.32E-06	5.48E-08	2.42E-05	2.41E-08	2.54E-06	2.19E-04	2.28E-07	3.36E-05

1. Estimated based on the annual average emissions that are presented in Appendix A for each TAC.

2. CHI Weighted Emission Rate = Base emission rate x MP / REL.

Table C-6. Weighted Emission Rates in (g/s)/(µg/m3) Used to Estimate Acute Non-Cancer Assessment^{1,2}-Project's Operation

TACs	CAS #	Unit 8: Emergency Flare	Unit 10: Carbon Adsorber (Slurry System)	Unit 11: Process Heater	Unit 12: Truck Loading	Unit 13: Emergency Generator	Unit 14: Carbon Adsorber (Sump Water)	Facility Fugitive Sources for Permitted Equipment	Workover Rig	Workover Venting	Backhoe
DPM	9901	--	--	--	--	N/A	--	--	N/A	--	N/A
Benzene	71432	4.62E-09	7.08E-10	4.89E-09	1.98E-08	6.75E-07	7.08E-10	7.63E-08	3.66E-08	1.23E-08	8.22E-08
Ethyl Benzene	100414	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexane	110543	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	108883	5.93E-11	4.43E-11	7.85E-10	1.24E-09	1.34E-08	4.43E-11	4.56E-09	9.46E-10	7.68E-10	2.13E-09
Xylene	1330207	4.98E-11	6.33E-11	9.81E-10	1.77E-09	9.08E-09	6.33E-11	6.48E-09	1.12E-09	1.28E-08	2.53E-09
Formaldehyde	50000	8.03E-07	--	2.45E-07	--	1.48E-04	--	--	6.35E-06	--	1.43E-05
Ammonia	7664417	--	--	1.10E-06	--	1.18E-06	--	--	--	--	--
Naphthalene	91203	N/A	--	N/A	--	N/A	--	--	N/A	--	N/A
Total PAHs (excluding naphthalene)	1150&1151	N/A	--	N/A	--	N/A	--	--	--	--	--
Acetaldehyde	75070	3.46E-09	--	7.23E-09	--	7.85E-06	--	--	3.72E-07	--	8.36E-07
Acrolein	107028	1.51E-07	--	1.18E-06	--	6.39E-05	--	--	--	--	--
Ethylene Glycol	107211	--	N/A	--	N/A	--	N/A	--	N/A	--	--
1,3-Butadiene	106990	--	--	--	--	N/A	--	--	N/A	--	N/A
Cadmium	7440439	--	--	--	--	N/A	--	--	N/A	--	N/A
Hexavalent chromium	18540299	--	--	--	--	N/A	--	--	--	--	--
Methyl Alcohol	67561	--	--	--	--	--	--	--	2.54E-11	--	5.72E-11
Methyl Ethyl Ketone	78933	--	--	--	--	--	--	--	2.70E-09	--	6.07E-09
Propylene	115071	--	--	--	--	--	--	--	N/A	--	N/A
Styrene	100425	--	--	--	--	--	--	--	6.56E-11	--	1.48E-10
Arsenic	7440382	--	--	--	--	3.77E-05	--	--	4.75E-08	--	7.08E-08
Lead	7439921	--	--	--	--	N/A	--	--	N/A	--	N/A
Nickel	7440020	--	--	--	--	3.06E-06	--	--	6.02E-09	--	8.97E-09
Copper	7440508	--	--	--	--	1.93E-07	--	--	4.75E-10	--	7.08E-10
Hydrogen Chloride	7647010	--	--	--	--	4.18E-07	--	--	--	--	--
Manganese	7439965	--	--	--	--	N/A	--	--	N/A	--	N/A
Mercury	7439976	--	--	--	--	1.57E-05	--	--	9.50E-08	--	1.42E-07
Selenium	7782492	--	--	--	--	N/A	--	--	N/A	--	N/A
Chlorine	7782505	--	--	--	--	--	--	--	3.11E-09	--	4.64E-09
Total		9.63E-07	8.15E-10	2.54E-06	2.28E-08	2.79E-04	8.15E-10	8.73E-08	6.92E-06	2.59E-08	1.55E-05

1. Estimated based on the maximum daily emissions that are presented in Appendix A for each TAC.

2. AHI Weighted Emission Rate = Base emission rate / REL.

Appendix B

Table C-7. Health Risk Assessment Parameters Used in Cancer Risk, Chronic and Acute Non-Cancer Assessment - Projects' Operation

TAC Name	CAS	Type	Cancer Potency Factor (CP) (mg/kg-day) ⁻¹	Multi Pathway Factor (MP _r)	Multi Pathway Factor (MP _w)	Chronic Reference Exposure Level (REL) ug/m3	Multi Pathway Factor (MP _r)	Acute Reference Exposure Level (REL) ug/m3
DPM	9901	PM	1.1	1	1	5	1	N/A
Benzene	71432	VOC	0.1	1	1	60	1	1300
Ethyl Benzene	100414	VOC	0.0087	1	1	2000	1	N/A
Hexane	110543	VOC	N/A	N/A	N/A	7000	1	N/A
Toluene	108883	VOC	N/A	N/A	N/A	300	1	37000
Xylene	1330207	VOC	N/A	N/A	N/A	700	1	22000
Formaldehyde	50000	VOC	0.021	1	1	9	1	55
Ammonia	7664417	VOC	N/A	N/A	N/A	200	1	3200
Naphthalene	91203	VOC	0.12	1	1	9	1	N/A
Total PAHs (excluding naphthalene)	1150&1151	VOC	3.9	29.76	14.62	N/A	N/A	N/A
Acetaldehyde	75070	VOC	0.01	1	1	140	1	470
Acrolein	107028	VOC	N/A	N/A	N/A	0.35	1	2.5
Ethylene Glycol	107211	VOC	N/A	N/A	N/A	400	1	N/A
1,3-Butadiene	106990	VOC	0.60	1	1	20	1	N/A
Cadmium	7440439	VOC	15	1	1	0.02	1.5	N/A
Hexavalent chromium	18540299	VOC	510	1	1	0.2	1	N/A
Methyl Alcohol	67561	VOC	N/A	N/A	N/A	4.00E+03	1	2.80E+04
Methyl Ethyl Ketone	78933	VOC	N/A	N/A	N/A	N/A	N/A	1.30E+04
Propylene	115071	VOC	N/A	N/A	N/A	3.00E+03	1	N/A
Styrene	100425	VOC	N/A	N/A	N/A	9.00E+02	1	2.10E+04
Arsenic	7440382	PM	N/A	N/A	N/A	N/A	40.06	0.2
Lead	7439921	PM	N/A	N/A	N/A	N/A	N/A	N/A
Nickel	7440020	PM	N/A	N/A	N/A	N/A	1	6
Copper	7440508	PM	N/A	N/A	N/A	N/A	N/A	100
Hydrogen Chloride	7647010	PM	N/A	N/A	N/A	N/A	1	2100
Manganese	7439965	PM	N/A	N/A	N/A	N/A	1	N/A
Mercury	7439976	PM	N/A	N/A	N/A	N/A	6.66	0.6
Selenium	7782492	PM	N/A	N/A	N/A	N/A	1	N/A
Aluminum	7429905	PM	N/A	N/A	N/A	N/A	N/A	N/A
Barium	7440393	PM	N/A	N/A	N/A	N/A	N/A	N/A
Bromine	7726956	PM	N/A	N/A	N/A	N/A	N/A	N/A
Chlorine	7782505	PM	N/A	N/A	N/A	N/A	1	210
Chromium	7440473	PM	N/A	N/A	N/A	N/A	N/A	N/A
Cobalt	7440484	PM	N/A	N/A	N/A	N/A	N/A	N/A
Phosphorous	7723140	PM	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	7440622	PM	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	7440666	PM	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	7440360	PM	N/A	N/A	N/A	N/A	N/A	N/A
Silver	7440224	PM	N/A	N/A	N/A	N/A	N/A	N/A

1. SCAQMD Permit Application Package "L". For use in conjunction with Risk Assessment Procedures for Rules 1401 and 212. Version 7.0. Available: <http://www.aqmd.gov/prdas/pdf/1401Attl2Sep2010.pdf>. Accessed August 2011.

Table C-8. Health Risk Assessment Parameters Used to Evaluate Operational Cancer Risks

Receptor Type	Daily Breathing Rate¹ (L/kg body weight-day)	Exposure Value Factor¹
Residential	302	0.96
Worker	149	0.38

1. SCAQMD Permit Application Package "L". For use in conjunction with Risk Assessment Procedures for Rules 1401 and 212. Version 7.0. Available:
<http://www.aqmd.gov/prdas/pdf/1401AttL2Sep2010.pdf>. Accessed August 2011.

Appendix B
Figure C-1: Modeled Receptor Locations

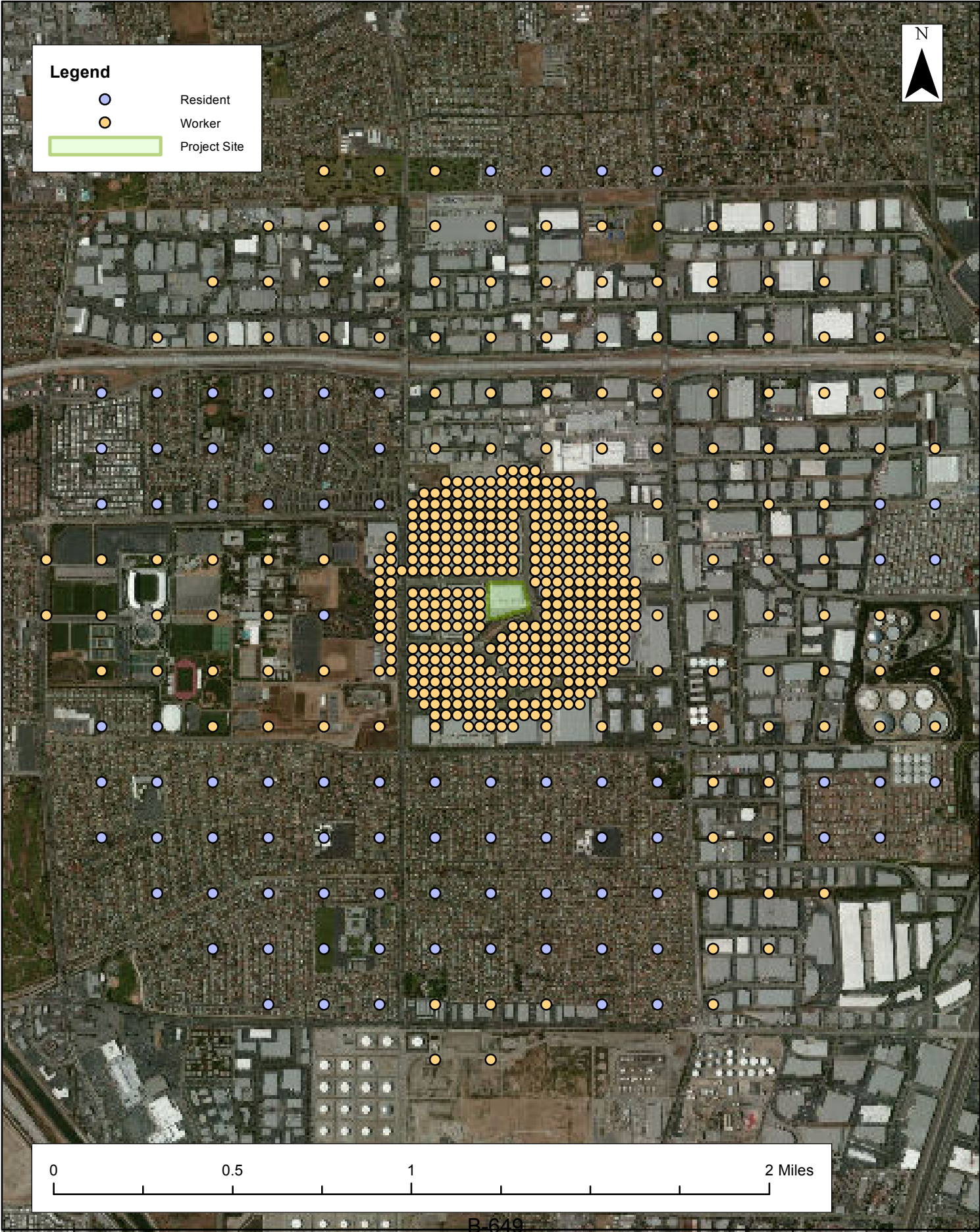
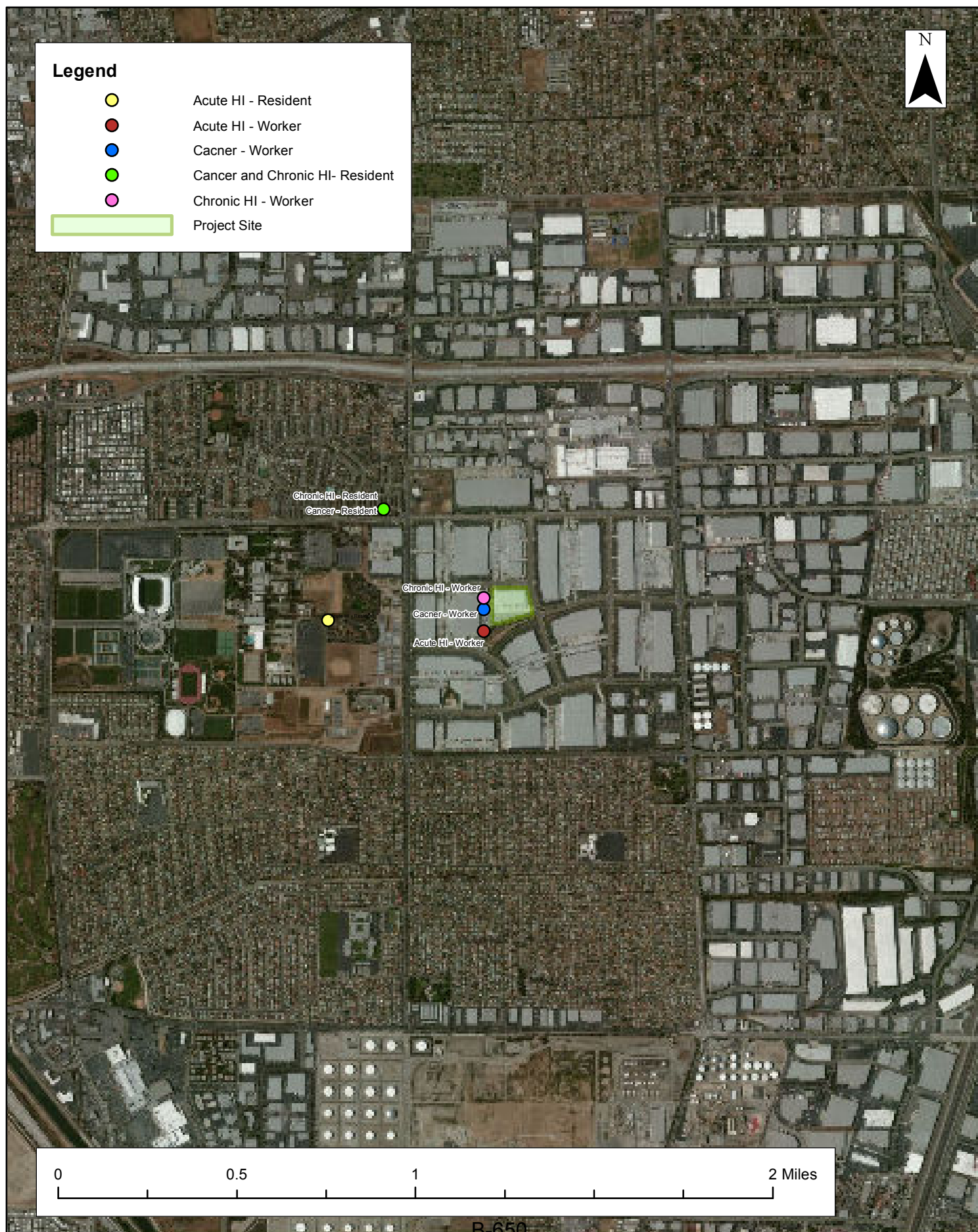


Figure C-2: Locations of the Maximum Exposed Individual Resident and Maximum Exposed Individual Worker



Appendix D

Air Dispersion Modeling

Appendix D-1: Modeling Emission Rates and Source
Inputs

Table D-1 List of Modeling Files

Modeling Activity	Analysis	Modeled Source Group	Description	Meteorological Year	Output File Name	Appendix Section	
Construction	Air Quality	CONSTEXH	Construction Combustion Sources (Equipment Exhaust)	2005	CONST05.out	D-2	
				2006	CONST06.out	D-3	
		CONSTFUG	Construction Fugitive Dust	2007	CONST07.out	D-4	
EMF		Emergency Flare	2005	OP05_EF.out	D-5		
			2006	OP06_EF.out	D-6		
			2007	OP07_EF.out	D-7		
VOL		Other Sources (including process heater, workover rig, generator, backhoe, and hopper vent for PM only)	2005	Volume05.out	D-8		
			2006	Volume06.out	D-9		
			2007	Volume07.out	D-10		
Operation		Health Risk Assessment	EMF	Emergency Flare	2005 - 2007	OP_EF.out	D-11
			OTHER	Other Sources	2005 - 2007	OP-GV.out	D-12

Table D-2 Modeling Source Parameters for Construction Emissions

Source Description	Modeled Source Type	Release Height ¹ (m)	Initial Vertical Dimension ¹ (m)	Initial Lateral Dimension ² (m)
Construction Equipment Exhaust	Volume	5	1.4	4.65
Fugitive Dust During Construction	Area	0	1	-

Notes:

1. Based SCAQMD Localized Significance Threshold methodology available at http://www.aqmd.gov/ceqa/handbook/Ist/Method_final.pdf. Accessed October, 2011.
2. Based on 20m by 20m volume sources per LST methodology. Initial lateral dimension is calculated using width of volume sources divided by 4.3.

Table D-3 Modeling Source Parameters for Operation Emissions

Source Description	Modeled Source Type	Stack Height ¹ (m)	Exhaust Temperature ² (K)	Exit Velocity ³ (m/s)	Stack Diameter ¹ (m)
Emergency Flare	Point	12.2	293	0.0001	4.6

Source Description	Modeled Source Type	Release Height ⁴	Initial Vertical Dimension ⁵ (m)	Initial Lateral Dimension ⁶ (m)
Emergency Generator	Volume	9.144	2.1	4.7
Carbon Adsorber (Sump Water)				
Carbon Adsorber (Slurry System)				
Process Heater				
Polymer Hopper Vent				
NGLs Truck Loading				
VOC Fugitives ⁷				
Workover Rig Exhaust				
Workover Rig Venting				

Notes:

1. Provided by SPEC Services.
2. Assumed exhaust from piloting flare is ambient temperature.
3. Calculated based on the piloting flow rate of 5 cfm and the stack diameter of 15 ft.
4. Based on 30 ft tall perimeter walls.
5. Initial vertical dimension is calculated using the release height of 9.1m divided by 4.3.
6. Initial lateral dimension is calculated using width of volume sources of 20m divided by 4.3.
7. Includes emissions from pumps, compressor, valves, flanges, and other components.

Table D-4 Building and Structure Heights for Building Downwash

Building Name	Approximate Dimensions	Height (m)
Electrical Power Building	6m x 22m	12.2
Maintenance and Warehouse	12m x 37m	12.2
Edison Substation	11m x 36m	12.2
Perimeter Walls	160m x 180m	9.1
Tanks	11m in diameter	9.1

Appendix B

Table D-5 Modeling Criteria Pollutant Emission Rates¹

Source	Pollutant	Averaging Time ²	Emission Rate ³ (g/s)
Construction Equipment	CO	1-HR	4.88E-01
	CO	8-HR	4.88E-01
	NOx	1-HR	8.29E-01
	NOx	ANNUAL	4.69E-01
	PM10	24-HR	5.18E-02
	PM10	ANNUAL	2.92E-02
	PM25	24-HR	5.18E-02
	SOx	1-HR	5.93E-04
	SOx	24-HR	5.93E-04
	SOx	ANNUAL	3.45E-04
Construction Fugitive Dust	PM10	24-HR	4.74E-02
	PM10	ANNUAL	1.55E-02
	PM25	24-HR	1.35E-02
Backhoe	CO	1-HR	1.75E-03
	CO	8-HR	1.75E-03
	NOx	1-HR	2.13E-03
	NOx	ANNUAL	2.13E-03
	PM10	24-HR	1.68E-04
	PM10	ANNUAL	1.68E-04
	PM25	24-HR	1.68E-04
	SOx	1-HR	2.73E-06
	SOx	24-HR	2.73E-06
	SOx	ANNUAL	2.73E-06
Emergency Flare	CO	1-HR	1.32E-03
	CO	8-HR	1.32E-03
	NOx	1-HR	4.91E-03
	NOx	ANNUAL	4.91E-03
	PM10	24-HR	2.83E-04
	PM10	ANNUAL	2.83E-04
	PM25	24-HR	2.83E-04
	SOx	1-HR	2.27E-05
	SOx	24-HR	2.27E-05
	SOx	ANNUAL	2.27E-05
Emergency Generator	CO	1-HR	1.65E-02
	CO	8-HR	1.65E-02
	NOx	1-HR	2.57E-02
	NOx	ANNUAL	3.52E-03
	PM10	24-HR	8.84E-04
	PM10	ANNUAL	1.21E-04
	PM25	24-HR	8.62E-04
	SOx	1-HR	1.39E-03
	SOx	24-HR	1.39E-03
	SOx	ANNUAL	1.91E-04
Polymer Hopper Vent	PM10	24-HR	1.13E-07
	PM10	ANNUAL	9.25E-08
	PM25	24-HR	1.91E-08

Table D-5 Modeling Criteria Pollutant Emission Rates¹

Source	Pollutant	Averaging Time ²	Emission Rate ³ (g/s)
Process Heater	CO	1-HR	9.32E-02
	CO	8-HR	9.32E-02
	NOx	1-HR	1.38E-02
	NOx	ANNUAL	4.62E-03
	PM10	24-HR	8.22E-03
	PM10	ANNUAL	2.76E-03
	PM25	24-HR	8.04E-03
	SOx	1-HR	6.57E-04
	SOx	24-HR	6.57E-04
	SOx	ANNUAL	2.20E-04
Workover Rig	CO	1-HR	1.19E-02
	CO	8-HR	1.19E-02
	NOx	1-HR	5.70E-02
	NOx	ANNUAL	3.28E-02
	PM10	24-HR	1.90E-03
	PM10	ANNUAL	1.09E-03
	PM25	24-HR	1.75E-03
	SOx	1-HR	6.20E-04
	SOx	24-HR	6.20E-04
	SOx	ANNUAL	3.57E-04

Notes:

1. See Appendix C for TAC emission rates.
2. For averaging periods less than 24-hours or less, the maximum daily emission rates were used, for all other averaging periods the average emission rates were used.
3. See Appendix A for supporting emissions estimates.

Figure D-1. Air Emissions Sources Layout

