APPENDIX B
Air Quality Technical Report

Air Quality Assessment

for the

Indian Wells Valley Water District
Water Supply Improvement Project

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1.0 Introduction

This report presents an analysis of potential air quality impacts associated with the Indian Wells Valley Water District's (IWVWD) Water Supply Improvement Project. The IWVWD's General Plan recommends that the District's water production wells should have sufficient combined capacity to meet maximum day demands with the largest well pumping plant out of service, which has been determined to be an approximately 20 percent redundancy to accommodate planned and emergency outages on the maximum day. The IWVWD proposes to meet current and projected domestic water demand in two phases. The first phase would be an increase in pumping at its existing Wells 18 and 34. The IWVWD would continue to operate Well 17 under the project scenario. The second phase would be the construction and operation of Well 35.

The project is located west of the City of Ridgecrest, southeast and east of Inyokern, and south of NAWS China Lake in Kern County, California. The project is within the jurisdiction of the Eastern Kern County Air Pollution Control District (EKAPCD). The EKAPCD has jurisdiction over the eastern half of Kern County, which is considered part of the Mojave Desert Air Basin (MDAB). The MDAB includes portions of four air districts: the Eastern Kern Air Pollution Control District, the Antelope Valley Air Quality Management District, the Mojave Desert Air Quality Management District, and the portion of the South Coast Air Quality Management District that includes the eastern part of Riverside County.

2.0 Existing Conditions

2.1 Regulatory Requirements

Air quality is defined by ambient air concentrations of specific pollutants identified by the United States Environmental Protection Agency (USEPA) to be of concern with respect to health and welfare of the general public. The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several pollutants (called "criteria" pollutants). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere.

States that are designated nonattainment for the NAAQS are required to develop a State Implementation Plan (SIP), which outlines federally-enforceable rules, regulations, and programs designed to reduce emissions and bring the area into attainment of the NAAQS. In California, the California Air Resources Board (ARB) is the agency responsible for developing the SIP. The responsibility for developing plans and programs for each air basin has been delegated to the local agency responsible for attaining and maintaining air quality standards in that air basin.

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The ARB has established the more stringent California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants through the California Clean Air Act of 1988, and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be "nonattainment areas" for that pollutant.

The ARB is the state regulatory agency with authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The ARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the CAAQS. The ARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations.

It is the responsibility of the EKAPCD to ensure that state and federal ambient air quality standards are achieved and maintained in the portion of the MDAB under its jurisdiction.

Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone (O_3), CO, NO_2, particulate matter with a diameter of 10 microns or less (PM_{10}), particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). These standards were established to protect sensitive receptors from adverse health impacts due to exposure to air pollution. The California Ambient Air Quality Standards (CAAQS) are more stringent than the federal standards. California has also established standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. Hydrogen sulfide and vinyl chloride are currently not monitored in the Basin because these contaminants are not seen as a significant air quality problem. CAAQS and National Ambient Air Quality Standards (NAAQS) for each of these pollutants are shown in Table 1. The Indian Wells Valley is currently considered an unclassifiable/attainment area for the NAAQS for O_3, $PM_{2.5}$, CO, NO_2, SO_2, and lead. The Indian Wells Valley is considered a maintenance area for the NAAQS for PM_{10}. The Indian Wells Valley is also considered a nonattainment area for the CAAQS for O_3 and PM_{10}. A brief description of the criteria pollutants follows.

<u>Ozone.</u> Ozone is considered a photochemical oxidant, which is a chemical that is formed when reactive organic compounds (ROC) and nitrogen oxides, both byproducts of combustion, react in the presence of ultraviolet light. Ozone is present in relatively high concentrations in the Basin. Ozone is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma, and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to ozone.

<u>Carbon monoxide.</u> Carbon monoxide is a product of combustion, and the main source of carbon monoxide in the Basin is from motor vehicle exhaust. CO is an odorless, colorless gas. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease, and can also affect mental alertness and vision.

<u>Nitrogen dioxide.</u> NO_2 is also a by-product of fuel combustion, and is formed both directly as a product of combustion and in the atmosphere through the reaction of NO with oxygen. NO_2 is a

respiratory irritant and may affect those with existing respiratory illness, including asthma. NO_2 can also increase the risk of respiratory illness.

Fine particulate matter. Fine particulate matter, or PM_{10}, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Particulate matter in this size range has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM_{10} arises from a variety of sources, including road dust, diesel exhaust, combustion, tire and break wear, construction operations, and windblown dust. PM_{10} can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. In 1997, the U.S. EPA proposed a new standard for $PM_{2.5}$, which is particulate matter with an aerodynamic diameter of 2.5 microns or less. These finer particulates are considered to have the potential to lodge deeper in the lungs.

Sulfur dioxide. SO_2 is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO_2 are found near large industrial sources. SO_2 is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

Lead. Lead in the atmosphere occurs as particulate matter. Lead has historically been emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Lead has the potential to cause gastrointestinal, central nervous system, kidney, and blood diseases upon prolonged exposure. Lead is also classified as a probable human carcinogen.

Table 1 AMBIENT AIR QUALITY STANDARDS						
POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Measurement Method	Primary	Secondary	Measurement Method
Ozone (O_3)	1 hour	0.09 ppm (180 μg/m^3)	Ultraviolet Photometry	--	--	Ethylene Chemiluminescence
	8 hour	0.070 ppm (137 μg/m^3)		0.075 ppm (147 μg/m^3)	0.075 ppm (147 μg/m^3)	
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm (56 μg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 μg/m^3)	0.053 ppm (100 μg/m^3)	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (338 μg/m^3)		0.100 ppm (188 μg/m^3)	--	
Sulfur Dioxide (SO_2)	24 hours	0.04 ppm (105 μg/m^3)	Ultraviolet Fluorescence	--	--	Pararosaniline
	3 hours	--		--	0.5 ppm (1300 μg/m^3)	
	1 hour	0.25 ppm (655 μg/m^3)		0.075 ppm (196 μg/m^3)	--	
Respirable Particulate Matter (PM_{10})	24 hours	50 μg/m^3	Gravimetric or Beta Attenuation	150 μg/m^3	150 μg/m^3	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m^3		--	--	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 μg/m^3	Gravimetric or Beta Attenuation	15 μg/m^3	--	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 μg/m^3	--	
Lead (Pb)	30-day Average	1.5 μg/m^3	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 μg/m^3	1.5 μg/m^3	
	3-month Rolling Average	--		0.15 μg/m^3	0.15 μg/m^3	

ppm= parts per million
μg/m^3 = micrograms per cubic meter
mg/m^3= milligrams per cubic meter
Source: California Air Resources Board, www.arb.ca.gov.

2.2 Regional Climate

Annual average temperatures in the Project area, as measured at Inyokern, range from an average minimum temperature of 47.2ºF to an average maximum temperature of 80.5ºF. December is the coldest month, with average minimum temperatures of 30.2°F. July is the hottest month in the area, with average maximum temperatures reaching 102.7°F. The average annual precipitation in the area is 4.17 inches, with the majority of the precipitation occurring in the winter months. Occasional heavy rains occur in the summer months. The climate of the area is characterized as high desert. The nearest meteorological monitoring station for which a wind rose is available is located at NAWS China Lake. Figure 1 presents a wind rose for the China Lake station showing the prevailing wind directions in the project vicinity.

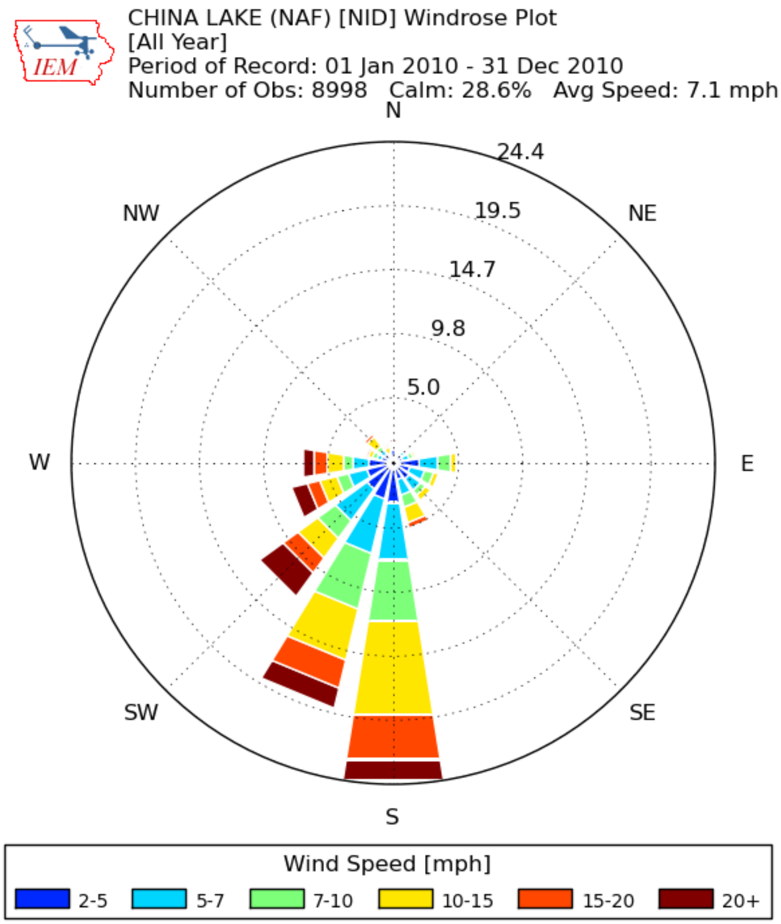

Figure 1 – Wind Rose, NAWS China Lake

Source:
http://mesonet.agron.iastate.edu/sites/dyn_windrose.phtml?station=NID&network=CA_ASOS&year1=2010&month1=1&day1=1&hour1=12&minute1=0&year2=2010&month2=12&day2=31&hour2=12&minute2=0

2.3 Existing Air Quality

The closest ambient air quality monitoring station to the Project is the Ridgcrest monitoring station, which measures PM_{10} and $PM_{2.5}$. The nearest monitoring station to the project site that measures O_3 is located in Mojave. CO, NO_2, and SO_2 are not measured in the immediate vicinity of the Project site, and are not considered to be pollutants of concern in the area. Ambient concentrations of criteria pollutants measured at these monitoring stations during the period 2008-2010 are presented in Table 2. Ambient air concentrations were compared with the CAAQS and NAAQS.

Exceedances of the state and federal ozone standards have been recorded at the Mojave monitoring station; that portion of Eastern Kern County has been designated a nonattainment area for the NAAQS by the U.S. EPA. It is likely that ozone concentrations are lower in the Project area. Exceedances of the state PM_{10} standards have been recorded at the Ridgecrest monitoring station within the past three years.

Table 2
Background Air Quality Data
(2008 – 2010)
ppm (unless otherwise indicated)

Pollutant	Averaging Time	2008	2009	2010	NAAQS	CAAQS	Monitoring Station
Ozone	8 hour	0.102	0.084	0.083	0.075	0.070	Mojave
	1 hour	0.112	0.101	0.092	-	0.08	Mojave
PM_{10}[2]	Annual Arithmetic Mean	23.9	23.9	20.4	-	20 μg/m³	Ridgecrest
	24 hour	57.0	46.3	52.6	150 μg/m³	50 μg/m³	Ridgecrest
$PM_{2.5}$	Annual Arithmetic Mean	7.0	5.7	5.0	15 μg/m³	12 μg/m³	Ridgecrest
	24 hour	26.8	14.2	19.5	35 μg/m³	-	Ridgecrest

NA – Data Not Available
[1]Secondary NAAQS
[2]California averages reported for PM_{10}
Source: www.arb.ca.gov (all pollutants except 1-hour CO and 1-hour and 3-hour SO_2)
www.epa.gov/air/data/monvals.html (1-hour CO and 1-hour and 3-hour SO_2)

2.4 Toxic Air Contaminants

Cancer Risk. One of the primary health risks of concern due to exposure to toxic air contaminants (TACs) is the risk of contracting cancer. The carcinogenic potential of TACs is a particular public health concern because it is currently believed by many scientists that there is no "safe" level of exposure to carcinogens, that is, any exposure to a carcinogen poses some risk of causing cancer. Health statistics show that one in four people will contract cancer over their lifetime, or 250,000 in a million, from all causes, including diet, genetic factors, and lifestyle choices.

Noncancer Health Risks. Unlike carcinogens, for most noncarcinogens it is believed that there is a threshold level of exposure to the compound below which it will not pose a health risk. The California Environmental Protection Agency (CalEPA) and California Office of Environmental Health Hazard Assessment (OEHHA) have developed reference exposure levels (RELs) for noncarcinogenic TACs that are health-conservative estimates of the levels of exposure at or below which health effects are not expected. The noncancer health risk due to exposure to a TAC is assessed by comparing the estimated level of exposure to the REL. The comparison is expressed as the ratio of the estimated exposure level to the REL, called the hazard index (HI).

3.0 Thresholds of Significance

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the State CEQA Guidelines. These thresholds have been adopted by the EKAPCD in their CEQA Guidelines (KCAPCD 1996). According to the CEQA Guidelines, a proposed project would not have a significant impact on air quality if operation of the proposed project would:

1. Emit less than offsets trigger levels set forth in Subsection III.B.3 of EKAPCD's Rule 210.1 (New and Modified Source Review Rule).
2. Emit less than 137 pounds per day of NOx or ROG from motor vehicle trips (indirect sources only).
3. Not cause or contribute to an exceedance of any California or National Ambient Air Quality Standard.
4. Not exceed the District health risk public notification thresholds adopted by the KCAPCD Board.

5. Be consistent with adopted federal and state Air Quality Attainment Plan.

These thresholds have been adopted in EKAPCD Rule 208.2. The EKAPCD has adopted guidelines for CEQA (Kern County Air Pollution Control District (KCAPCD) 1996) that provide guidance on significance of air quality impacts. Quantitative thresholds based on offset thresholds within EKAPCD Rule 210.1, Section III.B.3, are proposed in the guidelines to evaluate potential significance of impacts. These quantitative thresholds are as follows:

- PM10 – 15 tons/year
- SOx – 27 tons/year
- VOCs – 25 tons/year
- NOx – 25 tons/year

The EKAPCD has also adopted a threshold of 137 lbs/day of NOx or ROG from motor vehicle trips as a significance thresholds. In addition, the EKAPCD has published *Suggested Air Pollutant Mitigation Measures for Construction Sites for Kern County APCD* (KCAPCD 2007) that provide mitigation measures to reduce emissions of fugitive dust.

The EKAPCD's most recently adopted air quality management plan is its Ozone Air Quality Attainment Plan (KCAPCD 1992). The most recent Implementation Progress Report on the Plan was prepared by the EKAPCD in 2005 (KCAPCD 2005). That document demonstrated that EKAPCD has adopted all control measures identified in the AQAP into its Rules and Regulations, and is demonstrating further progress toward attainment of the ambient air quality standards.

The EKAPCD has also adopted fugitive dust control requirements in its Rule 402. As required by Senate Bill 656, the EKAPCD is currently reviewing the State's list of most readily available, feasible, and cost-effective fugitive dust control measures designed to reduce PM exposure. To date the EKAPCD has not adopted additional fugitive dust control rules, but will adopt appropriate measures into its Rules and Regulations as appropriate.

The most recent EPA-approved SIP for the EKAPCD is the 1994 SIP, which was approved by EPA in 1997.

The Project's impacts were evaluated relative to these significance criteria.

4.0 Impacts

The proposed project would result in air emissions from both the construction phase of the project due to use of heavy equipment and fugitive dust emissions, and the operational phase of the project due to routine inspection and maintenance activities. The following sections address impacts from both construction and operations.

4.1 Exceed Emission Thresholds or Cause aViolation of An Air Quality Standard

To address these significance thresholds under CEQA, an evaluation of the project's emissions during construction and operations was conducted, and the emissions were evaluated based on applicable significance thresholds. Because the EKAPCD has not adopted daily significance thresholds to evaluate significance, thresholds proposed by the MDAQMD for the MDAB were used to assess the potential for significant air quality impacts for a maximum daily construction scenario. Annual impacts were evaluated based on the EKAPCD's thresholds.

4.1.1 Construction Impacts

Emissions of criteria pollutants associated with the construction phase of the Project include the following: fugitive dust generation from site preparation activities, emissions from equipment used to refit Wells 18 and 34 with new pumping units and related power/control equipment to increase capacity, and with well drilling activities at Well 35. Retrofitting activities and well construction will require the use of heavy construction equipment to drill the well and to install pumping units. In addition, installation of a 12- to 16-inch pipeline of up to 400 feet would be required to connect Well 35 to the existing pipeline in Bowman Road. Installation of the pipeline would involve trenching of an approximately 6-foot-deep trench, followed by pipeline installation and backfilling and compacting of the road.

The proposed well site would be cleared of vegetation and graded to prepare them for construction of the well. A chain-link fence would be erected around the perimeter of the well site, and construction equipment would be staged within the fenced area. The well would be drilled using reverse-rotary drilling methods. Drilling would take approximately three to four months. Pumping units, motors, controls, and electric switchgear would be installed following well drilling operations. Following construction of the well, the well would be tested using a temporary diesel-driven pump for approximately one week.

The new well would require chlorination facilities (dosing pump and sodium hypochlorite storage tank with secondary containment) and such additional treatment facilities that may be indicated by water quality testing performed at the time of drilling. In addition, an approximate one-half to one acre discharge pond would be constructed immediately adjacent to the well.

Table 3 presents an estimate of the maximum number of pieces of equipment for the construction phase of the proposed project. The equipment estimates are based on similar projects. It was conservatively assumed that heavy construction equipment would be operating at the site for a total of 8 hours per day, 12 months, 6 days per week.

Table 3
Construction Equipment

Equipment	Number
Site Preparation (Including Discharge Pond)	
Backhoe/Loaders	1
Graders	1
Rubber-Tired Dozer	1
Water Trucks	1
Well Drilling	
Bore/Drill Rig	1
Tractor/Loader/Backhoe	1
Ancillary Equipment Installation	
Air Compressor	1
Crane	1
Forklift	1

Table 3 Construction Equipment	
Equipment	**Number**
Generator Set	1
Tractor/Loader/Backhoe	1
Welders	3
Chlorination Facilities Installation	
Air Compressor	1
Crane	1
Forklift	1
Generator Set	1
Tractor/Loader/Backhoe	1
Welders	3
Well Testing	
Generator Set	1
Tractor/Loader/Backhoe	1
Pipeline Installation	
Excavator	1
Roller Compactor	1
Tractor/Loader/Backhoe	2
Trencher	1

It was assumed construction activities would occur over a total of 12 months. The well improvements would be completed in 2012, and the drilling and associated construction would be completed in 2015. Emission estimates are based on the CalEEMod Model (ENVIRON 2011). CalEEMod outputs are provided in Appendix A. The estimated construction emissions are shown in Table 4.

Table 4
Estimated Construction Emissions
IWVWD Water Supply Improvement Project

Emission Source	ROG	NO_x	CO	SOx	PM_{10}	$PM_{2.5}$
Pounds per Day						
Site Preparation/Discharge Pond						
Fugitive Dust	-	-	-	-	2.06	1.13
Off-Road Equipment	5.19	42.85	22.05	0.04	2.05	2.05
Worker Vehicles	0.12	0.15	1.55	0.00	0.21	0.01
Total	**5.31**	**43.00**	**23.60**	**0.04**	**4.32**	**3.19**
Significance Threshold	137	137	548	137	82	82
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

Table 4 Estimated Construction Emissions IWVWD Water Supply Improvement Project						
Emission Source	**ROG**	**NO_x**	**CO**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Well Drilling						
Off-Road Equipment	1.76	15.47	13.98	0.02	1.08	1.08
Worker Vehicles	0.06	0.08	0.77	0.00	0.10	0.00
Total	**1.82**	**15.55**	**14.75**	**0.02**	**1.18**	**1.08**
Significance Threshold	137	137	548	137	82	82
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Ancillary Equipment Installation						
Off-Road Equipment	5.47	27.99	18.54	0.03	2.06	2.06
Vendor Trips	0.07	0.72	0.47	0.00	0.06	0.02
Worker Vehicles	0.23	0.31	3.09	0.00	0.42	0.04
Total	**5.77**	**29.02**	**22.10**	**0.03**	**2.54**	**2.12**
Significance Threshold	137	137	548	137	82	82
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Chlorination Facilities Installation						
Off-Road Equipment	5.47	27.99	18.54	0.03	2.06	2.06
Vendor Trips	0.07	0.72	0.47	0.00	0.06	0.02
Worker Vehicles	0.23	0.31	3.09	0.00	0.42	0.04
Total	**5.77**	**29.02**	**22.10**	**0.03**	**2.54**	**2.12**
Significance Threshold	137	137	548	137	82	82
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Well Testing						
Off-Road Equipment	1.40	9.35	6.06	0.01	0.76	0.76
Worker Vehicles	0.07	0.09	0.93	0.00	0.13	0.00
Total	**1.47**	**9.44**	**6.99**	**0.01**	**0.89**	**0.76**
Significance Threshold	137	137	548	137	82	82
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Pipeline Installation						
Off-Road Equipment	3.91	25.48	16.73	0.03	2.05	2.05
Vendor Trips	0.04	0.36	0.23	0.00	0.03	0.01
Worker Vehicles	0.15	0.20	2.01	0.00	0.27	0.01
Total	**4.10**	**26.04**	**18.97**	**0.03**	**2.35**	**2.07**
Significance Threshold	137	137	548	137	82	82
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Maximum Simultaneous Daily Construction, Lbs/day						
Total	**15.64**	**84.06**	**63.38**	**0.10**	**7.43**	**6.28**
Significance Threshold	137	137	548	137	82	82
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Total Construction Tons/year						
Total	**0.53**	**3.22**	**2.44**	**0.00**	**0.28**	**0.23**
Significance Threshold	25	25	NA	27	15	15
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

[1]Significance threshold for $PM_{2.5}$ assumed to be equivalent to PM_{10}.

As shown in the table, emissions associated with construction would be below the significance thresholds and impacts would therefore be less than significant. Project construction would be subject to EKAPCD Rule 402, which requires minimization of fugitive dust emissions through dust control measures during construction. These measures will include application of water or other dust suppressants during construction activities and removal of track-out from paved areas. These measures constitute best management practices for dust control.

4.1.2 Operational Impacts

The main impact associated with the IWVWD Water Supply Improvement Project is associated with inspection and maintenance activities, which will mainly involve worker vehicle emissions. Minor emissions may be associated with indirect emissions associated with energy use for the electric pumps.

Operational emissions would be lower than the construction emissions on both a maximum daily and annual basis, and therefore would be less than significant.

4.2 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

According to the EKAPCD's CEQA guidelines, a project's impacts would be significant if its emissions result in exposure of sensitive receptors to emissions exceeding public notification thresholds adopted by the EKAPCD Board. These thresholds include a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1. Risks would be associated with emissions of toxic air contaminants (TACs), such as diesel particulate matter and other substances.

Diesel particulate matter would be emitted during construction. However, because health effects from diesel particulate matter are based on long-term exposure, and construction activities would be short-term and temporary, no significant exposure of sensitive receptors is anticipated. Furthermore, sensitive receptors are not located in the immediate vicinity of the project.

TACs are emitted in trace amounts from vehicles. Inspection and maintenance activities would not result in significant emissions of TACs, and therefore the project would not expose sensitive receptors to substantial pollutant concentrations. This impact is less than significant.

4.3 Consistency with Air Quality Management Plan

As discussed in Section 3.0, the applicable Air Quality Management Plan for the Indian Wells Valley is the Ozone Air Quality Attainment Plan (KCAPCD 1992). The most recent Implementation Progress Report on the Plan was prepared by the EKAPCD in 2005 (KCAPCD 2005). That document demonstrated that EKAPCD has adopted all control measures identified in the AQAP into its Rules and Regulations, and is demonstrating further progress toward attainment of the ambient air quality standards. The Project will comply with applicable rules, and will not conflict with or obstruct implementation of the attainment plan. This impact would be less than significant.

5.0 Global Climate Change

5.1 Introduction to Global Climate Change Issues

Global Climate Change (GCC) refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), which are known as greenhouse gases (GHGs). These gases allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. Gases that trap heat in the atmosphere are often called greenhouse gases, analogous to a greenhouse. GHGs are emitted by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without these natural GHGs, the Earth's temperature would be about 61º Fahrenheit cooler (California Environmental Protection Agency 2006). Emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere.

GHGs have been at the center of a widely contested political, economic, and scientific debate surrounding GCC. Although the conceptual existence of GCC is generally accepted, the extent to which GHGs contribute to it remains a source of debate. The State of California has been at the forefront of developing solutions to address GCC. GCC refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. GCC may result from natural factors, natural processes, and/or human activities that change the composition of the atmosphere and alter the surface and features of land. Historical records indicate that global climate changes have occurred in the past due to natural phenomena (such as during previous ice ages). Some data indicate that the current global conditions differ from past climate changes in rate and magnitude.

The United Nations Intergovernmental Panel (Panel) on Climate Change constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The Panel concluded that a stabilization of GHGs at 400 to 450 ppm CO_2 equivalent concentration is required to keep global mean warming below 3.6º Fahrenheit (2º Celsius), which is assumed to be necessary to avoid dangerous climate change (Association of Environmental Professionals 2007).

State law defines greenhouse gases as any of the following compounds: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) (California Health and Safety Code Section 38505(g).) CO_2, followed by CH_4 and N_2O, are the most common GHGs that result from human activity.

5.2 Sources and Global Warming Potentials of GHG

The State of California GHG Inventory performed by the California Air Resources Board (ARB), compiled statewide anthropogenic GHG emissions and sinks. It includes estimates for CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs. The current inventory covers the years 1990 to 2008, and is summarized in Table 5. Data sources used to calculate this GHG inventory include California and federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the Intergovernmental Panel on Climate

Change (IPCC). The 1990 emissions level is the sum total of sources and sinks from all sectors and categories in the inventory. The inventory is divided into seven broad sectors and categories in the inventory. These sectors include: Agriculture; Commercial; Electricity Generation; Forestry; Industrial; Residential; and Transportation.

Table 5
State of California GHG Emissions by Sector

Sector	Total 1990 Emissions ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2008 Emissions ($MMTCO_2e$)	Percent of Total 2008 Emissions
Agriculture	23.4	5%	28.06	6%
Commercial	14.4	3%	14.68	3%
Electricity Generation	110.6	26%	116.35	25%
Forestry (excluding sinks)	0.2	<1%	0.19	<1%
Industrial	103.0	24%	92.66	20%
Residential	29.7	7%	28.45	6%
Transportation	150.7	35%	174.99	37%
Recycling and Waste			6.71	1%
High GWP Gases			15.65	3%
Forestry Sinks	(6.7)		(3.98)	

[1]Source: Staff Report – California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit, California Air Resources Board, November 16, 2007.
[2]$MMTCO_2e$ refers to million metric tons of CO2 equivalent emissions.

When accounting for GHGs, all types of GHG emissions are expressed in terms of CO_2 equivalents (CO_2e) and are typically quantified in metric tons (MT) or millions of metric tons (MMT).

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (USEPA 2006). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main greenhouse gases that have been attributed to human activity include CH_4, which has a GWP of 21, and N_2O, which has a GWP of 310. Table 6 presents the GWP and atmospheric lifetimes of common GHGs.

Table 6
Global Warming Potentials and Atmospheric Lifetimes of GHGs[1]

GHG	Formula	100-Year Global Warming Potential	Atmospheric Lifetime (Years)
Carbon Dioxide	CO_2	1	Variable
Methane	CH_4	21	12 ± 3
Nitrous Oxide	N_2O	310	114
CFC-11	CCl_3F	3,800	45
CFC-12	CCl_2F_2	8,100	100
CFC-113	CCl_2FCClF_2	4,800	85
HCFC-22	$CHClF_2$	1,500	12
HCFC-141b	CH_3CCl_2F	1,800	9.3
HCFC-142b	CH_3CClF_2	1,800	17.9
Methyl Chloroform	CH_3CCl_3	1,400	5
Carbon Tetrachloride	CCl_4	1,400	26
HFC-124	$CHClFCF_3$	470	5.8
HFC-134a	CH_2FCF_3	1,300	14
HFC-143a	CH_3CF_3	3,800	52
HFC-152a	CH_3CHF_2	140	1.4
HFC-23	CHF_3	11,700	270
Sulfur Hexafluoride	SF_6	23,900	3,200
PFC-14	CF_4	6,500	50,000
PFC-116	C_2F_6	9,200	10,000

[1]Source: Intergovernmental Panel on Climate Change Fourth Assessment Report, 2007.

Human-caused sources of CO_2 include combustion of fossil fuels (coal, oil, natural gas, gasoline and wood). Data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years. Concentrations of CO_2 have increased in the atmosphere since the industrial revolution.

CH_4 is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Human-caused sources of natural gas include landfills, fermentation of manure and cattle farming. Human-caused sources of N_2O include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid.

Other GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses.

The sources of GHG emissions, GWP, and atmospheric lifetime of GHGs are all important variables to be considered in the process of calculating CO_2e for discretionary land use projects that require a climate change analysis.

5.3 Regulatory Framework

All levels of government have some responsibility for the protection of air quality, and each level (Federal, State, and regional/local) has specific responsibilities relating to air quality regulation. GHG emissions and the regulation of GHGs is a relatively new component of air quality.

5.3.1 National and International Efforts

International and Federal legislation have been enacted to deal with GCC issues. In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of GCC. Recently, the United States Supreme Court declared in the court case of Massachusetts et al. vs. the Environmental Protection Agency et al., 549 C.S. 497 (2007) that the EPA does have the ability to regulate GHG emissions. In addition to the national and international efforts described above, many local jurisdictions have adopted climate change policies and programs.

Endangerment Finding. On April 17, 2009, EPA issued its proposed endangerment finding for GHG emissions. On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

> **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)--in the atmosphere threaten the public health and welfare of current and future generations.
>
> **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

The endangerment findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the EPA's proposed greenhouse gas emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.

Mandatory GHG Reporting Rule. On March 10, 2009, in response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), EPA proposed a rule that requires mandatory reporting of greenhouse gas (GHG) emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of Greenhouse Gases Rule was signed, and was published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. The rule will collect accurate and comprehensive emissions data to inform future policy decisions.

EPA is requiring suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA. The gases covered by the proposed rule are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), and other fluorinated gases including nitrogen trifluoride (NF_3) and hydrofluorinated ethers (HFE).

Corporate Average Fuel Economy Standards. The federal Corporate Average Fuel Economy (CAFE) standard determines the fuel efficiency of certain vehicle classes in the United States. In 2007, as part of the Energy and Security Act of 2007, CAFE standards were increased for new light-duty vehicles to 35 miles per gallon by 2020. In May 2009, President Obama announced plans to increase CAFE standards to require light-duty vehicles to meet an average fuel economy of 35.5 miles per gallon by 2016. On April 1, 2010, the U.S. Department of Transportation and the EPA established historic new federal rules that set the first-ever national greenhouse gas emissions standards and will significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. The standards set a requirement to meet an average fuel economy of 34.1 miles per gallon by 2016.

5.3.2 State Regulations and Standards

The following subsections describe regulations and standards that have been adopted by the State of California to address GCC issues.

Assembly Bill 32, the California Global Warming Solutions Act of 2006. In September 2006, Governor Schwartzenegger signed California AB 32, the global warming bill, into law. AB 32 directs the ARB to do the following:

- Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit.
- Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020.

- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures.
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources that ARB finds necessary to achieve the statewide GHG emissions limit.
- Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

AB 32 required that by January 1, 2008, ARB determine what the statewide GHG emissions level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. ARB adopted its Scoping Poan in December 2008, which provided estimates of the 1990 GHG emissions level and identified sectors for the reduction of GHG emissions. The ARB has estimated that the 1990 GHG emissions level was 427 MMT net CO_2e (ARB 2007b). The ARB estimates that a reduction of 173 MMT net CO_2e emissions below business-as-usual would be required by 2020 to meet the 1990 levels (ARB 2007b). This amounts to a 15 percent reduction from today's levels, and a 30 percent reduction from projected business-as-usual levels in 2020 (ARB 2008a).

Senate Bill 97. Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs OPR to develop draft CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009 and directs the Resources Agency to certify and adopt the CEQA guidelines by January 1, 2010.

The Governor's Office of Planning and Research (OPR) published a technical advisory on CEQA and Climate Change on June 19, 2008. The guidance did not include a suggested threshold, but stated that the OPR has asked ARB to, "recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of greenhouse gas emissions throughout the state." The OPR does recommend that CEQA analyses include the following components:

- Identify greenhouse gas emissions
- Determine Significance
- Mitigate Impacts

In April 2009, the OPR published its proposed revisions to CEQA to address GHG emissions. The amendments to CEQA indicate the following:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

On July 3, 2009, the California Natural Resources Agency published proposed amendment of regulations based on OPR's proposed revisions to CEQA to address GHG emissions. On that date, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Having reviewed and considered all comments received, on December 30, 2009, the Natural Resources Agency adopted the proposed amendments to the state CEQA guidelines in the California Code of Regulations. These measures went into effect on March 18, 2010.

Executive Order S-3-05. Executive Order S-3-05, signed by Governor Schwartzenegger on June 1, 2005, calls for a reduction in GHG emissions to 1990 levels by 2020 and for an 80 percent reduction in GHG emissions by 2050. Executive Order S-3-05 also calls for the California EPA (CalEPA) to prepare biennial science reports on the potential impact of continued GCC on certain sectors of the California economy. The first of these reports, "Our Changing Climate: Assessing Risks to California", and its supporting document "Scenarios of Climate Change in California: An Overview" were published by the California Climate Change Center in 2006.

California Code of Regulations Title 24. Although not originally intended to reduce greenhouse gas emissions, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The GHG emission inventory was based on Title 24 standards as of October 2005; however, Title 24 has been updated as of 2008 and standards are in the process of being phased in. Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in greenhouse gas emissions. Therefore, increased energy efficiency results in decreased greenhouse gas emissions.

State Standards Addressing Vehicular Emissions. California Assembly Bill 1493 (Pavley) enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by ARB would apply to 2009 and later model year vehicles. ARB estimated that the regulation would reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18% in 2020 and by 27% in 2030 (AEP 2007). The ARB has adopted amendments to the "Pavley" regulations that reduce greenhouse gas (GHG) emissions in new passenger vehicles from 2009 through 2016. The amendments, approved by the Board on September 24, 2009, are part of California's commitment toward a nation-wide program to reduce new passenger vehicle GHGs from 2012 through 2016. ARB's September amendments will cement California's enforcement of the Pavley rule starting in 2009 while providing vehicle manufacturers with new compliance flexibility. The amendments will also prepare California to harmonize its rules with the federal rules for passenger vehicles.

Executive Order S-01-07 was enacted by the Governor on January 18, 2007. Essentially, the order mandates the following: 1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California. It is assumed that the effects of the LCFS would be a 10% reduction in GHG emissions from fuel use by 2020. On April 23, 2009, ARB adopted regulations to implement the LCFS.

Senate Bill 375. Senate Bill 375 requires that regions within the state which have a metropolitan planning organization must adopt a sustainable communities strategy as part of their regional transportation plans. The strategy must be designed to achieve certain goals for the reduction of GHG emissions. The bill finds that GHG from autos and light trucks can be substantially reduced by new vehicle technology, but even so "it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 provides that new CEQA provisions be enacted to "encourage developers to submit applications and local governments to make land use decisions that will help the state achieve its goals under AB 32," and that "current planning models and analytical techniques used for making transportation infrastructure decisions and for air quality planning should be able to assess the effects of policy choices, such as residential development patterns, expanded transit service and accessibility, the walkability of communities, and the use of economic incentives and disincentives."

5.4 Potential Climate Change Impacts to the Site

5.4.1 Existing Conditions

The project area includes existing operational wells, as well as the site of Well 35, which is currently undeveloped and includes native vegetation and soils. Operation of the existing wells involves indirect emissions of GHGs through the use of energy in pumping. These emissions are minor. Natural vegetation and soils temporarily store carbon as part of the terrestrial carbon cycle. Carbon is assimilated into plants and animals as they grow and then dispersed back into the environment when they die.

Natural Vegetation. Living vegetation stores carbon. The key issue is the balance between the loss of natural vegetation and future carbon storage associated with development. Because the project is proposing to disturb little native vegetation and preserve the area, little changes in natural vegetation are anticipated for the project. Carbon in natural vegetation is likely to be released into the atmosphere through wildfire every 20 to 150 years. Carbon in landscaped areas will be protected from wildfire. The balance between these factors will influence the long-term carbon budget on the site.

Soils. The majority of carbon within the site is stored in the soil. Soil carbon accumulates from inputs of plant and animal matter, roots, and other living components of the soil ecosystem (e.g., bacteria, worms, etc.). Soil carbon is lost through biological respiration, erosion, and other forms of disturbance. Overall, soil carbon moves more slowly through the carbon cycle, and it offers greater potential for long-term carbon storage. Field observations suggest that urban soils can sequester relatively large amounts of carbon. Observations from across the United States suggest that cities in warmer and drier climates (such as Eastern Kern County) may have slightly higher soil organic matter levels when compared to equivalent areas before development.

5.4.2 Typical Adverse Effects

The Climate Scenarios Report (CCCC 2006), uses a range of emissions scenarios developed by the IPCC to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century. Three warming ranges were identified: Lower warming range (3.0 to 5.5 degrees Fahrenheit (ºF)); medium warming range (5.5 to 8.0 ºF); and higher warming range (8.0 to 10.5 ºF). The Climate Scenarios report then presents an analysis of the future projected climate changes in California under each warming range scenario.

According to the report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California. These impacts would result from a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. These impacts are described below.

Public Health. Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to O_3 formation are projected to increase by 25 to 35 percent under the lower warming range and 75 to 85 percent under the medium warming range. In addition, if global background O_3 levels increase as is predicted in some scenarios, it may become impossible to meet local air quality standards. An increase in wildfires could also occur, and the corresponding increase in the release of pollutants including $PM_{2.5}$ could further compromise air quality. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent of GHG emissions are not significantly reduced.

Potential health effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (e.g., heat rash and heat stroke). In addition, climate sensitive diseases (such as malaria, dengue fever, yellow fever, and encephalitis) may increase, such as those spread by mosquitoes and other disease-carrying insects. This effect could occur in southern California in general and at the project site specifically.

Water Resources. A vast network of reservoirs and aqueducts capture and transport water throughout the State from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages. In addition, if temperatures continue to rise more precipitation would fall as rain instead of snow, further reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. The State's water resources are also at risk from rising sea levels. An influx of seawater would degrade California's estuaries, wetlands, and groundwater aquifers. This effect could impact the project by reducing the amount of water available within the aquifer and the water supply for the IWVWD.

Agriculture. Increased GHG and associated increases in temperature are expected to cause widespread changes to the agricultural industry, reducing the quantity and quality of agricultural products statewide. Significant reductions in available water supply to support agriculture would also impact production. Crop growth and development will change as will the intensity and frequency of pests and diseases. This effect would not impact the project because it is not an agricultural development.

Ecosystems/Habitats. Continued global warming will likely shift the ranges of existing invasive plants and weeds, thus alternating competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Continued global warming is also likely to increase the populations of and types of pests. Continued global warming would also affect natural ecosystems and biological habitats throughout the State. This effect could affect the project site by changing the range of plants adapted at the site.

Wildland Fires. Global warming is expected to increase the risk of wildfire and alter the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the State. This effect could increase the potential for wildland fires in areas around the project site.

Rising Sea Levels. Rising sea levels, more intense coastal storms, and warmer water temperatures will increasing threaten the State's coastal regions. Under the high warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. A sea level risk of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten levees and inland water systems, and disrupt wetlands and natural habitats. This effect would not impact the project site because it is not in a coastal area.

5.5 Climate Change Significance Criteria

According to the California Natural Resources Agency[1], "due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis. According to Appendix G of the CEQA Guidelines, the following criteria may be considered to establish the significance of GCC emissions:

Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

[1] California Natural Resources Agency, Initial Statement of Reasons for Regulatory Action, Proposed Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gases Pursuant to SB 97. July 2009.

As discussed in Section 15064.4 of the CEQA Guidelines, the determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

(2) Rely on a qualitative analysis or performance based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

The EKAPCD has not adopted specific CEQA significance thresholds that apply to its jurisdiction. The South Coast Air Quality Management District (SCAQMD) has proposed utilizing a tiered approach to evaluating significance of impacts from GHG emissions. At their September 28, 2010 board meeting, the SCAQMD proposed to adopt an interim significance threshold of 10,000 metric tons of CO_2e emissions as a significance threshold for all industrial projects. While the IWVWD Water Supply Improvement Project is not technically an industrial project, the threshold of 10,000 metric tons proposed by the SCAQMD was used to evaluate potential significance of impacts for the project. The SCAQMD also recommends amortization of construction emissions over a 30-year period to account for their contribution over the lifetime of the project (SCAQMD 2008).

5.6 Global Climate Change Impacts

This analysis provides a calculation of Project-specific emissions, but those emissions are not significant on a project-specific level because no single project will affect climate change. Accordingly, this analysis focuses on the Project's cumulative impact on global climate change, as discussed in the new State CEQA Guidelines confirming that the focus of a GHG analysis is the cumulative impact. GHG emissions associated with the project include emissions from construction of the Water Supply Improvement Project and emissions from project operations. The following subsections discuss the emissions inventory.

Construction Emissions. GHG emissions associated with Project construction were estimated using the CalEEMod, which estimates emissions of CO_2, N_2O, and CH_4. Based on emission factors from the CalEEMod for heavy construction equipment and on-road vehicles, total greenhouse gases associated with construction are summarized in Table 7. CalEEMod outputs are provided in Appendix A.

Table 7[1]
Greenhouse Gas Emissions - Construction

CO_2 Emissions, metric tons	CH_4 Emissions, metric tons	N_2O Emissions, metric tons	CO_2e Emissions, metric tons
342	0.04	0.00	343

[1]Source: CalEEMod Model.

The total emissions are estimated at 343 metric tons of CO_2 total for the duration of construction. Amortized over 30 years, the annual CO_2 emissions would be 11 metric tons per year.

Operational Emissions. As discussed in Section 4.2, operational emissions of GHGs would be associated with inspection and maintenance activities and indirect emissions from electricity use for pumping, and would be well below the construction emissions. Emissions were calculated using emission factors from the EMFAC2007 model for worker trips, and from emission factors from the California Climate Action Protocol (CCAR 2009) for energy use, conservatively assuming that Wells 18, 34, and 35 would operate with 400-hp electric pumps for 8760 hours per year. Emissions are summarized in Table 8, including amortized construction emissions.

Table 8[1]
GHG Emissions from the Project (metric tons)
Business as Usual Scenario

Emission Source	**Annual Emissions (Metric tons/year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Operational Emissions				
Energy Use - Pumping	2,572	0.107	0.029	2,583
Vehicle Emissions	4.19	0.0004	0.0002	4.25
Amortized Construction Emissions	11	-	-	11
Total	**2,587**	**0.11**	**0.03**	**2,598**
Global Warming Potential Factor	**1**	**21**	**310**	
CO_2 Equivalent Emissions	2,587	2	9	2,598
TOTAL CO_2 Equivalent Emissions	**2,598**			

As shown in Table 8, emissions from the proposed IWVWD Water Supply Improvement Project are 2,598. The main contributor to emissions from the project is energy use from pumping. Emissions would be below the SCAQMD's proposed interim threshold of 10,000 metric tons, and impacts would be less than significant.

As discussed in Section 5.2, vehicle emissions would be reduced through adoption of the Pavley standards, the LCFS, and the federal CAFE standards for vehicle fuel efficiency. These measures would further reduce GHG emissions from the project.

6.0 Conclusions

Air quality and global climate change impacts associated with the IWVWD Water Supply Improvement Project were evaluated to assess whether the project would result in a significant impact on air quality. The main impact is associated with construction activities for the project. Construction criteria pollutant and GHG emissions were calculated. Based on the evaluation of criteria pollutants, the project would:

1. Emit less than offsets trigger levels set forth in Subsection III.B.3 of EKAPCD's Rule 210.1 (New and Modified Source Review Rule).
2. Emit less than 137 pounds per day of NOx or ROG from motor vehicle trips (indirect sources only).
3. Not cause or contribute to an exceedance of any California or National Ambient Air Quality Standard.
4. Not exceed the District health risk public notification thresholds adopted by the KCAPCD Board.
5. Be consistent with adopted federal and state Air Quality Attainment Plan.

Emissions of GHGs were also evaluated for energy use and inspection and maintenance activities. Based on the evaluation, the project would not:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Impacts are therefore less than significant**.**

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Appendix A

Calculations

CalEEMod Model Outputs

Table A-1
Electricity Greenhouse Gas Emissions
IWVWD Water Supply Improvement Project

Electricity

Land Use	Usage Rate [a] kWh/year	MWh\year
Project		
IWVWD Energy Use	7831440.00	7831.44
Total Project		**7831.44**

GHG	lbs/MWh[b]	lbs	metric tons	CO_2E
Project				
CO_2	724.12	5670902.333	2572.275931	2572.275931
CH_4	0.0302	236.509488	0.107278812	2.252855045
N_2O	0.0081	63.434664	0.028773456	8.919771395
				2583.45

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-2
Operational On-Road Mobile Source Greenhouse Gas Emissions
IWVWD Water Supply Improvement Project

On Road Mobile Source

Land Use	Daily VMT	Annual VMT[a]
Total Project	**40**	**10,000.00**

[a] Multiplied Daily VMT by 365 to get Annual VMT
[b] Factors derived from EMFAC2007

Kern County CO_2 2012 LDT1 Gram/Mile[c]	**418.61**
Kern County CH_4 2012 LDT1 Gram/Mile[c]	**0.039**
N_2O Gram/Mile	**0.0177**

GHG	Gram/Mile	Gram	metric tons	CO_2E (Metric Tons)
Project				
CO_2	418.61	4,186,100.00	4.19	4.19
CH_4	0.039	390.00	0.0004	0.01
N_2O	0.0177	177.00	0.0002	0.05
				4.25

[c] EMFAC2007 light duty truck values for 30mph
[d] Emission Factor for N_2O based on CCAP

IWVWD Water Supply Improvement Project

Kern County APCD Air District, 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 Rural

Wind Speed (m/s) 2.7

Utility Company

Climate Zone 7

Precipitation Freq (Days) 32

1.3 User Entered Comments

Project Characteristics -

Land Use - Site information - Well 35

Construction Phase - Based on Project Description

Off-road Equipment - Assumptions

Off-road Equipment - Assumptions

Off-road Equipment - Assumption

Off-road Equipment - Assumptions

Off-road Equipment - Assumption

Off-road Equipment - Assumption

Trips and VMT - Assumptions

Vehicle Trips - Inspection and Maintenance Assumption

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										lb/day					
2012	15.64	84.06	63.38	0.10	5.50	6.27	7.55	2.90	6.26	6.28	0.00	9,260.40	0.00	1.40	0.00	9,289.86
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					
2012	15.64	84.06	63.38	0.10	2.27	6.27	7.43	1.13	6.26	6.28	0.00	9,260.40	0.00	1.40	0.00	9,289.86
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

3.2 Site Preparation - 2012

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					5.29	0.00	5.29	2.90	0.00	2.90						0.00
Off-Road	5.19	42.85	22.05	0.04		2.05	2.05		2.05	2.05		4,394.97		0.46		4,404.73
Total	**5.19**	**42.85**	**22.05**	**0.04**	**5.29**	**2.05**	**7.34**	**2.90**	**2.05**	**4.95**		**4,394.97**		**0.46**		**4,404.73**

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	0.15	1.55	0.00	0.20	0.01	0.21	0.00	0.01	0.01		157.15		0.01		157.39
Total	**0.12**	**0.15**	**1.55**	**0.00**	**0.20**	**0.01**	**0.21**	**0.00**	**0.01**	**0.01**		**157.15**		**0.01**		**157.39**

3.2 Site Preparation - 2012

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					2.06	0.00	2.06	1.13	0.00	1.13						0.00
Off-Road	5.19	42.85	22.05	0.04		2.05	2.05		2.05	2.05	0.00	4,394.97		0.46		4,404.73
Total	**5.19**	**42.85**	**22.05**	**0.04**	**2.06**	**2.05**	**4.11**	**1.13**	**2.05**	**3.18**	**0.00**	**4,394.97**		**0.46**		**4,404.73**

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	0.15	1.55	0.00	0.20	0.01	0.21	0.00	0.01	0.01		157.15		0.01		157.39
Total	**0.12**	**0.15**	**1.55**	**0.00**	**0.20**	**0.01**	**0.21**	**0.00**	**0.01**	**0.01**		**157.15**		**0.01**		**157.39**

3.3 Well Drilling - 2012

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	1.76	15.47	13.80	0.02		1.08	1.08		1.08	1.08		2,209.00		0.16		2,212.32
Total	**1.76**	**15.47**	**13.80**	**0.02**		**1.08**	**1.08**		**1.08**	**1.08**		**2,209.00**		**0.16**		**2,212.32**

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	0.06	0.08	0.77	0.00	0.10	0.00	0.10	0.00	0.00	0.00		78.57		0.01		78.69
Total	**0.06**	**0.08**	**0.77**	**0.00**	**0.10**	**0.00**	**0.10**	**0.00**	**0.00**	**0.00**		**78.57**		**0.01**		**78.69**

3.3 Well Drilling - 2012

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	1.76	15.47	13.80	0.02		1.08	1.08		1.08	1.08	0.00	2,209.00		0.16		2,212.32
Total	**1.76**	**15.47**	**13.80**	**0.02**		**1.08**	**1.08**		**1.08**	**1.08**	**0.00**	**2,209.00**		**0.16**		**2,212.32**

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	0.06	0.08	0.77	0.00	0.10	0.00	0.10	0.00	0.00	0.00		78.57		0.01		78.69
Total	**0.06**	**0.08**	**0.77**	**0.00**	**0.10**	**0.00**	**0.10**	**0.00**	**0.00**	**0.00**		**78.57**		**0.01**		**78.69**

3.4 Ancillary Equipment - 2012

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	5.47	27.99	18.64	0.03		2.06	2.06		2.06	2.06		2,842.77		0.49		2,853.10
Total	**5.47**	**27.99**	**18.64**	**0.03**		**2.06**	**2.06**		**2.06**	**2.06**		**2,842.77**		**0.49**		**2,853.10**

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										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	0.07	0.72	0.47	0.00	0.03	0.02	0.06	0.00	0.02	0.02		101.78		0.00		101.85
Worker	0.23	0.31	3.09	0.00	0.41	0.01	0.42	0.01	0.01	0.02		314.30		0.02		314.78
Total	**0.30**	**1.03**	**3.56**	**0.00**	**0.44**	**0.03**	**0.48**	**0.01**	**0.03**	**0.04**		**416.08**		**0.02**		**416.63**

3.4 Ancillary Equipment - 2012

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	5.47	27.99	18.64	0.03		2.06	2.06		2.06	2.06	0.00	2,842.77		0.49		2,853.10
Total	**5.47**	**27.99**	**18.64**	**0.03**		**2.06**	**2.06**		**2.06**	**2.06**	**0.00**	**2,842.77**		**0.49**		**2,853.10**

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										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	0.07	0.72	0.47	0.00	0.03	0.02	0.06	0.00	0.02	0.02		101.78		0.00		101.85
Worker	0.23	0.31	3.09	0.00	0.41	0.01	0.42	0.01	0.01	0.02		314.30		0.02		314.78
Total	**0.30**	**1.03**	**3.56**	**0.00**	**0.44**	**0.03**	**0.48**	**0.01**	**0.03**	**0.04**		**416.08**		**0.02**		**416.63**

3.5 Chlorination Facilities Installation - 2012

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	5.47	27.99	18.64	0.03		2.06	2.06		2.06	2.06		2,842.77		0.49		2,853.10
Total	**5.47**	**27.99**	**18.64**	**0.03**		**2.06**	**2.06**		**2.06**	**2.06**		**2,842.77**		**0.49**		**2,853.10**

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										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	0.07	0.72	0.47	0.00	0.03	0.02	0.06	0.00	0.02	0.02		101.78		0.00		101.85
Worker	0.23	0.31	3.09	0.00	0.41	0.01	0.42	0.01	0.01	0.02		314.30		0.02		314.78
Total	**0.30**	**1.03**	**3.56**	**0.00**	**0.44**	**0.03**	**0.48**	**0.01**	**0.03**	**0.04**		**416.08**		**0.02**		**416.63**

3.5 Chlorination Facilities Installation - 2012

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	5.47	27.99	18.64	0.03		2.06	2.06		2.06	2.06	0.00	2,842.77		0.49		2,853.10
Total	**5.47**	**27.99**	**18.64**	**0.03**		**2.06**	**2.06**		**2.06**	**2.06**	**0.00**	**2,842.77**		**0.49**		**2,853.10**

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										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	0.07	0.72	0.47	0.00	0.03	0.02	0.06	0.00	0.02	0.02		101.78		0.00		101.85
Worker	0.23	0.31	3.09	0.00	0.41	0.01	0.42	0.01	0.01	0.02		314.30		0.02		314.78
Total	**0.30**	**1.03**	**3.56**	**0.00**	**0.44**	**0.03**	**0.48**	**0.01**	**0.03**	**0.04**		**416.08**		**0.02**		**416.63**

3.6 Well Testing - 2012

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	1.40	9.35	6.08	0.01		0.76	0.76		0.76	0.76		932.27		0.13		934.92
Total	**1.40**	**9.35**	**6.08**	**0.01**		**0.76**	**0.76**		**0.76**	**0.76**		**932.27**		**0.13**		**934.92**

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	0.07	0.09	0.93	0.00	0.12	0.00	0.13	0.00	0.00	0.00		94.29		0.01		94.43
Total	**0.07**	**0.09**	**0.93**	**0.00**	**0.12**	**0.00**	**0.13**	**0.00**	**0.00**	**0.00**		**94.29**		**0.01**		**94.43**

3.6 Well Testing - 2012

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	1.40	9.35	6.08	0.01		0.76	0.76		0.76	0.76	0.00	932.27		0.13		934.92
Total	**1.40**	**9.35**	**6.08**	**0.01**		**0.76**	**0.76**		**0.76**	**0.76**	**0.00**	**932.27**		**0.13**		**934.92**

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	0.07	0.09	0.93	0.00	0.12	0.00	0.13	0.00	0.00	0.00		94.29		0.01		94.43
Total	**0.07**	**0.09**	**0.93**	**0.00**	**0.12**	**0.00**	**0.13**	**0.00**	**0.00**	**0.00**		**94.29**		**0.01**		**94.43**

3.7 Pipeline Installation - 2012

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	3.91	25.48	16.73	0.03		2.05	2.05		2.05	2.05		2,487.53		0.35		2,494.87
Total	**3.91**	**25.48**	**16.73**	**0.03**		**2.05**	**2.05**		**2.05**	**2.05**		**2,487.53**		**0.35**		**2,494.87**

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										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	0.04	0.36	0.23	0.00	0.02	0.01	0.03	0.00	0.01	0.01		50.89		0.00		50.93
Worker	0.15	0.20	2.01	0.00	0.26	0.01	0.27	0.00	0.01	0.01		204.29		0.01		204.61
Total	**0.19**	**0.56**	**2.24**	**0.00**	**0.28**	**0.02**	**0.30**	**0.00**	**0.02**	**0.02**		**255.18**		**0.01**		**255.54**

3.7 Pipeline Installation - 2012

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	3.91	25.48	16.73	0.03		2.05	2.05		2.05	2.05	0.00	2,487.53		0.35		2,494.87
Total	**3.91**	**25.48**	**16.73**	**0.03**		**2.05**	**2.05**		**2.05**	**2.05**	**0.00**	**2,487.53**		**0.35**		**2,494.87**

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										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	0.04	0.36	0.23	0.00	0.02	0.01	0.03	0.00	0.01	0.01		50.89		0.00		50.93
Worker	0.15	0.20	2.01	0.00	0.26	0.01	0.27	0.00	0.01	0.01		204.29		0.01		204.61
Total	**0.19**	**0.56**	**2.24**	**0.00**	**0.28**	**0.02**	**0.30**	**0.00**	**0.02**	**0.02**		**255.18**		**0.01**		**255.54**

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

	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

	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
User Defined Industrial	14.70	6.60	6.60	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
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
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
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**

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										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
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										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

IWVWD Water Supply Improvement Project

Kern County APCD Air District, Annual

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 Rural

Wind Speed (m/s) 2.7

Utility Company

Climate Zone 7

Precipitation Freq (Days) 32

1.3 User Entered Comments

Project Characteristics -

Land Use - Site information - Well 35

Construction Phase - Based on Project Description

Off-road Equipment - Assumptions

Off-road Equipment - Assumptions

Off-road Equipment - Assumption

Off-road Equipment - Assumptions

Off-road Equipment - Assumption

Off-road Equipment - Assumption

Trips and VMT - Assumptions

Vehicle Trips - Inspection and Maintenance Assumption

Construction Off-road Equipment Mitigation -

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					
2012	0.53	3.22	2.44	0.00	0.09	0.22	0.31	0.03	0.22	0.25	0.00	341.93	341.93	0.04	0.00	342.85
Total	**0.53**	**3.22**	**2.44**	**0.00**	**0.09**	**0.22**	**0.31**	**0.03**	**0.22**	**0.25**	**0.00**	**341.93**	**341.93**	**0.04**	**0.00**	**342.85**

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					
2012	0.53	3.22	2.44	0.00	0.06	0.22	0.28	0.01	0.22	0.23	0.00	341.93	341.93	0.04	0.00	342.85
Total	**0.53**	**3.22**	**2.44**	**0.00**	**0.06**	**0.22**	**0.28**	**0.01**	**0.22**	**0.23**	**0.00**	**341.93**	**341.93**	**0.04**	**0.00**	**342.85**

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	0.00	0.00	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	0.00	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	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	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

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	0.00	0.00	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	0.00	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	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	**0.00**	**0.00**	**0.00**	**0.00**	**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

3.2 Site Preparation - 2012

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					
Fugitive Dust					0.06	0.00	0.06	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.06	0.47	0.24	0.00		0.02	0.02		0.02	0.02	0.00	43.85	43.85	0.00	0.00	43.94
Total	**0.06**	**0.47**	**0.24**	**0.00**	**0.06**	**0.02**	**0.08**	**0.03**	**0.02**	**0.05**	**0.00**	**43.85**	**43.85**	**0.00**	**0.00**	**43.94**

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	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	1.41	0.00	0.00	1.41
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.41**	**1.41**	**0.00**	**0.00**	**1.41**

3.2 Site Preparation - 2012

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					
Fugitive Dust					0.02	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.06	0.47	0.24	0.00		0.02	0.02		0.02	0.02	0.00	43.85	43.85	0.00	0.00	43.94
Total	**0.06**	**0.47**	**0.24**	**0.00**	**0.02**	**0.02**	**0.04**	**0.01**	**0.02**	**0.03**	**0.00**	**43.85**	**43.85**	**0.00**	**0.00**	**43.94**

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	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	1.41	0.00	0.00	1.41
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.41**	**1.41**	**0.00**	**0.00**	**1.41**

3.3 Well Drilling - 2012

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	0.08	0.67	0.60	0.00		0.05	0.05		0.05	0.05	0.00	87.15	87.15	0.01	0.00	87.28
Total	**0.08**	**0.67**	**0.60**	**0.00**		**0.05**	**0.05**		**0.05**	**0.05**	**0.00**	**87.15**	**87.15**	**0.01**	**0.00**	**87.28**

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	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	2.79	0.00	0.00	2.79
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.79**	**2.79**	**0.00**	**0.00**	**2.79**

3.3 Well Drilling - 2012

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	0.08	0.67	0.60	0.00		0.05	0.05		0.05	0.05	0.00	87.15	87.15	0.01	0.00	87.28
Total	**0.08**	**0.67**	**0.60**	**0.00**		**0.05**	**0.05**		**0.05**	**0.05**	**0.00**	**87.15**	**87.15**	**0.01**	**0.00**	**87.28**

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	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	2.79	0.00	0.00	2.79
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.79**	**2.79**	**0.00**	**0.00**	**2.79**

3.4 Ancillary Equipment - 2012

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	0.24	1.22	0.81	0.00		0.09	0.09		0.09	0.09	0.00	112.15	112.15	0.02	0.00	112.56
Total	**0.24**	**1.22**	**0.81**	**0.00**		**0.09**	**0.09**		**0.09**	**0.09**	**0.00**	**112.15**	**112.15**	**0.02**	**0.00**	**112.56**

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	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	0.00	0.00	4.00
Worker	0.01	0.01	0.12	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	11.15	11.15	0.00	0.00	11.17
Total	**0.01**	**0.04**	**0.14**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**15.15**	**15.15**	**0.00**	**0.00**	**15.17**

3.4 Ancillary Equipment - 2012

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	0.24	1.22	0.81	0.00		0.09	0.09		0.09	0.09	0.00	112.15	112.15	0.02	0.00	112.56
Total	**0.24**	**1.22**	**0.81**	**0.00**		**0.09**	**0.09**		**0.09**	**0.09**	**0.00**	**112.15**	**112.15**	**0.02**	**0.00**	**112.56**

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	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	0.00	0.00	4.00
Worker	0.01	0.01	0.12	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	11.15	11.15	0.00	0.00	11.17
Total	**0.01**	**0.04**	**0.14**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**15.15**	**15.15**	**0.00**	**0.00**	**15.17**

3.5 Chlorination Facilities Installation - 2012

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	0.09	0.46	0.31	0.00		0.03	0.03		0.03	0.03	0.00	42.54	42.54	0.01	0.00	42.70
Total	**0.09**	**0.46**	**0.31**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**42.54**	**42.54**	**0.01**	**0.00**	**42.70**

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	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.52	0.00	0.00	1.52
Worker	0.00	0.01	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.23	4.23	0.00	0.00	4.24
Total	**0.00**	**0.02**	**0.06**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.75**	**5.75**	**0.00**	**0.00**	**5.76**

3.5 Chlorination Facilities Installation - 2012

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	0.09	0.46	0.31	0.00		0.03	0.03		0.03	0.03	0.00	42.54	42.54	0.01	0.00	42.70
Total	**0.09**	**0.46**	**0.31**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**42.54**	**42.54**	**0.01**	**0.00**	**42.70**

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	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.52	0.00	0.00	1.52
Worker	0.00	0.01	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.23	4.23	0.00	0.00	4.24
Total	**0.00**	**0.02**	**0.06**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.75**	**5.75**	**0.00**	**0.00**	**5.76**

3.6 Well Testing - 2012

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	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.54	2.54	0.00	0.00	2.54
Total	**0.00**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.54**	**2.54**	**0.00**	**0.00**	**2.54**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.00	0.00	0.23
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.23**	**0.23**	**0.00**	**0.00**	**0.23**

3.6 Well Testing - 2012

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	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.54	2.54	0.00	0.00	2.54
Total	**0.00**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.54**	**2.54**	**0.00**	**0.00**	**2.54**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.00	0.00	0.23
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.23**	**0.23**	**0.00**	**0.00**	**0.23**

3.7 Pipeline Installation - 2012

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	0.04	0.29	0.19	0.00		0.02	0.02		0.02	0.02	0.00	25.94	25.94	0.00	0.00	26.02
Total	**0.04**	**0.29**	**0.19**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**25.94**	**25.94**	**0.00**	**0.00**	**26.02**

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	0.53	0.53	0.00	0.00	0.53
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	1.92	0.00	0.00	1.92
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.45**	**2.45**	**0.00**	**0.00**	**2.45**

3.7 Pipeline Installation - 2012

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	0.04	0.29	0.19	0.00		0.02	0.02		0.02	0.02	0.00	25.94	25.94	0.00	0.00	26.02
Total	**0.04**	**0.29**	**0.19**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**25.94**	**25.94**	**0.00**	**0.00**	**26.02**

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	0.53	0.53	0.00	0.00	0.53
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	1.92	0.00	0.00	1.92
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.45**	**2.45**	**0.00**	**0.00**	**2.45**

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	0.00	0.00	0.00	0.00	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

	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
User Defined Industrial	14.70	6.60	6.60	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	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
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
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					
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
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

	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					
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
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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Industrial	0					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Industrial	0					0.00	0.00	0.00	0.00
Total						**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	tons/yr										MT/yr					
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
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
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	0.00					0.00	0.00		0.00	0.00	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	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	**0.00**	**0.00**	**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	0.00					0.00	0.00		0.00	0.00	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	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	**0.00**	**0.00**	**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					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
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			
User Defined Industrial	0 / 0					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Industrial	0 / 0					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

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					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
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			
User Defined Industrial	0					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Industrial	0					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

9.0 Vegetation